The 31st BSVER

Annual Scientific Conference

(BSVER ASConXXXI)

Theme: ***Climate Change: Animal Health and Food Safety***



Organized by

Bangladesh Society for Veterinary Education and Research

The 31st BSVER Annual Scientific Conference
(BSVER ASConXXXI)

The 31st BSVER Annual Scientific Conference 2025
01-02 February 2025
Bangladesh Agricultural University, Mymensingh

Symposium Theme
Climate Change: Animal Health and Food Safety

Program, Abstracts and the Annual Lecture
Compiled and Edited by
Scientific and Publication Sub-committee
The 31st BSVER Annual Scientific Conference 2025

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Editorial

I am delighted to welcome you to the proceeding of the 31st Annual Scientific Conference of the Bangladesh Society for Veterinary Education and Research (BSVER ASConXXXI). The conference is going to be held on February 1-2, 2025, at the picturesque campus of Bangladesh Agricultural University, Mymensingh-2202.

The BSVER ASConXXXI invites plenary papers and abstracts of original research from diverse fields of veterinary and medical sciences. The committee has been greatly impressed by the enthusiastic response from authors, reflected in the substantial number of abstracts submitted. These submissions encompass a wide range of topics, including basic veterinary sciences, pre-clinical and clinical studies, zoonotic diseases, food safety, the impacts of climate change, antimicrobial resistance (AMR), anthelmintic resistance (AhR), and alternative medicines. After peer review, the Scientific and Publication Sub-Committee has accepted 90 abstracts for oral presentation and 161 for poster presentation. On this auspicious occasion, a keynote paper on **"Climate Change: Animal Health and Food Safety"** will be presented. In addition, five plenary lectures addressing important issues including *One Health, AMR Surveillance Capacity Building in Bangladesh, Methane Emission from Dairy and Beef Cattle and Adaptive Technologies on Agriculture and Livestock Value Chain* Development will be presented by nationally and internationally renowned scientists.

On behalf of the Scientific and Publication Sub-Committee, I extend my heartfelt gratitude to all the authors for their valuable contributions in submitting abstracts and presenting their research. I sincerely acknowledge the insightful guidance and support of **Professor Dr. Md. Kamrul Islam**, Chairman of the Scientific and Publication Sub-Committee, as well as the dedicated efforts of all esteemed committee members. I am also deeply thankful to the President and Secretary of BSVER, along with the Chairman and Secretary of the Organizing Committee of BSVER ASConXXXI, for their invaluable suggestions and unwavering cooperation throughout the preparation of this proceeding.

I hope the contents of this proceeding will illuminate the current trends in research across the diverse fields of veterinary science. Lastly, I apologize for any typographical errors or other mistakes that may have inadvertently occurred.

Professor Dr. Anisuzzaman
Member Secretary
Scientific and Publication Sub-committee
BSVER ASConXXXI
Department of Parasitology
Bangladesh Agricultural University
Mymensingh -2202, Bangladesh

PROGRAM

February 01, 2025 (Saturday)

INAUGURAL SESSION

Venue : **Shilpachariya Zainul Abedin Auditorium, BAU, Mymensingh**
0955h : Guests Take Seats
1000h : Recitation from the Holy Books
1005h : Address of Welcome
Prof. Dr. Mohammad Musharraf Uddin Bhuiyan
Chairman, Organizing Committee, BSVER ASCon XXXI
1010h : Introduction of Annual Lecture Awardee
Prof. Dr. Sukumar Saha, Secretary, BSVER
1015h : Annual Lecture
Prof. (Retd.) Dr. Md. Mostafizur Rahman
Dept. of Microbiology and Hygiene, BAU, Mymensingh
1045h : Tea Break
1100h : Address by the Special Guests
1100h : **Dr. A K M Khasruzzaman**, Managing Director, Inter Agro BD Ltd., Bangladesh
1110h : **Prof. Dr. Shah Monir Hossain**
Team Lead, The Fleming Fund Country Grant to Bangladesh
DAI Global LLC, Bangladesh
1120h : **Dr. Md. Abu Sufiun**
Director General, Department of Livestock Services, Bangladesh
1130h : **Prof. Dr. Md. Bahanur Rahman**
Dean, Faculty of Veterinary Science, BAU, Mymensingh
1140h : BSVER Honor
1155h : Address by the Chief Guest
Prof. Dr. A K Fazlul Haque Bhuiyan
Honorable Vice Chancellor, BAU, Mymensingh
1215h : Vote of Thanks
Prof. Dr. Mst. Minara Khatun
Secretary, Organizing Committee, BSVER ASCon XXXI
1220h : Address by the Chairman
Prof. Dr. Md. Alimul Islam, President, BSVER
1230h : SYMPOSIUM
Keynote Speaker:**Prof. Dr. Mohammed Shamsuddin**
Senior Animal Production and Health Officer, FAO, Ghana
1315h : Lunch and Prayer Break
1425h : **PLENARY SESSION**
Venue : Syed Nazrul Islam Conference Hall, BAU
1430h : Speaker : **Dr. Nazneen Akhter** and **Dr. Paritosh Kumar Biswas**
DAI, Bangladesh
1450h : Speaker : **Dr. Nure Alam Siddiky**
The Fleming Fund Country Grant to Bangladesh, DAI Global LLC, Bangladesh
1510h : Speaker : **Dr. SK Shaheenur Islam**
Department of Livestock Services, Bangladesh
1530h : Speaker : **Dr. Moin-Us Salam**, and **Dr. Bidyuth Kumar Mahalder**
ACDI/VOCA, Bangladesh
1550h : Speaker : **Md. Monoarul Islam**
Heifer International Bangladesh
1610h : Chairman's Remark
1620h-1700h: Tea Break
1830h : **Cultural Evening**
Venue : Shilpachariya Zainul Abedin Auditorium, BAU
2000h : **Conference Dinner**
Venue : Community Center, BAU

The 31st BSVER Annual Scientific Conference

(BSVER ASConXXXI)

PROGRAM

February 02, 2025 (Sunday)

9030h : **Oral Paper Session I**
Venue : Pathology Gallery, FVS
Oral Paper Session II
Venue : Physiology Gallery, FVS
Oral Paper Session III
Venue : Pharmacology Gallery, FVS

1100h : Tea Break

1115h : **Oral Paper Session IV**
Venue : Pathology Gallery, FVS
Oral Paper Session V
Venue : Physiology Gallery, FVS
Oral Paper Session VI
Venue : Pharmacology Gallery, FVS

1240h : **Poster Sessions** (Venue: Corridor Adjacent to Physiology and Pharmacology Galleries, Faculty Building 2, 2nd Floor, FVS, BAU)
Lunch and Prayer Break

1400h : **Oral Paper Session VII**
Venue : Pathology Gallery, FVS
Oral Paper Session VIII
Venue : Physiology Gallery, FVS
Oral Paper Session IX
Venue : Pharmacology Gallery, FVS

1500h : Tea Break

1515h : **Oral Paper Session X**
Venue : Pathology Gallery, FVS
Oral Paper Session XI
Venue : Physiology Gallery, FVS
Oral Paper Session XII
Venue : Pharmacology Gallery, FVS

1615h : Closing Session and AGM



Message from the

Chief Guest

I am delighted to know that the 31st Annual Scientific Conference (BSVER ASCon XXXI) of the Bangladesh Society for Veterinary Education and Research (BSVER) would take place in Bangladesh Agricultural University (BAU), Mymensingh, Bangladesh, on February 01–02, 2025.

It is a great privilege and honor to join this significant gathering organized by the Bangladesh Society for Veterinary Education and Research (BSVER). The theme, **"Climate Change: Animal Health and Food Safety,"** underscores an issue of global urgency, one that impacts not only our nation but the entire world.

Climate change is reshaping ecosystems, altering disease patterns, and posing new threats to animal health and food safety. These changes demand a united effort to mitigate risks and adapt to evolving challenges. Veterinary professionals play a pivotal role in this endeavor, ensuring the health of animals, the sustainability of healthy food systems, and ultimately, the well-being of human populations.

This conference provides an invaluable platform for exchanging ideas, sharing research findings, and fostering collaboration among experts and stakeholders. We can build resilience and develop innovative strategies to combat the multifaceted impacts of climate change.

I thank all of the participants for their dedication to tackling these important issues, and I applaud the organizers for choosing such a relevant matter. I hope that this event will spark meaningful conversations and motivate practical ideas for a sustainable future.

I wish every success of BSVER and this conference.

Professor Dr. A K Fazlul Haque Bhuiyan
Vice-Chancellor
Bangladesh Agricultural University
Mymensingh



Message from the

Special Guest

I am pleased to know that Bangladesh Society for Veterinary Education and Research (BSVER) is going to organize the 31st Annual Scientific Conference (BSVER ASCon XXXI) on February 01-02, 2025 at Bangladesh Agricultural University (BAU), Mymensingh, Bangladesh. It is my honor to welcome you to this year's conference, focused on the theme, **"Climate Change: Animal Health and Food Safety"**. As Dean of the Faculty of Veterinary Science, it is also a great opportunity for me to welcome all the academicians, veterinarians, researchers, entrepreneurs, print and electronic media personnel in BSVER ASCon XXXI at the evergreen campus of Bangladesh Agricultural University, Mymensingh, Bangladesh.

In today's rapidly changing world, climate change poses unprecedented challenges to animal health, welfare, and the safety of the food systems we depend on. Rising temperatures, altered weather patterns, and emerging diseases are reshaping how we address the health of animals and the security of our global food supply.

This conference provides a unique platform for researchers, educators, policymakers, and practitioners to engage in meaningful dialogue, share cutting-edge research findings, and collaborate on sustainable solutions. Together, we can address the complexities of these critical issues and contribute to a healthier and safer future for animals, humans, and our shared environment.

Veterinarians, researchers, and physicians are also working together in One health (OH) platforms to protect animal health, human health and food safety through production of food of animal origins. Let us seize this opportunity to exchange ideas, foster innovation and reinforce our commitment to advancing veterinary education and research. I look forward to your active participation and invaluable contributions to this vital conversation.

Professor Dr. Md. Bahanur Rahman
Dean, Faculty of Veterinary Science
Bangladesh Agricultural University
Mymensingh



Message from the

Special Guest

I am distinctly honored to extend my heartfelt congratulations to the Bangladesh Society for Veterinary Education and Research (BSVER) on organizing its 31st Annual Scientific Conference (BSVER ASCon XXXI), scheduled to take place on February 01-02, 2025, at Bangladesh Agricultural University, Mymensingh. This year's theme, **"Climate Change: Animal Health and Food Safety"** addressing the pressing challenges posed by climate change to the livestock sector is both timely and highly relevant.

The wide-ranging impacts of climate change, including rising temperatures, shifting climatic patterns, and the increased frequency of extreme weather events, are profoundly influencing disease dynamics, ecosystems, and livestock health. Not only do these challenges threaten animal welfare but also public health and the sustainability of global food systems.

In Bangladesh, where the livestock sector is a cornerstone of rural livelihoods and national food security, it is essential to adopt adaptive measures and innovative solutions. Effective collaborations among policymakers, researchers, veterinarians, and farmers are key to mitigating the risks associated with climate change. Strengthening disease surveillance, promoting climate-resilient farming practices, and ensuring the safety of food products are critical steps toward safeguarding the health of animals and humans alike.

The Department of Livestock Services (DLS) under the Ministry of Fisheries and Livestock (MoFL) remains steadfast in its commitment to supporting research and initiatives aimed at addressing these challenges. Together, we can build resilient livestock systems that not only withstand the adverse effects of climate change but also contribute to a healthier, more secure future for all.

I extend my best wishes for the success of this conference and look forward to the valuable insights and actionable recommendations it generates. Let us seize this opportunity to reaffirm our collective commitment to protecting animal health, ensuring food safety, and addressing the realities of a changing climate with resilience and determination.

I wish the conference every success.

Dr. Md. Abu Sufiun
Director General
Department of Livestock Services



Message from the

Special Guest

I am happy to learn that the 31st BSVER Annual Scientific Conference (BSVER ASCon XXXI) its going to be held at Bangladesh Agricultural University (BAU), Mymensingh, Bangladesh, on February 1-2, 2025. Given the current threat and breadth of climate change in relation to animal health and food safety, the theme of this BSVER, **"Climate Change: Animal Health and Food Safety"** is crucial.

Climate change is no longer a distant threat; its impacts are unfolding around us in real time, affecting ecosystems, agriculture, and, significantly, animal health. Changes in temperature, humidity, and precipitation patterns have altered the dynamics of diseases, leading to the emergence and re-emergence of zoonotic and vector-borne illnesses. These diseases not only jeopardize the health of animals but also pose serious risks to public health, as animals remain a cornerstone of our food systems and livelihoods.

Moreover, the safety and sustainability of our food supply are directly linked to how we respond to these challenges. Extreme weather events, disruptions in feed supply, and water scarcity threaten livestock production and, by extension, global food security. The integrity of food safety is also at risk, as changing environmental conditions can exacerbate microbial contamination and toxin proliferation in animal-derived food products.

In this context, veterinarians, researchers, and policymakers are at the forefront of a global effort to mitigate and adapt to the impacts of climate change. By fostering cross-disciplinary collaboration, advancing research in climate-resilient veterinary practices, and developing sustainable agricultural systems, we can protect animal health whilst safeguarding the food security for future generations.

I wish every success of this conference

Prof. Dr. Shah Monir Hossain
Team Lead
The Flaming Fund Country Grant to Bangladesh
DAI Global UK, Bangladesh



Message from the
Special Guest

INTER AGRO BD LTD.

I am glad to know that Bangladesh Society for Veterinary Education and Research (BSVER) is going to organize the 31st annual scientific conference (BSVER ASConXXXI) on February 01-02, 2025 at Bangladesh Agricultural University (BAU), Mymensingh, Bangladesh.

It is both an honor and a privilege to stand before you today at this important gathering that highlights a theme of paramount importance: **"Climate Change: Animal Health and Food Safety."** Climate change is no longer a distant threat; it is a reality we face every day. Its effects, that include rising temperatures, unpredictable weather patterns, and the emergence of new diseases, are significantly impacting animal health, agriculture, and food systems worldwide.

Healthy animals are the cornerstone of safe food production, and as climate change disrupts ecosystems, it places additional stress on animal health and the systems that sustain food safety. Addressing these challenges requires a collective response that combines science, innovation, and policy.

Today, as we come together, let us recognize our shared responsibility. By fostering collaboration between researchers, veterinarians, policymakers, and industries, we can develop adaptive strategies to protect animal health and ensure food safety, even in the face of changing climates.

Let us also commit to investing in education, research, and sustainable practices that can mitigate climate risks while safeguarding our food systems and public health. I am deeply inspired by the work of this community, and I am confident that the discussions and outcomes from this gathering will make meaningful contributions to addressing these global challenges.

Thank you, and I wish you all a productive and inspiring conference.

Dr. AKM Khasruzzaman
Managing Director, Inter Agro BD Ltd.



Presidential Message

Dear Colleagues, Distinguished Guests and Delegates,

As President of the Bangladesh Society for Veterinary Education and Research (BSVER), it is my great privilege to welcome you to this year's conference, centered around the theme **"Climate Change: Animal Health and Food Safety."** This theme reflects an urgent global issue that demands our collective expertise, innovation, and action.

Climate change is reshaping the world in profound ways, with far-reaching consequences for ecosystems, animal health, and food security. Rising temperatures, altered rainfall patterns, and extreme weather events are driving the emergence and re-emergence of diseases, disrupting agricultural eco-systems and threatening the delicate balance among humans, animals and the environmental health.

As veterinarians, researchers, and educators, we are at the forefront of addressing these challenges. Our role extends beyond safeguarding animal health—it encompasses ensuring food safety, protecting livelihoods, and contributing to global sustainability. This conference provides an invaluable opportunity to exchange knowledge, showcase research, and foster partnerships that can lead to transformative solutions.

I encourage each of you to engage fulltime in the inaugural and scientific discussions, workshops and networking opportunities during this conference. Let us share our experiences, challenges, and ideas as we work toward practical strategies to mitigate the effects of climate change on animal health and food safety systems. Together, we can strengthen the resilience of our communities and ensure a healthier, more sustainable future for all.

I extend my heartfelt gratitude to the organizers, sponsors, and participants whose dedication and commitment have made this conference possible. Your contributions are a testament to the strength and unity of our veterinary community.

Let us approach this conference with a spirit of collaboration and determination and sharing the effective service as a beacon of hope and progress in the face of the climate crisis.

Prof. Dr. Md. Alimul Islam
President, BSVER



Message from the Organizing Chairman

Distinguished Guests, Respected Teachers, Fellow Scientists and Dear Participants,

Assalamu Alaikum and Good Morning.

I feel privileged and honored to welcome you all to the 31st Annual Scientific Conference organized by the Bangladesh Society for Veterinary Education and Research (BSVER ASCon XXXI) at the green campus of Bangladesh Agricultural University The theme of this year's conference is **"Climate Change: Animal Health and Food Safety"** and its discussion will address not only the various aspects of animal health, but will also address how climate change play a pivotal role in animal health and its interconnectedness with food safety.

As the impacts of climate change are intensifying, our interconnected ecosystems are facing unprecedented stress resulting in shifting weather patterns, emerging diseases and compromised food systems. For mitigation of these negative impacts, we need to adapt proper innovation, collaboration and strong commitments for sustainable practices.

Since its inception in 1994, the BSVER has been serving as an important platform for veterinarians, researchers, academicians, policymakers and entrepreneurs to come together for sharing their views and exploring actionable solutions. Over the coming days, we will require to allocate enough fund for ground breaking research, exchanging ideas, and fostering partnerships that will guide us toward a resilient future for animal health and food safety. Let us use this opportunity not only to broaden our knowledge but also to strengthen the bonds within our professional community. Together, we can lead the way in building a world where the impacts of climate change are mitigated, the health of animals is safeguarded, and food systems remain secured for generations to come.

A renowned microbiologist, Prof. (Retd) Dr. Md. Mostafizur Rahman, Department of Microbiology and Hygiene, BAU has been selected as the Annual Lecture Awardee and 10 other respected teachers will be felicitated in this conference. Moreover, a total of 251 abstracts will be presented among which 90 abstracts will be presented in 10 technical sessions and 161 abstracts will be presented as posters. One best oral paper presenter with ≤ 35 years old from each technical session and three best posters will be awarded in this two-day conference.

Lastly, I would like to thank our honorable chief guest, special guests, annual lecture awardee, felicitated teachers, presenters, participants, sponsors, members of BSVER executive committee, members of different sub-committees, and members of print and electronic media for your presence, participation and cooperation.

Let us make the conference a success and I wish your enjoyable and pleasant stay in BAU campus.

Prof. Dr. Mohammad Musharraf Uddin Bhuiyan
Chairman, Organizing Committee



Message from the Secretary

I esteem it a rare privilege to welcome you to the 31st BSVER Annual Scientific Conference (BSVER ASConXXXI) at Bangladesh Agricultural University on February 1-2, 2025. Like all of you, I am enthused by the conference theme, **"Climate Change: Animal Health and Food Safety."**

The pressing realities and the vicious cycle of climate change demand close attention to battle successfully with climate change impacts to keep animal health, food security, and public health systems unblemished worldwide. The two-day long conference, recognized as a critical platform for exchanging knowledge, experiences and innovations, is committed to combatting these interconnected challenges by bringing together experts, researchers, policymakers, and practitioners on multiple facets of climate change.

BSVER is humbly honored to host this precious event, which aligns with our unwavering commitment to promoting scientific dialogue and practical solutions in veterinary sciences in the country and beyond the border. We hope to explore actionable strategies through insightful discussions and collaborative efforts to mitigate the impacts of climate change while ensuring sustainable animal agriculture and food safety down the road.

You can rest assured that the deliberations at this conference will help us future-proof the decisions we make today and foster partnerships that focus on meaningful change in our shared fields of interest.

I extend my deepest gratitude to our distinguished speakers, delegates, and sponsors for their contributions to making this event possible. Let us take the opportunity to learn, innovate, and collaborate to enhance animal health and food safety in the face of an ever-changing climate.

I wish you a worthwhile and impactful conference.

Prof. Dr. Sukumar Saha
Secretary, BSVER



Vote of Thanks

I am deeply honored to serve as the organizing secretary for the 31st BSVER Annual Scientific Conference (BSVER ASCon XXXI) organized by the Bangladesh Society for Veterinary Education and Research (BSVER) on February 1-2, 2025, at the BAU campus. I express my sincere thanks to the Executive Committee of BSVER for entrusting me with this responsibility. The conference theme, **"Climate Change: Animal Health and Food Safety"** emphasizes the interconnected challenges of animal, human, and environmental health, aligning with the One Health approach.

On behalf of the organizing committee, heartfelt gratitude is extended to Prof. Dr. A K Fazlul Haque Bhuiyan, Vice-Chancellor of Bangladesh Agricultural University, for serving as Chief Guest and inaugurating the conference. This year, BSVER proudly confers the Annual Lecture Award to Prof. Dr. Md. Mostafizur Rahman, Former faculty, Dept. of Microbiology and Hygiene, BAU for his significant contributions to veterinary science. Appreciation is also extended to Special Guests: Prof. Dr. Md. Bahanur Rahman, Dean, FVS, BAU; Dr. Md. Abu Sufiun, DG, DLS; Prof. Dr. Shah Monir Hossain, The Fleming Fund Country Grant and Dr. A.K.M Khasruzzaman, Managing Director, Inter Agro BD Ltd. for their valuable presence and support.

Heartfelt gratitude is extended to Prof. Dr. Mohammad Shamsuddin (FAO, Ghana), Prof. Dr. Mahbub Alam (BAU), and Prof. Dr. A.T.M. Mahbub-E-Elahi (SAU, Sylhet) for their presence as keynote speakers and discussants on the conference's thematic paper. Appreciation is also given to Plenary Speakers Dr. Nazneen Akhter (DAI), Dr. Paritosh Kumar Biswas (DAI), Dr. Nure Alam Siddiky (The Fleming Fund Bangladesh Country Grant), Dr. SK Shaheenur Islam (DLS), Dr. Moin Us Salam (ACDI/VOCA), Dr. Bidyuth Kumar Mahalder (ACDI/VOCA) and Md. Monoarul Islam (Heifer International Bangladesh) for their valuable contributions. Thanks are extended to oral and poster presenters for sharing insights, enriching discussions on the challenges and opportunities in animal health and food safety in context of climate change.

We gratefully acknowledge all contributions by Fleming Fund Country Grant to Bangladesh, USDA Climate Smart Livestock Project, Bangladesh, Heifer International Bangladesh, UGC, BAU, SAU, KGF, Inter Agro BD Ltd., The ACME Veterinary Division, Paragon Agro Ltd. ACI Animal Health, Nourish Bangladesh, Dutch-Bangla Bank Limited, Animal Health Division, Renata PLC, Adyan Agro Limited, FnF Pharmaceuticles Ltd., Jims Tech International, Diamond Organic Fertilize Limited, Kazi Farms, Pubali Bank PLC, Bengal Overseas Limited, Incepta Pharmaceuticles Ltd, KAAS Trade, Eon Animal Health Products Ltd., Brac Artificial Insemination Enterprise, Novivo Healthcare Limited, Veterinary Divison, Navana Pharmaceuticles PLC, Gentry Pharmaceuticles Limited, Agrovet Division, Square Pharmaceuticles PLC, Animal Health Division, Eskayef Pharmaceuticles Ltd. for their financial support in making BSVER ASConXXXI possible.

Special thanks go to the executive, organizing, and sub-committees, Session Chairs, Co-chairs, Rapporteurs, volunteers, students, and staff for their dedication and hard work. Appreciation is also extended to journalists and media representatives for their cooperation and support in ensuring the conference's success.

I hope everyone a pleasant and successful conference experience, as well as positive interactions during this two-day event held on the vibrant springtime campus of BAU.

Prof. Dr. Mst. Minara Khatun
Secretary, Organizing Committee



Biography of

Professor Dr. Md. Mostafizur Rahman

Professor Dr. Md. Mostafizur Rahman was born in Sariakandi Upazila, Bogura District, Bangladesh on June 30, 1952. He is a distinguished academician and researcher whose contributions span decades of excellence in Veterinary Science, Microbiology, and Immunology.

Dr. Rahman earned his Doctor of Veterinary Medicine (DVM) degree in 1974 and a Master of Science (MSc) in Microbiology in 1975, both from the Bangladesh Agricultural University (BAU). His academic journey continued with a Ph.D. in Microbiology and Immunology from Haryana Agricultural University (HAU), India, in 1985, and a Post-Doctoral Fellowship in Molecular Virology from Chang Gung University Medical School, Taiwan.

Dr. Rahman began his academic career as a Lecturer in the Department of Microbiology and Hygiene at BAU in 1976 and was promoted to Professor after 16 years of dedicated service. Over his career, he also completed 19 major research projects in the country and abroad, published over 130 research articles, and supervised 52 MSc and 15 Ph.D. students in the fields of Virology, Bacteriology, Molecular-biology & Immunology. He also served two terms as Head of the Department of Microbiology and Hygiene and two terms as Hall Administrator at BAU.

Apart from teaching, Dr. Rahman held consultancy roles, including with the Ministry of Fisheries and Livestock (2004–2006), where he contributed to the production of vaccines for Foot-and-Mouth Disease and Fowl Typhoid. He also served as an FMD specialist for the Food and Agriculture Organization (FAO) of the United Nations (2008–2009).

Dr. Rahman's international engagements include being an Invitation Professor at esteemed institutions:

- Federal Research Centre for Virus Diseases of Animals, Germany (1998, DAAD)
- National Institute of Health Sciences, Tokyo, Japan (2000, STA)
- Osaka University Medical School, Japan (2001, JSPS)
- University of Reading, UK (2005, Royal Society).

From 2006 to 2008, Dr. Rahman was a Professor in the Department of Medical Microbiology and Immunology at the National University of Malaysia (UKM), Kuala Lumpur. After early retirement, he continued as a Professor at UKM's Faculty of Medicine until 2016.

Dr. Rahman authored two scientific and three Islamic books, and a book on memorable events of his life. His scholarly excellence has been recognized with prestigious awards, including the Certificate of Merit for his Ph.D. program (1985, HAU, India) and the Award of Excellence (2008, UKM, Malaysia).

Retired since June 2016, Dr. Rahman now dedicates his time to Islamic writing. He is happily married with Rehana Aktar and blessed with three daughters and one son.

Annual Lecture

Updates in Veterinary and Medical Education and Research with Actionable Suggestions

Dr. Md. Mostafizur Rahman
Professor (Retd.) Department of Microbiology and Hygiene
Bangladesh Agricultural University

Introduction

- I'm delighted to be here to discuss an essential topic that directly impacts both Veterinary and Medical professionals and society at large.
- As you all know, Veterinary and Medical fields are rapidly evolving. Continuous updates in education and research are critical to keep pace with emerging challenges and opportunities.
- Today, I aim to highlight recent advancements in Veterinary and Medical education and research.
- We will explore their practical significance in real-world applications and propose actionable suggestions for further improvements

Curricular Innovations

- **Technology Integration:**

- Virtual reality (VR) and augmented reality (AR) are revolutionizing how students learn complex procedures like Microbiology, Molecular-biology, Immunology, Pathology, Parasitology, Anatomy, Physiology, Pharmacology, Medicine Surgery and Diagnostics. For instance, VR simulations provide a risk-free environment to practice all disciplines of Veterinary and Medical Sciences.
- Hybrid learning models combine online platforms with traditional classroom instruction, allowing students to access resources anytime, anywhere.

- **Competency-Based Education:**

- The shift from rote memorization to skills-based training ensures that students graduate with practical, hands-on experience.
- Programs are increasingly focusing on problem-solving, critical thinking, and adaptability to prepare students for real-world challenges.
- Practical works should be included in all disciplines reducing theories as and where needed
- Problem based learning (PBL) and Professional and Personal Development (PPD) skills help the students to be competent in their practical fields.

Interdisciplinary Approaches

- **One Health Concept:**

- The One Health framework integrates human, animal, and environmental health, emphasizing their interdependence.
- Education now includes training on zoonotic diseases, climate change impacts, and sustainable healthcare practices.

- **Collaborative Learning:**

- Veterinary and Medical schools are fostering partnerships to tackle shared challenges like

pandemic preparedness and antimicrobial resistance.

- Joint programs encourage students from both fields to work together, breaking traditional silos.

Key Areas of Research

- **Translational Diagnostic Fields:**
  - This research bridges the gap between basic science and clinical practice leading to more effective therapies for both animals and humans.
- **Genomics and Personalized Medicine:**
  - Advances in genetic profiling are enabling targeted treatments tailored to individual needs, enhancing outcomes and reducing side effects.
  - In Veterinary Medicine, genomic research is helping improve breeding programs and disease resistance in livestock.
- **Antimicrobial Resistance (AMR):**
  - Researchers are developing alternative therapies, such as bacteriophage therapy, to combat AMR.
  - Studies are also focusing on educating practitioners about responsible antibiotic use.
- **Emerging Disseases:**
  - Research on zoonotic diseases like COVID-19, avian influenza, and rabies is crucial to global health security.
  - Efforts are directed toward early detection, vaccine development, and containment strategies.
- **Technological Advancements**
  - Artificial intelligence (AI) and machine learning are transforming diagnostics, enabling faster and more accurate results.
  - Bioinformatics tools are being used to analyze large datasets, unlocking insights into disease patterns and treatment efficacy.

Significance of Updates in Practical Fields

- **Enhanced Patient Care:**
  - Advancements in education and research have led to improved diagnostic accuracy and treatment outcomes for both human and animal patients.
  - Early disease detection and personalized treatments reduce morbidity and mortality rates.
- **Public Health Impact:**
  - Better understanding and control of zoonotic diseases protect both human and animal populations.
  - Vaccination programs and research-driven policies contribute to global health initiatives.
- **Economic and Social Benefits:**
  - Healthier livestock contributes to food security and economic stability in agricultural communities.
  - Preventive healthcare reduces long-term costs for individuals and healthcare systems.

- **Environmental Sustainability:**

➢ Research on eco-friendly veterinary practices and wildlife conservation helps protect biodiversity.

➢ Education programs promote awareness about the impact of environmental changes on health.

Suggestions for Updating Education and Research

- **For Educational Institutions:**

➢ Regularly update curricula to reflect new knowledge and technological advancements.

➢ Introduce interdisciplinary courses that bridge Veterinary and Medical sciences.

➢ Invest in state-of-the-art training tools, including virtual labs and telemedicine platforms.

- **For Researchers and Practitioners:**

➢ Focus on collaborative research that addresses pressing global health challenges.

➢ Ensure that research findings are translated into actionable practices.

➢ Publish in open-access journals to ensure widespread dissemination of knowledge.

- **For the Community:**

➢ Advocate for increased funding and policy support for educational and research initiatives.

➢ Engage in community awareness programs to emphasize the importance of One Health.

➢ Support partnerships between local and global organizations to enhance research and education.

Actionable Suggestions

Problem-Based Learning (PBL) in Veterinary Sciences

Problem-Based Learning (PBL) is an active, student-centered educational approach particularly in Veterinary Sciences, where students apply theoretical knowledge to practical, real-world problems. This method fosters critical thinking, collaborative skills, and lifelong learning—essential for veterinary professionals. It includes,

➢ Problem Presentation

➢ Idea Generation (Brainstorming)

➢ Research and Self-Directed Learning

➢ Solution Development

➢ Implementation (Optional or Simulated)

➢ Reflection and Feedback

- **Benefits of PBL in Veterinary Sciences:**

➢ **Integration of Knowledge:** Combines anatomy, physiology, microbiology, and clinical practice.

➢ **Real-World Preparation:** Students tackle real-life scenarios, preparing for future veterinary roles.

➢ **Collaboration Skills:** Emphasizes teamwork, a crucial skill in multi-disciplinary veterinary practice.

➢ **Critical Thinking:** Encourages diagnostic reasoning and ethical decision-making.

- **Adaptability:** Develops the ability to handle uncertain or incomplete information, common in Veterinary Medicine.

Professional and Personal Development (PPD) Guidelines for Veterinary Students

Veterinary students must balance academic rigor with the development of professional skills and personal growth. The following guidelines aim to prepare students for successful and fulfilling careers in Veterinary Medicine. It includes,

- Academic Excellence and Lifelong Learning
- Clinical and Practical Skills
- Professionalism
- Personal Development
- Leadership and Advocacy
- Business Acumen
- Technological Proficiency
- Reflective Practice and Goal Setting

Diverse Veterinary Specializations Recently:

Companion Animal Medicine, Food Animal Medicine, Veterinary and Medical Microbiology, Equine Medicine, Wildlife and Zoo Medicine, Public Health and Epidemiology, Laboratory Animal Medicine, Veterinary Pathology, Veterinary Surgery, Veterinary Dermatology, Veterinary Oncology, Veterinary Anesthesiology, Veterinary Behavior, Aquatic Animal Medicine, Veterinary Radiology, Veterinary Nutrition, Veterinary Dentistry, Regulatory Veterinary Medicine, Veterinary Research and Education, Medical Research and Education

Concluding Remarks

- Veterinary and medical education and research are evolving to meet modern challenges. Staying up to date is crucial for ensuring better health outcomes, sustainability, and preparedness.
- I urge educators, researchers, practitioners, and community members to work together to advance these fields. Collaboration and innovation are key to tackling future challenges.
- Incorporating both PBL and PPD makes professional competence and personal resilience are essential for veterinary students. By adhering to these guidelines, students can prepare for the multifaceted challenges of Veterinary Medicine while fostering personal well-being and career satisfaction.



Biography of Keynote Speaker

Mohammed Shamsuddin
Food and Agriculture Organization of the
United Nations – FAO
Regional Office for Africa
Accra, Ghana

Mohammed Shamsuddin is a veterinarian with postgraduate trainings and a PhD degree in Theriogenology. He graduated from Bangladesh Agricultural University in 1985.

Shamsuddin is a global authority in animal health, production and One Health. He leads FAO's Africa regional programme on Animal Production Systems and One Health. He drives sustainable livestock transformation, disease control, and One Health implementation in 47 sub-saharan countries. His expertise encompasses diverse livestock systems, including smallholder, intensive, pastoralist, and transhumance practices, fostering multisectoral progress in animal health and production.

Shamsuddin has authored key studies on integrating One Health approaches into livestock and wildlife health and management in East and Southeast Asia. He has led the development of animal health emergency preparedness plans, food safety risk assessments, surveillance systems, and vaccination strategies for countries such as Bangladesh, Myanmar, Nepal, Papua New Guinea, and Vietnam. His global contributions include strengthening laboratory networks in Kyrgyzstan and Mongolia, supporting nomadic livestock systems in the Peruvian Andes, and addressing anthelmintic resistance in intensive systems in Argentina and Brazil.

Shamsuddin maintains a strong professional network, collaborating with organisations such as the World Bank, African Development Bank, European Union, Bill & Melinda Gates Foundation, and USAID to drive sustainable livestock sector transformation. With more than 220 publications, he remains a leading voice in transforming global agrifood systems and advancing animal production and health.

Shamsuddin began his career as a civil servant in 1987 before transitioning to academia at Bangladesh Agricultural University. He joined the International Atomic Energy Agency in 2012 and the UN's Food and Agriculture Organization in 2019. He has supported livestock development in 50 countries, traveling across 60 nations and all continents.

Symposium (Keynote)

Date : 1 February 2025 (Saturday)
Time : 09.30-11.00
Venue : Shilpachariya Zainul Abedin Auditorium, BAU

Chairman : **Professor Dr. Emdadul Haque Chowdhury**
Department of Pathology
Bangladesh Agricultural University, Mymensingh

Co-Chairman : **Dr. Md. Mostofa Kamal**
Director (Research, Training and Evaluation), LRI, Dhaka

Discussants : **Professor Dr. Md. Mahbub Alam**
Department of Medicine
Bangladesh Agricultural University, Mymensingh
Professor Dr. A.T.M. Mahbub-E-Elahi
Department of Microbiology and Immunology
Sylhet Agricultural University

Rapporteurs : **Professor Dr. Md. Mahmudul Alam**
Department of Surgery and Obstetrics
Bangladesh Agricultural University, Mymensingh
Professor Dr. Md. Zahorul Islam
Department of Pharmacology
Bangladesh Agricultural University, Mymensingh

Keynote Paper

Climate Change: Animal Health and Food Safety

Mohammed Shamsuddin
Food and Agriculture Organization of the United Nations – FAO
Regional Office for Africa
Accra, Ghana

Background

Livestock plays a pivotal role in Bangladesh's food security, nutrition, livelihoods, and economy. As a cornerstone of rural development, the sector contributes approximately 1.4% to the national GDP and supports the livelihoods of over 20 million households, making it a linchpin of rural development and food security. It ensures dietary diversity and is a critical source of essential nutrients, including protein, vitamins, and minerals. Beyond direct consumption and provision of a family safety net, livestock supports crop production through manure used as fertilizer. It supports millions of smallholder farmers, particularly women, who play a significant role in animal husbandry. Livestock-related activities such as dairy farming, poultry rearing, fattening for beef, and provisions of inputs, services, and value chain actions provide opportunities for poverty alleviation and women and youth empowerment.

However, the intertwined challenges of climate change, animal health, emerging diseases, zoonoses, antimicrobial resistance (AMR), and food safety affect the sustainable transformation and resilience of the livestock sector. The livestock rearing and value chain actions impact climate change through greenhouse gas (GHG) emissions. Vis à vis, climate change threatens the livestock sector and the livelihoods. Natural disasters such as floods, and cyclones have caused losses of millions of livestock in the past decade and disrupted farm infrastructure, livestock markets, and value chains, leading to income losses for producers and value chain actors. Reduced productivity and increased mortality due to disease outbreaks and feed scarcity further strain household incomes. Climate variability fosters the proliferation of disease vectors, further aggravating the burden of transboundary animal diseases (TADs) and zoonoses. Additionally, the economic burden of treating animal diseases and managing foodborne illness, zoonotic outbreaks, AMR, and emerging diseases diverts resources from other development priorities. As Bangladesh grapples with the dual challenges of rapid population growth and climate change, ensuring a resilient livestock sector has become imperative for achieving sustainable food security and economic stability.

This presentation focuses on some priority issues and actions to address climate change and its impacts on and interactions with animal health and production and public health, including zoonoses, food safety, and AMR. It also highlights the policy and institutional challenges and provides a few ways forward to address the challenges. This effort is not a comprehensive review.

Climate Change Impacts on Animal Health and Production

Global warming poses a dual threat to livestock: increased vulnerability to diseases and reduced productivity. Rising temperatures and humidity favour the proliferation of pathogens and vectors, driving the spread of TADs and zoonoses such as zoonotic influenza, anthrax, brucellosis, zoonotic tuberculosis, and Nipah virus. Climate changes favour/drive new vectors that can bring new pathogens. These diseases not only compromise animal health but also pose significant risks to public health.

Animal and zoonotic diseases significantly burden the national economy, resulting in reduced productivity, higher mortality, limited trades, and financial losses across the livestock value chain. For instance, diseases like foot-and-mouth disease (FMD), peste des petits ruminants (PPR), and avian influenza lead to direct economic losses by animal losses, decreasing milk, meat, and egg yields and increasing treatment costs. Indirect losses include diminished labor efficiency, reduced market access, and lower consumer confidence in animal-source foods. Controlling these diseases requires substantial investments in vaccination programs, biosecurity measures, disease surveillance systems, and response resources to minimise their socioeconomic impacts.

Climate-induced stresses further reduce livestock productivity, affecting growth rates, reproduction, and milk yield. Heat stress, in particular, is a major challenge for cattle, goats, and poultry. Droughts and water scarcity further limit the availability of quality fodders and water, while floods and waterlogging damage pastures, favour vectors proliferation and contaminate water sources, increasing the risk of diseases.

To safeguard livelihoods, fostering public and private investments is essential in veterinary services, insurance schemes, and biosecurity-biosafety measures. Innovations in climate-resilient technologies, building resilient value chains, and diversifying income streams through integrated farming systems can also enhance economic stability for rural households.

Food Safety and Public Health

Unsafe food remains a significant public health burden in Bangladesh, with approximately 30 million people suffering from foodborne illnesses annually. Livestock products, including meat, milk, and eggs, are often implicated due to contamination during production, processing, or storage. The prevalence of common pathogens such as Salmonella, E. coli, and Campylobacter is exacerbated by poor hygiene and limited awareness of food safety knowledge and practices.

Climate change further aggravates food safety risks. Higher temperatures and humidity accelerate the growth of harmful microorganisms, while flooding and poor waste management increase the likelihood of contamination. These factors disproportionately affect children under five, who are more susceptible to malnutrition and stunted growth due to recurring foodborne illnesses.

Improving food safety requires targeted investments in infrastructure for clean water, sanitation, waste management, and cold chain systems for perishable products like animal-source foods. Using a One Health approach, strengthening regulatory frameworks, ensuring adherence to hygiene standards, and incentivizing good practices across the value chain could improve food safety. Labeling of food products and public awareness campaigns about hygienic food handling practices can also reduce the incidence of foodborne diseases.

Animal Health and Antimicrobial Resistance

The overuse of antimicrobials in livestock production has led to the emergence of AMR, posing a global health challenge. In Bangladesh, the irrational and increased use of antibiotics in disease treatments and animal farming contributes to the development of resistant pathogens, endangering both animal and human health.

AMR reduces the effectiveness of treatments, leading to prolonged illnesses, increased mortality, and higher healthcare costs. It also impacts food safety by compromising the quality of animal-source foods thereby eroding consumer confidence and market viability. Addressing AMR requires a coordinated One Health approach, integrating animal, human, and environmental health perspectives.

Key strategies include enforcing regulations and strengthening stewardship on the prudent use of antimicrobials, promoting good animal husbandry practices, and investing in alternatives such as vaccines and probiotics. Public awareness campaigns, improving biosecurity biosafety along the production and value chains, and capacity building for veterinarians and farmers can further reduce reliance on antimicrobials.

Policy and Institutional Challenges

The effectiveness of animal health and production systems in Bangladesh is constrained by policy and institutional gaps. Overlapping mandates, lack of subsidiary legislation, and inadequate infrastructure hinder the implementation of existing frameworks, causing limited surveillance and diagnostic capacities that affect early detection and response to disease outbreaks. A paradigm shift in the Department of Livestock Services towards delivering more public goods functions is overdue. Examples of some key public goods are regulatory functions, the provision of data systems for early warning and informed investment decisions, prevention and control of TADs, zoonoses, food safety, and AMR mitigation.

Investments in laboratory modernization and networking, risk assessment, and veterinary education are

critical to strengthening the sector. Aligning national policies with international best practices and fostering multisectoral collaboration can enhance resilience and efficiency. The policy must provide the required agility for the veterinary service to integrate, coordinate, and collaborate with other stakeholders using the multisectoral One Health approaches.

Climate Mitigation and Adaptation Strategies

Mitigating the impact of livestock on climate change requires a combination of technological innovations and policy interventions. Improved manure management, feed balancing, and methane-reducing feed additives can lower GHG emissions. Incentivizing low-emission practices through subsidies can further drive the adoption of good practices. Mobilising producers into groups and associations and connecting them with the private sector through production partnerships will not only improve the market access and efficiency of the sector but also reduce carbon footprints along the value chains.

Adaptation measures should prioritize resilience-building at the community level. Developing early warning systems, disaster preparedness plans, insurance, and climate-smart agriculture practices can help farmers anticipate and respond to climatic shocks. Enhancing knowledge sharing through digital platforms and networks for community practices can also facilitate the adoption of sustainable practices.

The Way Forward

A sustainable livestock sector in Bangladesh necessitates transformative policies, investments, and actions. It requires a holistic approach addressing the interlinked challenges of animal health, production, food safety, and climate change. Key priorities include:

Strengthening the data system: A transparent, unified, automatized, electronically accessible data system is required for data-driven policy decisions and investments in animal production and health. The GOB, private sector, donors, consumers, researchers, and all other stakeholders will benefit from the unified database. It will attract investments and resources to the livestock sector for its efficient, inclusive, and sustainable transformation.

Derisking the investments: This includes enhancing disease prevention, control, climate adaptation, and insurance. Investments in policy and legislation, infrastructure, technologies, and capacity building will be required to strengthen disease surveillance, early diagnoses, and quick response, integrating with an early warning system.

Investing in Resilience: This includes modernizing infrastructure, building human capacity, and fostering innovation to adapt to climate change. It will require a One Health approach with coordinating efforts across sectors to control zoonotic diseases, enhance food safety, and mitigate AMR.

Promoting Sustainable Practices: This involves encouraging mixed crop-livestock farming systems, genetic selection, and environmentally friendly technologies including feed balancing and incentivizing good practices along the value chains.

Enhancing Policy and Governance: This includes but is not limited to streamlining legislation, improving resource allocation, fostering collaboration, and engaging the private sector. This will require provisions of subsidiary legislation and adequate resources for strengthening veterinary and public health services. Enhancing early warning systems, disease control measures, and laboratory networks requires sustained investments in system strengthening, infrastructure, and capacity building.

By aligning public and private investments with national and United Nations Sustainable Development Goals, especially, SDG 1 (No poverty), SDG 2 (Zero Hunger), SDG 3 (Good health and wealth being), and Goal 13 (Climate Action), Bangladesh can build a resilient livestock sector that supports livelihood, food security, economic development, public health, and environmental sustainability.

The author thanks Professor Dr. Md. Mahmudul Hasan Sikder (drmsikder@bau.edu.bd) and Professor Dr. Md. Rafiqul Islam mrislam@bau.edu.bd for reviewing the manuscript, editing, and adding important information.

Plenary Session

Date : 1 February 2025 (Saturday)
Time : 14:25-16:10
Venue : Syed Nazrul Islam Conference Hall, BAU

Chairman : **Dr. Md. Abu Sufiun**
Director General, DLS, Dhaka
Co-Chairman : **Professor Dr. Md. Masudur Rahman**
Department of Pathology, SAU, Sylhet
Rapporteurs : **Professor Dr. Jayonta Bhattacharjee**
Department of Surgery and Obstetrics
Bangladesh Agricultural University, Mymensingh
Professor Dr. Purba Islam
Department of Pharmacology
Bangladesh Agricultural University, Mymensingh



Biography of
Dr. Nazneen Akhter

Dr. Nazneen Akhter is a distinguished medical professional with expertise in Public Health Policy, Planning, Research, and Health Systems Strengthening (HSS). She holds a PhD in Bioethics, Sustainability, and Global Public Health from the USA, an MSc in Health Policy, Planning, and Financing from the London School of Economics (LSE), and a Diploma from LSHTM, University of London. Additionally, she earned an MPH from NIPSOM, Dhaka University, and an MBBS from SOMC, Chittagong University. Her leadership skills have been honed through fellowships at Goodenough College (UK), Uppsala University (Sweden), and the Asian Health Institute (Japan).

With over 28 years of experience, Dr. Nazneen has excelled in leadership roles across the NGO sector, including Terre des Hommes Netherlands, Bangladesh Women's Health Coalition, HIV/AIDS & STD Alliance Bangladesh, Friendship International, and Oxford Policy Management (OPM Bangladesh). She has also contributed significantly to government initiatives, serving as Technical Coordinator at IEDCR and Technical Advisor for GHDI EMRPHNET and IEDCR Bangladesh.

Dr. Nazneen is the Founder and Managing Director of VAALO avant-garde Ltd. and has been a senior faculty member at North South University, Dhaka, since 2011. A pioneer in the One Health movement, she has actively promoted its principles from its inception and is currently a member of the National Coordination Committee of One Health Bangladesh.

Presently, Dr. Nazneen serves as the Public Health Team Lead for USAID's One Health Activity at DAI, continuing her commitment to advancing interdisciplinary approaches to health. Her work embodies a lifelong dedication to building resilient health systems and sustainable development in Bangladesh and beyond.



Biography of
Paritosh Kumar Biswas

Paritosh Biswas is a veterinarian and a professor of microbiology and veterinary public health at the Chattogram Veterinary and Animal Sciences University (CVASU), Bangladesh. With lien taken from the university, he is currently working as the Animal Health Team Lead for the USAID's One Health Activity. As the animal health laboratory capacity building lead, he supported the Fleming Fund Country Grant for Bangladesh. He had experience in working with FAO and the World Bank. He worked as a former Dean, Faculty of Food Science and Technology, and Director, Poultry Research and Training Center, CVASU. He also served as the founder Director of the One Health Institute at CVASU. His work focuses on emerging zoonotic pathogens, and antimicrobial resistance. He was an awardee of International Conference on Emerging Infectious Diseases (ICEID) 2018 Leader, USA. He is a member to the Advisory Board, Avian Pathology Journal, and the top moderator of the Program for Monitoring Emerging Diseases South Asia Network (ProMED-SoAs). He is a Technical Advisory Panel member to the Pandemic fund, and was a member of the UKRI International Development Peer Review College.

PL Abst 1. Strengthening One Health Network in Bangladesh

Nazneen Akhter[1], and Paritosh Kumar Biswas[2]

[1]Public Health Team Lead, USAID One Health Activity, DAI, LLC Global, IK Tower, 7th Floor, North Avenue, Gulshan 2, Dhaka 1212; [2]Animal Health Team Lead, USAID One Health Activity, DAI, LLC Global, IK Tower, 7 th Floor, North Avenue, Gulshan 2, Dhaka 1212

Abstract

The concept of One Health took a foothold after the Chittagong Declaration in 2008, made at the Sixth Annual Conference of Chittagong Veterinary Animal Sciences University Chittagong. With support from CVASU and other institutions, such as Institute of Epidemiology and Diseases Control Research (IEDCR), International Centre for Diarrheal Disease Research, Bangladesh (icddrb), the need for One Health approach to address zoonotic, emerging, and reemerging diseases was well accepted among a wider community, resulting in the formation of a platform called One Health Bangladesh. By the efforts of this platform, the country developed a One Health Strategic Framework endorsed by the One Health line ministries. Consequently, a One Health Secretariat was established at IEDCR which is being run with support from the three key One Health line ministries. After the COVID-19 pandemic, prevention of epidemic and pandemic diseases following the One Health approaches has taken a significant momentum globally. UN agencies, such as WHO, FAO, UNEP, and other international agencies, such as WOAH, the World Bank, USAID, and others have started unwavering support to prevent, detect and respond to zoonotic and emerging diseases by One Health approaches with the implementation of some important programs, such as USAID's Global health security, the Pandemic Funds, and others. Recently, to enhance the One Health Systems capacity building in Bangladesh, USAID has funded a project entitled, "Systems Strengthening for One Health Activity", if brief, "USAID One Health Activity". The project is being implemented by DAI Global, LLC. The overarching goal of this project is to strengthen Bangladesh's OH systems to prevent, detect, and respond to emerging infectious and endemic zoonotic diseases while reducing the burden of AMR. To reach the goal there would be numerous activities for the objectives Strengthen Systems for Better OH Governance, Strengthen OH Disease Detection Systems, and Reduce Threats of Antimicrobial Resistance in the country. There would be some specific activities to enhance the veterinary services and workforce so that the system and manpower would be well educated and prepared to face epidemic and pandemic threats by using One heath education and network. Some of the activities include integration of surveillance for priority zoonotic pathogens and developing an early warning system, the establishment of a laboratory network across the sectors, inter-departmental data sharing and institutionalization of One health approaches to respond to disease outbreaks, Continuing the field epidemiology training programs, reviewing and restructuring of the veterinary internship program, continuation of the MCVS examination and continuation of the veterinary pedagogy training program. The successful completion of the project is expected to set a good example on how One Health networking can be workable at a country level to face the challenges being constantly posed from zoonotic and emerging pathogens of pandemic potentials.

Keywords: One Health, networking, systems strengthening



Biography of

Dr. Md. Nure Alam Siddky
Deputy Team Lead
The Fleming Fund Bangladesh Country Grant
DAI Global LLC

Md. Nure Alam Siddiky was born in Rangpur in 1977. He was graduated with Doctor of Veterinary Medicine (DVM) from Bangladesh Agricultural University. Subsequently, he obtained his Master of Science (MS) and Doctor of Philosophy (PhD) from the Department of Veterinary Microbiology and Hygiene, Bangladesh Agricultural University. He is passionate working with AMR and one health. He started his carrier as a scientist of the Livestock Research Institute. Later on, he moved to the SAARC Agriculture Centre and served as a Senior Program Officer till 2018. He worked with Bangladesh Livestock Research Institute as a National AMR Consultant under a US-CDC funded project. He also worked with World Organisation for Animal Health (WOAH) as a National and International remote consultant and provided technical support regarding AMR and one health aspect. Dr Siddiky also worked with USAID-MTaPS project as a National AMR Consultant. He again moved to the United Nations Industrial Development Organization (UNIDO) and served as National AMR consultant. Currently he has been working with the Fleming Fund Country Grant to Bangladesh as a Deputy Team Lead. He has a diverse and multi-dimensional experience working with national and international reputed organizations.

Dr. Siddiky published a good number of research and review manuscripts in international reputed peer reviewed journal. Dr. Siddiky was solely engaged with the development of the National Action Plan (NAP) of AMR containment in Bangladesh, national AMR surveillance strategy, national AMR surveillance protocol and SOPs for animal, aquaculture and environment. Dr. Siddiky has a diverse and wider experience working with donor driven projects. He holds a wider professional networking across the globe. He is a life, founder and general member of the many professional organization, including Bangladesh Society for Safe Food (BSSF), One Health Bangladesh, Bangladesh society for Microbiologist.

PL Abst 2. The Technical Support of Fleming Fund for AMR Surveillance Capacity Building in Bangladesh in a One Health Approach

Nure Alam Siddiky*, Shah Monir Hossain

*Fleming Fund Country Grant to Bangladesh, DAI Global LLC, Gulshan 1, Dhaka-1212, *Corresponding author: NureAlam_Siddiky@dai.com*

Abstract

The Fleming Fund is a grant of the Department of Health and Social Care (DHSC) of the Government of the United Kingdom. This Fleming Fund Country Grant to Bangladesh focuses on establishing AMR surveillance systems in the human, animal, aquatic and environment sectors. The Fleming Fund has been supporting to Bangladesh since 2020 under the flagship of DAI with three consortium partners and few regional grantees. The Fleming Fund works closely with the Government of Bangladesh (GoB) to ensure that activities undertaken through this grant are in line with Bangladesh's National Action Plan on AMR (NAP). The FFCGB plan and implement activities in close consultation with GoB, keeping country priorities and needs in mind, but within limits of the scope. The main outputs are laboratory infrastructure enhancement, human resource strengthening and workforce reforms, surveillance systems strengthening, building foundations for AMR surveillance data use; and promoting rational use of antimicrobial medicines. It is intended to develop a vibrant and effective one health AMR surveillance system across the country. Moreover, active and passive AMR surveillance is supported to the human, animal, aquatic and environmental sectors. Besides, Antimicrobial Use (AMU) surveillance is supported to the human, animal and aquatic sectors. One health AMR dashboard is introduced to collect all sectoral surveillance data in a common platform. Technical support is provided for sustainable AMR governance and leadership. In addition, workforce development in different cross cutting areas, microbiology, epidemiology, data management, data analysis, and data interpretation. Also, AMR and AMU surveillance data is shared with the clinicians, scientists, researchers, policy makers for evidence based decision making.



Biography of

Dr. Sk Shaheenur Islam, PhD
Deputy Director, Animal Health
Department of Livestock Services
Bangladesh

Sk Shaheenur Islam, born in Satkhira in 1973, completed his Doctor of Veterinary Medicine (DVM) degree from Bangladesh Agricultural University. He further pursued advanced studies, completing a Master of Science (MS) in Veterinary Epidemiology from Chiang Mai University, Thailand, and a Doctor of Philosophy (PhD) from Department of Microbiology and Hygiene, Bangladesh Agricultural University. He began his professional career as a field veterinarian in 1999. In 2007, he served as a technical officer for the World Bank-financed "Avian Influenza Preparedness and Response Project". Between 2014 and 2018, he contributed to the FAO-funded Food Safety Program in Poultry Value Chains. A graduate of the Regional Field Epidemiology Training Program for Veterinarians (R-FETPV) based in Thailand, he currently works in the Animal Health Section of the Department of Livestock Services, focusing on regulatory affairs and animal health issues. Additionally, he serves as the National Focal Point for Veterinary Products, including AMR, under the World Organization for Animal Health (WOAH).

Dr. Islam has wide experience collaborating with international organizations and development partners such as FAO and WOAH. He has authored 50 research papers, review articles, and book chapters published in reputed national and international peer-reviewed journals. In 2024, he spoke at a side event of the United Nations General Assembly in New York, USA on AMR. He played a key role in developing national strategic guidelines for economically significant livestock diseases such as Peste des Petits Ruminants (PPR) and Foot-and-Mouth Disease (FMD). His research focuses on zoonotic diseases, including anthrax, bovine tuberculosis, and avian influenza, emphasizing epidemiology, surveillance, outbreak investigation, risk analysis, and designing control strategies tailored to low resource settings. He supervises two master's students, and he is an academic editor for PloS One Journal. He is a member of several professional organizations, including the Bangladesh Society for Safe Food (BSSF) and One Health Bangladesh.

PL Abst 3. National AMR Surveillance Initiatives in the Animal Health Sector in Bangladesh

Easrat Jahan Esha[1], Sk Shaheenur Islam[2], Golam Azam Chowdhury[2], Nure Alam Siddiky*[1], Kazi Kamaruddin[1], Shah Monir Hossain[1], Abu Sufiun[2]

[1]*Fleming Fund Country Grant to Bangladesh, DAI Global LLC, Gulshan 1, Dhaka-1212 ;* [2]*Department of Livestock Services, Krishi Khamar Rd, Dhaka-1215; *Corresponding email: NureAlam_Siddiky@dai.com*

Abstract

Antimicrobial Resistance (AMR) is a global threat to public health. Likewise, in Bangladesh, AMR poses a significant threat to animal health and food safety. Imprudent use of antimicrobials in veterinary practices exacerbate the problem. Addressing this challenge requires robust national AMR surveillance initiatives, particularly in the animal health sector.

Department of Livestock Services (DLS) in collaboration with the Fleming Fund Country Grant to Bangladesh (FFCGB) has been working to reinforce the national AMR surveillance capacity in a One Health approach. The FFCGB has made substantial contributions to strengthen the AMR surveillance system by enhancing laboratory capacity building with biosafety level 2 (BSL-2) standards and establishing a national AMR surveillance network of reference and sentinel surveillance laboratories. In addition, the initiative emphasized Antimicrobial Use (AMU) and Antimicrobial Consumption (AMC) studies.

Under Phase 1 (2020–2023), the initiative fostered strengthening the laboratory infrastructures and established an AMR surveillance network of laboratories, in the animal health sector that included the Central Disease Investigation Laboratory (CDIL) as national AMR reference laboratory for surveillance, Bangladesh Livestock Research Institute (BLRI) as national AMR reference laboratory for research, and the sentinel laboratories at the Field Disease Investigation Laboratories (FDILs) sites in Feni, Joypurhat and at the Poultry Research and Training Centre (PRTC) under the Chattogram Veterinary and Animal Sciences University (CVASU). In Phase 2 (2024-2025), the laboratory network expanded further with the inclusion of two new sentinel sites at FDILs, Barishal and Sirajganj. These laboratories were furnished with necessary equipment's (that included VITEK 2 and MALDI-TOF MS for CDIL) and provided necessary training for skilled human resources development regarding AMR surveillance. Furthermore, FFCGB supported in the development of National AMR surveillance strategy, and several surveillance protocols and guidelines including AMR laboratory manual, Standard Operating Procedures (SOPs) for isolation and identification and Antimicrobial Susceptibility Testing (AST) of the target AMR organisms, AMR and AMU surveillance protocols, guideline for supportive supervision for the laboratories to maintain quality assurance, etc. The FFCGB also supported in the formation of an AMR Sectoral Working Group (SWG) for coordination of the AMR surveillance activities in the animal health sector and supporting the group for making it operational quarterly. These laboratories are actively engaged in the investigation of the prevalence of target AMR organisms in the poultry and cattle including their AST patterns. The overall prevalence rates of the target organisms in poultry were 71.82% for Escherichia coli, 10.05% for Salmonella spp. (n=1523), 19.34% for Campylobacter spp. (n=993) and 34.78% for Enterococcus spp. (n=1179). The AST pattern of E. coli showed 80 to 100% resistant to pefloxacin (100%), vancomycin (100%), tetracycline (95.53%), trimethoprim (95.45%), ampicillin (89.21%), sulfamethoxazole & trimethoprim (84.94%), and amoxicillin (80.77%). Likewise, the Salmonella showed 100% resistant to amoxicillin, cefotaxime and vancomycin with 89.80% to sulfamethoxazole and 89.29% to tetracycline. These results focused the understanding of AMR trends in food-producing animal especially in poultry. This vibrant national laboratory network, and systematic AMR surveillance have generated significant data and established a foundation for evidence-based interventions to combat AMR in Bangladesh's animal health sector. These achievements are an important step toward protecting animal health, ensuring food safety, and addressing the public health issue of antimicrobial resistance (AMR) in Bangladesh.

Keywords: AMR, AMU, AMC, animal health



Biography of

Dr. Bidyuth Kumar Mahalder
Chief of Party
USDA Food for Progress
Bangladesh Climate Smart Livestock (BCSL) Project
ACDI/VOCA, Bangladesh

Dr. Bidyuth Kumar Mahalder joined as the Chief of Party with the US Department of Agriculture funded and ACDI/VOCA implemented Bangladesh Climate Smart Livestock (BCSL) project on December 03, 2023.

Over 30 years, with an extensive background in international development, Dr. Mahalder specializes in project management and leadership with a focus on climate-smart agriculture, food security, and nutrition, alongside agricultural research, disaster management, women's empowerment, and digital finance for smallholders. His career, which began with DFID, involved key roles with the Government of Bangladesh, various donor organizations, research institutes, NGOs, and UN agencies across Bangladesh and South Asia.

Before his current role, he contributed significantly as the Agriculture Sector Lead at the Asian Disaster Preparedness Center (ADPC) in Thailand and held notable positions with UNDP, FAO, INGOs, and the International Rice Research Institute (IRRI). Dr. Mahalder is also an adjunct faculty at the University of Dhaka, a member of several professional bodies, and has been recognized internationally for his contributions, including the invention of the A-Card Model for smallholder financial inclusion, which earned him the Scale x Design award by CARE-USA in 2018.

Academically, Dr. Mahalder holds a Bachelor of Science in Agricultural Engineering from Bangladesh Agricultural University and two Master's degrees, one in GIS from the University of Twente, Netherlands, and another in Irrigation and Water Management from Bangladesh Agricultural University, Bangladesh. He furthered his studies with an MBA from the University of Dhaka, and a Ph.D. from Khulna University, Bangladesh.

Dr. Mahalder's global engagement is evident in his participation in skill development programs, international conferences, and seminars across more than 25 countries, along with over 25 scientific publications in esteemed journals and conference proceedings. His work not only showcases a commitment to agricultural development and climate resilience but also highlights a career dedicated to innovation and the empowerment of smallholder farmers across the globe.



Biography of
Dr. Moin Us Salam

Dr. Moin Us Salam is an internationally recognized academia, researcher and project developer – served renowned universities and organizations in Bangladesh, Australia, Japan, UK, and USA. He is highly experienced in the area of agricultural systems (including agrometeorology, crop modelling, development and dissemination of decision-aiding tools including early warning systems, quantitative epidemiology of crop diseases, data analysis and interpretation, project development, management and evaluation, policy and strategic planning and agricultural transformation. Dr. Salam served the Department of Agriculture and Food Western Australia (DAFWA) for 17 years and held the position of a Principal Research Officer, which was the highest level attainable for a practicing scientist in the public service of the Government of Western Australia. Dr. Salam also served the Bangladesh Agricultural University (BAU) as a Professor of the Department of Agronomy. He studied in Reading University, UK, for PhD and University of Florida, Gainesville, USA, for postdoc. He published over 100 refereed journal papers, developed five government strategic plans and delivered 25 consultancy reports.

PL Abst 4. Methane emission from dairy and beef cattle in Bangladesh: An evidence-based estimation and pathway of addressing climate change mitigation

Moin-Us Salam , Bidyuth Kumar Mahalder , Mohammad Kamrul Hasan and Anisul Islam

Consultant, USDA Bangladesh Climate Smart Livestock Project, ACDI/VOCA, Dhaka, Bangladesh. 2 Chief of Party, USDA Bangladesh Climate Smart Livestock Project, ACDI/VOCA, Dhaka, Bangladesh. 3 Director, MEL, USDA Bangladesh Climate Smart Livestock Project, ACDI/VOCA, Dhaka, Bangladesh. 4 Director, Center for Natural Resources Studies (CNRS), Dhaka, Bangladesh

Abstract

To address the global climate crisis, there is an increasing interest in the environmental impacts of livestock. Livestock production systems account for a considerable amount (~11%) of all anthropogenic greenhouse gas (GHG) emissions. Bangladesh has been traditionally following IPCC Tier 1 method for national GHG inventories, and now entering into Tier 2 method. This study adopted the latter approach. Enteric emissions were estimated for 397 dairy cattle and 281 beef cattle. An additional estimate from) of 5 and 2 units (FAOSTAT, 2017) were added to the enteric emissions of dairy cattle and beef cattle, respectively, for representing emissions from manure. Methane emissions were expressed in CO2 equivalents (CO2e), with 1 kg of emitted methane corresponding to 29.8 kg of CO2e. Key animal attributes, including live body weight, milk fat content, and weaning weight, were obtained from 16 districts operated under the USDA funded Bangladesh Climate Smart Livestock (BCSL) project of the ACDI/VOCA. A conversion factor of 0.50 was used to estimate carcass weight from the live weight of cattle. Estimated average methane emission was 2.7 kg CO2.eq kg-1 milk; local breeds emitted significantly higher methane per unit productivity (4.2 kg CO2.eq kg-1 milk) than improved breeds (1.6 kg CO2.eq kg-1 milk). Methane emission was 11.2 kg CO2.eq kg-1 cattle meat; local breeds emitted significantly higher methane per unit productivity (12.6 kg CO2.eq kg-1 meat) than improved breeds (10.3 kg CO2.eq kg-1 meat). The regional difference in the estimated methane emission for both cows and cattle were evident. This study further quantified the relationship between cow milk and cattle meat productivity and methane-sourced methane emission. The relationship between productivity and greenhouse gas (GHG) emissions was based on an "estimated system assumption" indicating that increased productivity led to a reduction in emissions, rather than a conflict. Technology serves as the primary driver of productivity, and if well-designed, it can positively impact GHG emissions as well.



Biography of

Md. Monoarul Islam
Senior Program Manager
Livestock Value Chain

Md. Monoarul Islam is an accomplished development professional with a wealth of experience in agriculture, livestock, climate resilience, and livelihood development. Over his career, he has worked with leading organizations, including BRAC, Heifer International Bangladesh, Cooerazione Internazionale (COOPI), and Practical Action Bangladesh. He has also gained international exposure as an East and West Africa expert through his work in Liberia, Sierra Leone, and Uganda.

With expertise in livestock value chain development, climate-adaptive strategies, one health practitioners and disaster risk reduction, he has contributed to improving the livelihoods of smallholder farmers across diverse socio-economic and geographic contexts. He has successfully led multi-stakeholder projects, facilitated strategic workshops, and developed innovative plans integrating advanced technologies and market linkages.

His strong commitment to sustainability and community empowerment has earned him recognition on both national and international platforms. As a lifelong learner, he is currently exploring opportunities for higher studies to further deepen his expertise and continue creating transformative impacts in the development sector.

PL Abst 5. Increasing Living Income of Women Farmers' Cooperative Through Climate Adaptive Technologies and Agriculture and Livestock Value Chain Development

Md. Monoarul Islam*, Mohammad Harun Or Rashid

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Abstract

Heifer International is a non profit development organization that has worked with more than 46 million farming households around the world since 1944 with a slogan "Not a Cup But a Cow" to "end hunger and poverty while caring for the earth". Heifer currently operates in 19 countries across Africa, Asia, and the Americas. Heifer International focuses on agricultural and livestock value chains increasing agriculture production and incomes and better integrating rural women, youth, and Indigenous populations across the world in more inclusive markets, strengthening local economies and building secure livelihoods with "Locally led globally connected". Heifer offers comprehensive support, including access to animal health services, improved breed, promote one health initiatives, provides technical assistance and training in enhanced livestock shelter, feed, fodder, and climate-smart agriculture management to foster resilient, thriving communities. Active since 2012, HIB operates in six districts, including Kishoreganj, Tangail, Sirajganj, Natore, Jessore, and Rajshahi, and has mobilized over 66,000 women farmers. The organization collaborates with government bodies, local NGOs, private sector entities, banks, and civil society organizations to implement innovative agricultural solutions and inclusive market systems. Heifer International Bangladesh works through partnering with smallholder women farmers to develop agribusinesses that provide sufficient income and build resilience. Heifer Bangladesh primarily collaborates with women's self-help groups and women cooperative focused on beef, dairy, goats, poultry, vegetables, fruits, and cut flowers value chains, school feeding program to enhance food & nutrition security through agricultural innovation, Community Agro-Veterinary Entrepreneurs (CAVEs) and inclusive markets. Key thematic areas in for Heifer International in Bangladesh includes livestock technology, agri-value chains, women's empowerment, food security, nutrition, climate-smart agriculture, biogas plant, environment, access to finance, agri machineries, one health and social capital.

Open Paper Session I

Date	:	2 February 2025 (Sunday)
Time	:	9.30-10.55
Venue	:	Pathology Gallery (Basic)
Chairman	:	**Professor Dr. Md. Mokbul Hossain** Department of Pathology Bangladesh Agricultural University, Mymensingh
Co-Chairman	:	**Professor Dr. A.K.M. Mostafa Anower** Department of Microbiology and Public Health, PSTU
Rapporteurs	:	**Dr. Abdulla Al Mamun Bhuyan** Associate Professor, Department of Veterinary and Animal Sciences, RU
		DR. Nusrat Nowrin Shohana Lecturer, Department of Parasitology, BAU

Abs. no.	Time	Title and authors
O-01	09.30-09.40	Effect of laying stage, storage condition and housing system on egg quality parameters of commercial Chicken (ISA Brown) **Islam S**, Miah MY, Hasan R, Islam S, Rafi MKA, Rahman S
O-02	09.40-09.50	Spermatogenic cell apoptosis and impaired spermatogenesis in mice: Time - and dose -dependent toxic effects of silver nanoparticles **Alam MS**, Maowa Z, Mahmud MAA
O-03	09.50-10.00	Cytosolic calcium as a key mediator of apoptosis -induced proliferation **Haque MI**, Fan Y
O-04	10.00-10.10	Presence of toxic heavy metal chromium (Cr) in broiler meat at locally available markets in Mymensingh city **Paul SK,** Sultana T, Swarna JK, Chacrabati R
O-05	10.10-10.20	Phthalate exposure during pregnancy impairs the body traits, electrolytes, reproductive hormones and related gene expressions in F_1 black bengal bucks **Hasan S,** Rahman MS, Bhuiyan MER, Islam KR, Miah MA
O-06	10.20-10.30	Antioxidative attributes of folic acid and hesperidin on the reproductive physiology of chromium-intoxicated male mice **Bhuiyan MEJ**, Parijat SS, Saha A, Bari FY, Akter S, Parvin R
O-07	10.30-10.40	Comparative pathology and clinical outcomes of *Eimeria tenella* experimental infection in exotic and native breeds of chicken in Bangladesh **Aryal D ,** Tasfia KF, Bhujel A, Rahman MA, Ashikuzzaman M, Shahiduzzaman M
O-08	10.40-10.50	High-performance liquid chromatography analysis of neem leaf soxhlet extracts and their effects on immunity, health, and productivity in broilers **Islam MS**, Parvez MAR, Islam MS, Hasan MT, Islam S, Islam MA, Hoque MN
10.50-10.55		CHAIRMAN'S REMARKS

O-01. Effect of Laying Stage, Storage Condition and Housing System on Egg Quality Parameters of Commercial Chicken (ISA Brown)

Islam S[1], Miah MY*[2], Hasan R[3], Islam S[3], Rafi MKA[4], Rahman S[5]

*[1]Department of Anatomy & Histology, [2]Department of Poultry Science, [3]Department of Microbiology & Immunology, [4]Faculty of Veterinary, Animal and Biomedical Sciences, Sylhet Agricultural University, Sylhet-3100, Bangladesh. [5]Technical Service Officer, CP Bangladesh Co. Ltd. Cumilla, Bangladesh; *Corresponding author: myoumsau2003@gmail.com*

Abstract

This study evaluates the influence of laying stage, storage conditions, and housing systems on the internal and external quality parameters of commercial chicken (ISA Brown) eggs. A total of 120 eggs were analysed, with results revealing significant variations in quality due to age, storage, and housing conditions. All data were subjected to One-way ANOVA, Linear regression, Duncan multiple range test, SD, and Mean values. The values of $P<0.001$ were considered significant at a 99.99% confidence interval. Age significantly impacted egg characteristics. Egg weight increased with age (21 weeks: 54.97±2.25 g, 45 weeks: 58.07±4.96 g, 84 weeks: 61.34±6.90 g, $P<0.0001$), while Haugh unit (HU) decreased (82.25±4.51, 76.24±3.54, and 72.52±5.24, respectively, $P<0.0001$). Shell thickness declined with age, ranging from 0.39±0.02 mm at 21 weeks to 0.37±0.03 mm at 84 weeks ($P<0.005$). Storage at 4°C for 14 days reduced yolk index (21 weeks: 0.41±0.03, 45 weeks: 0.41±0.04, 84 weeks: 0.43±0.02, $P<0.005$) and yolk colour (7.60±0.63 at 21 weeks to 7.07±0.79 at 45 weeks, $P<0.05$). Housing conditions influenced several parameters. Eggs from open sheds exhibited higher yolk colour (7.43±0.72) and shell thickness (0.35±0.015 mm) compared to control sheds (7.00±0.84 and 0.369±0.016 mm, respectively; $P<0.05$ and $P<0.05$). However, the Haugh unit was higher in control sheds (75.71±5.43) than in open sheds (70.40±3.38, $P<0.002$). This study highlights the need to optimize age, storage conditions, and housing systems to ensure superior egg quality, providing practical recommendations for poultry management and consumer awareness.

Keywords: Chicken, egg quality, parameters, internal quality, age

O-02. Spermatogenic Cell Apoptosis and Impaired Spermatogenesis in Mice: Time- and Dose-Dependent Toxic Effects of Silver Nanoparticles

Alam MS*, Maowa Z, Mahmud MA

*Department of Anatomy and Histology, Bangabandhu Sheikh Mujibur Rahman Agricultural University; *Corresponding author: shahalam@bsmrau.edu.bd*

Abstract

The increasing use of nanoparticles (NPs) in various consumer, agricultural, and pharmaceutical applications has raised considerable concern about their potential risks to human health and the environment. This study investigated the progressive toxic effects of silver nanoparticles (AgNPs) in mouse testes after single and repeated exposure. Prepubertal male mice were exposed to AgNPs by gavage at 50, 200, and 500

mg/kg body weight. Testis, epididymis, and serum were collected and subjected to histopathological analysis. Daily exposure to AgNPs for 7 and 15 days (n = 8) decreased sperm count while increasing abnormal sperm count as well as testicular atrophy in a dose- and exposure-time-dependent manner. A single exposure to 200 mg/kg AgNPs (n=8) resulted in testicular histopathological changes and spermatogenic cell apoptosis in a time-dependent manner. The highest number of apoptotic cells was detected 24 hours (h) after exposure while testicular testosterone (TT) concentrations decreased at 12 h (h) and 24 h. To explore whether AgNPs suppress TT concentrations by affecting the hypothalamus-pituitary-testicular (HPT) axis, we analyzed serum LH concentrations; However, no significant changes in LH levels were found. This study showed that AgNPs cause potential adverse effects on the testis, specifically, spermatogenic cell apoptosis, and impaired spermatogenesis in an exposure time- and dose-dependent manner. The testicular toxicity was not associated with suppression of the HPT axis, possibly involving other mechanisms. Implications: These findings contribute to the broader discussion on NPs safety and regulatory considerations, particularly regarding their reproductive toxicity.

Keywords: Silver nanoparticle, apoptosis, spermatogenesis, male sex hormone

O-03. Cytosolic Calcium as a Key Mediator of Apoptosis-induced Proliferation

Haque MI[1*], Fan Y[2]

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Abstract

Apoptosis-induced proliferation (AiP) is a phenomenon whereby apoptotic cells stimulate the proliferation of neighboring cells, contributing to tissue regeneration and tumorigenesis. Interestingly, while caspases are primarily known for their roles in apoptosis, they have been implicated in non-apoptotic functions such as AiP. Although studies in ***Drosophila melanogaster*** have significantly advanced our understanding of AiP, the underlying molecular mechanisms remain poorly defined. In this study, regulatory factors involved in AiP were investigated using genetic screens, epistasis analysis, immunohistochemistry, gene expression assays, and calcium imaging. Increased cytosolic calcium was observed through calcium imaging and overexpression of STIM and ITPR, led to enhanced CASK activity. This, in turn, facilitated F-actin polymerization, which is the key to the activation of the JNK pathway and subsequent proliferation of cells. The findings demonstrated that cytosolic calcium plays a pivotal role in regulating F-actin dynamics via CASK, thereby promoting AiP. These results provide novel insights into calcium signaling as a critical regulator of AiP and suggest potential molecular targets for modulating regenerative and tumorigenic processes.

Keywords: Apoptosis-induced proliferation, calcium signaling, *Drosophila*

O-04. Presence of Toxic Heavy Metal Chromium (Cr) in Broiler Meat at Locally Available Markets in Mymensingh City

Paul SK, Sultana T, Swarna JK, Chacrabati R*

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Abstract

Broiler meat is one of the least expensive and good sources of protein, vitamins and minerals for human consumption. Many developing countries have adopted intensive broiler farming to meet the demand for animal protein. In Bangladesh, there is a rapid increase in consumption of broiler meat due to its lower purchase cost and better health benefits. But broiler meat may also carry certain toxic substances like heavy metals and consumption of this contaminated broiler meat may poses serious hazard to human health. Therefore, the present study was designed to determine the concentration of one of the toxic heavy metals namely Chromium (Cr) in locally available broiler meat in some local markets of Mymensingh city. Broiler meat samples were collected from three local markets namely KR market, Seshmor bazar and Kewatkhali bazar. Then, the concentration of Chromium (Cr) was determined by using atomic absorption spectrophotometer (AAS) (Shimadzo, AA7000, Japan). Result showed that the Cr concentration of broiler meta samples of KR market, Seshmor bazar and Kewatkhali bazar are 0.048 mg/kg, 0.032 mg/kg and 0.08 mg/kg respectively. The concentration of Cr in meat samples were found to be within the permitted range of tolerances given by WHO/FAO. Therefore, it could be concluded that the broiler meat from the selected areas is safe and sound and there is no possibility of health risk to consumers if eating broiler meat from those area. However, more research may be conducted to ensure the food safety and the quality of the meat in local markets.

Keywords: Broiler meat, toxic metal, food safety

O-05. Phthalate Exposure During Pregnancy Impairs the Body Traits, Electrolytes, Reproductive Hormones and Related Gene Expressions in F_1 Black Bengal Bucks

Hasan S[1], Rahman MS[1], Bhuiyan MER[2], Islam KR[2] and Miah MA[1*]

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Abstract

Exposure to phthalate plasticizer is a considerable threat to health worldwide. The present study investigated how phthalate plasticizers impair the body traits and reproduction with the related gene expression in F_1 Black Bengal (BB) bucks. A total of 20 clinically healthy 1-2 months pregnant, aged 6 to 8 months with body weight 10-12 kg BB goats were collected and randomly divided into two (n=10) experimental groups. The treatment group (n=10) was provided standard goat ration with phthalates and the control group (n=10) was provided same ration without any phthalates during pregnancy. After parturition, the reproductive behavior of F_1 bucks were observed daily at puberty stage and blood samples was collected for reproductive hormones and electrolyte analysis. RNA sequences were done for gonadal gene expression. The results

showed that physical traits were significantly altered (P<0.05) in F_1 bucks born from phthalate exposed mother. The sodium, chloride and calcium levels in F_1 bucks born from phthalate exposed goats were found significantly (P<0.05) lower than control whereas the values of potassium and phosphorus were not significantly (P<0.05) differed. The testosterone, thyroxin and growth hormone in F_1 bucks of phthalate exposed groups were found significantly (P<0.05) lower than control. The age at puberty, libido and pregnancy rates were hampered in F_1 bucks of phthalate exposed group than control but servicing performance and ejaculation time were not significantly (P>0.05) differed. The gene expression related to reproduction was differentially expressed in phthalate-exposed F_1 goats. It concluded that exposures to phthalates during pregnancy impair the physical traits, electrolytes and reproductive parameters of F_1 BB bucks.

Keywords: Phthalates, body traits, electrolyte, hormone, reproduction, buck.

O-06. Antioxidative Attributes of Folic Acid and Hesperidin on the Reproductive Physiology of Chromium-Intoxicated Male Mice

Bhuiyan MEJ[1*], Parijat SS[2], Saha A[3], Bari FY[3], Akter S[1], Parvin R[4]

[1]*Department of Physiology, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh,* [2]*Faculty of Veterinary Science, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh,* [3]*Department of Surgery & Obstetrics, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh,* [4]*Department of Pathology, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh; * Corresponding author: eftakhar.vphy@bau.edu.bd*

Abstract

The detrimental impacts of heavy metals on animal health have emerged as a critical global concern. In this context, the present study focused on the protective role of antioxidants like folic acid and hesperidin against chromium (Cr)-induced reproductive toxicity in mice. Fifty male Swiss Albino mice, aged 3 weeks, were treated for 90 days: control, Cr alone, Cr with folic acid, Cr with hesperidin, or Cr with both folic acid and hesperidin. After the treatment period, the mice were sacrificed, and samples were collected for analysis. The results illustrated that Cr-treated mice had significantly (p<0.001) higher Cr levels in testicular tissues compared to control. However, supplementation with both folic acid and hesperidin significantly (p<0.01) reduced Cr accumulation in the testes. Cr exposure also caused a significant (p<0.01) decline in serum testosterone and thyroxine concentrations, while these were restored (p<0.05) with folic acid and hesperidin treatment. In addition, Cr exposure led to a significant (p<0.01) reduction in sperm count and motility, alongside a marked increase in abnormal sperm morphology, including head (p<0.01), tail (p<0.01), and midpiece (p<0.05) abnormalities. Conversely, folic acid and hesperidin significantly (p<0.05) improved these altered parameters. Histopathological investigation of testes of Cr-intoxicated mice indicated tubular degeneration with necrosis of the capsule, whereas combined therapy showed normal appearance of seminiferous tubules. In conclusion, chromium poses significant inimical effects on the male reproductive health of mice. However, supplementation with folic acid and hesperidin effectively mitigates these adverse outcomes, highlighting their antioxidative potential as protective agents against heavy metal toxicity.

Keywords: Chromium, antioxidants, testosterone, thyroxine, sperm

O-07. Comparative Pathology and Clinical Outcomes of *Eimeria tenella* Experimental Infection in Exotic and Native Breeds Of Chicken in Bangladesh

Aryal D, Tasfia KF, Bhujel A, Rahman MA, Ashikuzzaman M, Shahiduzzaman M*

*Department of Parasitology, Bangladesh Agricultural University, Myemsningh-2202; *Corresponding author: szaman@bau.edu.bd*

Abstract

Eimeria tenella is the major protozoan parasite that causes coccidiosis in chickens, and its clinical and pathological response shows significant variations among breeds. Very little information exists concerning the challenge infections of native chicken breeds of Bangladesh. The current study was hence undertaken to investigate and compare the pathology and clinical disease produced by the experimental infection of *E. tenella* among exotic (Sonali) and native (Hilly, Naked neck, and Deshi) breeds of Bangladesh. In order to achieve this, a controlled experimental infection was carried out, and lesion severity, OPG counts, and weight changes were measured at 6, 10, and 14 days post-infection. Distinct breed-specific differences in susceptibility were elicited. Sonali chickens had the highest OPG counts, as high as 101,800 at 14 DPI, suffered significant weight loss, and developed severe cecal pathology characterized by diffused hemorrhagic lesions. On the other hand, the indigenous breeds, namely Hilly, Naked neck, and Deshi, had low OPG counts as low as 100 in Hilly chickens, insignificant changes in weights, and mild pathological features characterized by reduced inflammation and hemorrhagic enteritis. The present study points to critical breed-specific differences in susceptibility to *E. tenella* and provides an important insight into resistance or tolerance mechanisms. Such findings form the basis for breed selection and improvement strategies pertaining to coccidiosis prevention and management, underlining the need for targeted controlled measures and the potential utility of native breeds in breeding programs with the aim of enhancing disease resistance.

Keywords: *Eimeria tenella,* chicken breeds, pathology, oocyst shedding

O-08. High-Performance Liquid Chromatography Analysis of Neem Leaf Soxhlet Extracts and Their Effects on Immunity, Health, and Productivity in Broilers

Islam MS*, Parvez MAR, Islam MS, Hasan MT, Islam S, Islam MA, Hoque MN

*Department of Pharmacology, Bangladesh Agricultural University, Mymensingh-2202; *Corresponding author: shafiqpharma@bau.edu.bd*

Abstract

HPLC analysis confirmed that our extract contained major components of azadirachtin, nimbidin, nimbolinin, nimbin and salannin. This solution was applied to safe poultry production in Bangladesh. Our results demonstrated that on day 28, a significant ($P<0.05$) increased body weight was found in neem leaf extracts. Gross inspection of GIT and carcass were found healthy in all groups of births. Better FCR was recorded in neem

leaf extracts. Blood profile such as Hb, TEC, PCV, and ESR examination showed no harmful effects in any groups of birds; but, DLC examination revealed neem leaf extracts significantly ($P<0.05$) increased lymphocyte in comparison with danofloxacin & butaphosphan groups respectively. AST/ALT enzyme analyses showed significant ($P<0.05$) decreased level of AST and ALT in neem treated groups than that of the antibiotic and butaphosphan groups. Histopathology analyses revealed neem extracts treated birds preserved healthy duodenum and caecum. Neem leaf extracts demand a candidate drug for the healthy poultry production in Bangladesh.

Keywords: *Azadirachta indica*, safe broiler, immunity, FCR, carcass quality

Open Paper Session II

Date	:	2 February 2025 (Sunday)
Time	:	9.30-10.55
Venue	:	Physiology Gallery (Pre-clinical)
Chairman	:	**Professor Dr. Abdul Awal** Department of Anatomy and Histology Bangladesh Agricultural University, Mymensingh
Co-Chairman	:	**Professor Dr. Md. Ariful Islam** Department of Microbiology and Hygiene Bangladesh Agricultural University, Mymensingh
Rapporteurs	:	**DR. Sabbya Sachi** Assistant Professor, Department of Pharmacology, BAU
		DR. Md. Eftakhar Jahan Bhuiyan Lecturer, Department of Physiology, BAU

Abs. no.	Time	Title and authors
O-09	09.30-09.40	Distinct amino acid substitutions in the EEV glycoprotein and DNA-dependent RNA polymerase of lumpy skin disease virus identified in wetland areas of Bangladesh **Hasan SMN**, Hossain MG, Mozumder A, Jeba N, Mia R
O-10	09.40-09.50	The first report of concurrent infection of hemorrhagic septicemia with foot and mouth disease in cattle in Bangladesh **Rahman MA,** Zereen F, Hossain MG, Al-Amin M, Alam J, Shimada M, Rahman MT, Saha S
O-11	09.50-10.00	Protective efficacy of combined inactivated Newcastle disease and avian influenza subtype H9N2 commercial vaccines available in the market of Bangladesh **Hossain MR**, Tasnim S, Akter MS, Chowdhury EH, Parvin R
O-12	10.00-10.10	Migratory bird origin low pathogenic H7N9 avian influenza virus and its transmission dynamics to land-based poultry in Bangladesh **Tasnim S**, Khatun MN, Hossain MR, Begum JA, Khan MAHNA, Chowdhury EH, Harder T, Parvin R
O-13	10.10-10.20	Genetic relatedness and interspecies transmission of MRSA among pets and pet's owner in selective areas of Bangladesh **Sarker H**, Hassan J, Rahman AKMA, Alam MM
O-14	10.20-10.30	Isolation, molecular detection, and genotypic variation of infectious bronchitis virus (IBV) in commercial chicken **Kabir M**, Sanjida A, Uddin MM, Hossain I, Chowdhury EH, Parvin R
O-15	10.30-10.40	Calf mortality and complications due to systemic infections in lumpy skin disease (LSD) in Bangladesh **Jerin I**, Hossain MR, Tasnim S, Rahman SM, Globig A, Hoffman B, Chowdhury EH, Parvin R*
O-16	10.40-10.50	Evaluation of the determinants of self-medication of antibiotics and its role in antimicrobial resistance development in rural people of Bangladesh **Sikder C**, Halder DK, Khanam R, Pathan R, Ahammed MT, Majumder S, Rahman MT, Hossain MG, Saha S
10.50-10.55		CHAIRMAN'S REMARKS

O-09. Distinct Amino Acid Substitutions in the EEV Glycoprotein and DNA-Dependent RNA Polymerase of Lumpy Skin Disease Virus Identified in Wetland Areas of Bangladesh

Hasan SMN, Hossain MG*, Mozumder A, Jeba N, Mia R

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Abstract

The recent lumpy skin disease virus (LSDV) outbreak in the wetland areas of Bangladesh represents a growing concern for animal health and regional biosecurity. Epidemiological investigations of nine major outbreaks identified distinct clinical signs in infected cattle, such as elevated body temperature, excessive salivation, and characteristic skin nodules. Histopathological analysis revealed these nodules were larger compared to those observed in previous outbreaks, accompanied by evidence of secondary bacterial infections, which may have exacerbated disease severity. Molecular analysis confirmed the presence of LSDV in all tested samples, with genetic sequencing showing similarities to virus isolates from neighboring and distant countries, including India, China, Russia, Serbia, and Greece. Crucially, amino acid variations were detected in the viral EEV glycoprotein and DNA-dependent RNA polymerase, leading to significant structural changes in these proteins. These alterations are hypothesized to influence viral pathogenicity, potentially affecting transmission dynamics and immune evasion. The successful isolation of LSDV in Vero cells demonstrated pronounced cytopathic effects, highlighting its potential as a platform for vaccine research and development. This study provides a comprehensive understanding of the epidemiology, genomic characteristics, and pathogenesis of recent LSDV outbreaks in Bangladesh. The findings underscore the urgency of enhanced surveillance, adopting region-specific biosecurity measures, and developing effective vaccines to combat this disease. Mitigating the spread of LSDV is essential to protecting livestock health, reducing economic losses in the agricultural sector, and safeguarding the livelihoods of affected communities.

Keywords: LSD, DNA, molecular, virus

O-10. The First Report of Concurrent Infection of Hemorrhagic Septicemia with Foot and Mouth Disease in Cattle in Bangladesh

Rahman MA[1], Zereen F[2], Hossain MG[1], Al-Amin M[2], Alam J[3], Shimada M[4], Rahman MT[1], Saha S[1*]

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Abstract

The most economically devastating infectious diseases affecting Bangladesh's cattle industry are Foot and Mouth Disease (FMD) and Hemorrhagic septicemia (HS). This

study aimed to investigate the concurrent infection of *Pasteurella multocida* type B:2, which causes HS, with cases FMD outbreaks in cattle in Bangladesh between March and December 2023. Total 102 Samples were collected from 11 outbreak areas. These included 54 FMD samples (saliva, tissue epithelium, and morbid tissues such as lung, spleen, and heart) and 54 HS samples (nasal swabs and morbid tissues) from 50 cattle of various ages and sexes, all showing clinical signs of suspected concurrent HS and FMD infection. After sample processing, molecular detection of FMDV and its serotypes was performed using Reverse Transcriptase PCR (RT-PCR) with universal and serotype-specific primers. The HS-causing agent, *Pasteurella multocida* type B:2, was initially identified through cultural and morphological characteristics on various media, followed by Gram's and methylene blue staining, biochemical tests, and pathogenicity tests through inoculation of isolates into mice. Finally, molecular detection of *Pasteurella multocida* type B:2 was confirmed through PCR. Forty-five (83%) of the 54 FMD suspected samples tested positive for FMDV, with 53% positive for serotype 'O,' 17% for serotype 'A,' and 6% for mixed serotypes 'O' and 'A.' Among FMDV-positive samples, 17 (38%) of the HS-suspected samples tested positive for concurrent infection with *Pasteurella multocida* type B:2. The study reveals that FMDV-induced acute immunosuppression in cattle can lead to complications from concurrent infections, particularly caused by *Pasteurella multocida* type B:2, resulting in HS alongside FMD.

Keywords: FMD, immunosuppression, concurrent infection, PCR, HS

O-11. Protective Efficacy of Combined Inactivated Newcastle Disease and Avian Influenza Subtype H9N2 Commercial Vaccines Available in the Market of Bangladesh

Hossain MR, Tasnim S, Akter MS, Chowdhury EH, Parvin R*

*Department of Pathology, Faculty of Veterinary Science, Bangladesh Agricultural University, Mymensingh-2202, Bangladesh; *Corresponding author: rokshana.parvin@bau.edu.bd*

Abstract

The two major diseases, Newcastle disease (ND) and avian influenza (AI) subtype H9N2, cause considerable economic losses for the poultry industry. Vaccination can successfully prevent and control the spread of the Newcastle disease virus (NDV) and low-pathogenic avian influenza virus (LPAIV) H9N2. Three popular commercial bivalent (ND+H9N2) vaccines (V1, V2, and V3) available on the Bangladeshi market were evaluated for efficacy and safety in this investigation. The pathogen-free commercial day-old chicks were divided into four groups (A-D) containing 50 birds. Groups A to C represent three commercial vaccines, and group D remained as a negative control. The immune response was measured using hemagglutination inhibition (HI) and enzyme-linked immunosorbent assay (ELISA) against both viruses individually. The findings suggested that vaccinated chickens developed significant antibody responses to the vaccinations. The highest rate of titer was observed from 3 weeks post-second booster for the NDV and 4 weeks post-first booster in the case of H9N2. The ND and H9N2 titers in each of the three vaccines tended to decrease before each booster shot and then increase and persist following each booster. After being challenged with the available strains of NDV and H9N2 14 days post-first booster shot,

the immunized chickens showed no signs. Moreover, compared to the controls, the vaccinated chickens exhibited minimal ongoing viral shedding with NDV and no virus shedding after the H9N2 AIV challenge. Our study revealed that the inactivated all three bivalent vaccines are effective against ND and LPAI in poultry and produce a quick and robust antibody response.

Keywords: NDV, H9N2, bivalent inactivated vaccine, vaccine efficacy, chicken

O-12. Migratory Bird Origin Low Pathogenic H7N9 Avian Influenza Virus and Its Transmission Dynamics to Land-Based Poultry in Bangladesh

Tasnim S[1], Khatun MN[1], Hossain MR[1], Begum JA[1], Khan MAHNA[1], Chowdhury EH[1], Harder T[2], Parvin R[1]*

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Abstract

Low pathogenicity avian influenza (LPAI) subtype H7N9 virus has been detected worldwide in wild birds and poultry. A geographically restricted lineage of highly zoonotic LPAI H7N9 viruses has caused fatal human infections in China, 2013-2018. In Bangladesh, the LPAI H7N9 virus was detected in freshly voided fecal samples originating from migratory birds in the Tangoar Haor wetlands area. Sequence analysis confirmed that the virus is distinct from the zoonotic Chinese lineage. Replication of the H7N9 virus was examined in chickens, quails, and ducks, and interspecies transmission was investigated by associating contact birds. All infected birds remained clinically healthy, but the virus was detectable in swabs and tissues up to 7 days post-inoculation (dpi). Viral replication, based on viral loads measured by RT-qPCR, was more effective in quails compared to chickens and ducks. Contact birds had lower viral loads than directly inoculated birds, indicating limited transmission capability. Increased transmission efficacy may require several passages for viral adaptation to these hosts. Inoculated quails and chickens showed hemorrhagic lesions and moderate to severe bronchopneumonia in lung tissues despite a lack of clinical signs. Ducks displayed no significant gross or microscopic lesions, which might have greater resistance to LPAIV. Based on the current genetic, replication and pathogenic features, the H7N9 virus represents a reassortant strain with low pathogenicity in chickens and ducks. However, increased viral shedding in quails compared to chickens and ducks highlights the potential to become a more virulent strain that may pose a risk to other domestic poultry and public health.

Keywords: Migratory bird, reassortant, H7N9, transmission dynamics

O-13. Genetic Relatedness and Interspecies Transmission of MRSA among Pets and Pet's Owner in Selective Areas of Bangladesh

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Abstract

This research was aimed to explore the genetic relatedness and interspecies transmission of MRSA among pets and their owners in selected areas of Bangladesh. A cross-sectional study was conducted between July 2022 and June 2024. A total of 213 human and 191 animal samples, including nasal, pus, and wound swabs, were collected from two veterinary hospitals. *Staphylococcus aureus* was isolated by cultural and biochemical methods like cultural characteristics, Gram staining, biochemical tests and re-confirmed by PCR. MRSA was confirmed by cefoxitin disk diffusion and mecA gene detection by PCR. Antimicrobial susceptibility was tested against 15 antibiotics by disk diffusion test. Interspecies transmission was analyzed by Whole Genome Sequencing (WGS) method. The overall prevalence of *S. aureus* was detected 31.92% in humans and 20.94% in pets, with MRSA detected in 15.02% and 7.33% in humans and pets. All MRSA isolates were resistant to cefoxitin, with high resistance to penicillin (94.87%), azithromycin (82.00%), and ciprofloxacin (53.85%) but were sensitive to amikacin, clindamycin, linezolid, and vancomycin. The WGS analysis identified SCCmec type IVa with predominantly four ST6 (66.67%) and Spa type t304 (58.33%). Virulence profiling revealed the presence of hemolysins, PVL, and TSST genes. The SNP analysis, MLST, Spa, and SCCmec patterns were identical in pairs (P134-C134, P151-C151, P185-C185, and P186-C186) suggesting clonal relatedness and potential MRSA transmission among them. These findings confirm genetic relatedness and potential zoonotic transmission of MRSA between pets and owners, emphasizing the importance of One Health approach to prevent zoonotic spread and protect both human and animal health.

Keywords: MRSA, pets, human, nasal swabs, one health

O-14. Isolation, Molecular Detection, and Genotypic Variation of Infectious Bronchitis Virus (IBV) in Commercial Chicken

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Abstract

Infectious bronchitis (IB) is an acute viral respiratory disease of poultry causing huge economic loss in Bangladeshi commercial chickens despite the wide use of vaccination. The primary aim of this study is to characterize the infectious bronchitis virus (IBV) in commercial chickens in Bangladesh. Between June 2022 and April 2024, 300 pooled samples (oropharyngeal and cloacal swabs from live birds and lungs and trachea from dead birds) were collected from the selected farms where respiratory outbreaks were

noticed. Among those flocks, layer (n=100), broiler (n=130), broiler breeders (n=20), and Sonali chickens (n=50) samples were screened for IBV by performing one-step RT-qPCR via SYBR Green chemistry. 70 samples were found positive for IBV, of which 27 were mixed infected with AIV or NDV. Out of these positive samples, 11 (IBV positives only) were selected for viral isolation and partial S1 sequencing. The S1 sequencing revealed the presence of the GI genotype and close similarities with Indian and Chinese varieties. Among GI genotypes, here we detected GI-24 in three samples that showed 99.2% nucleotide similarity with IB/MZ/IND/2/2015 S1 protein, whereas the other eight isolates belonged to GI-1 (Mass-like), having 98.67% similarity with China_I1124/2016. Moreover, the IBV GI-24 isolate showed unique nucleotide and amino acid changes compared to their closest relatives. Altogether, these findings confirmed the circulation of GI-1 and GI-24 lineages and alterations at key regions of the S protein that may be relevant to vaccine evasion. These results highlight the importance of genetic surveillance for improving vaccination strategies against infectious bronchitis.

Keywords: IBV, vaccination failure, genotypic variation, mutation

O-15. Calf Mortality and Complications Due to Systemic Infections in Lumpy Skin Disease (LSD) in Bangladesh

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Abstract

Lumpy skin disease (LSD) is a notifiable, transboundary, and high-impact disease of cattle, and Asian water buffaloes having significant morbidity and low mortality. During the surveillance of the LSD cases in Bangladesh from 2022 to 2024, several calf mortalities were noticed. Therefore, the study focused on the necropsy of selected dead cattle with a history of LSD infection. Here, a necropsy was performed on five dead calves and a single bull. Later molecular detection was done from the nodule using qPCR. Characteristic nodular lesions on the skin and mucous membranes, enlarged superficial lymph nodes, high body temperature, swelling of joints, and severe respiratory distress were the key indicators. Grossly, nodules of considerable depth in the skin, ruminal and intestinal mucosa, and periosteum. Congested, hemorrhagic, and hepatized lungs, enlarged lymph nodes, and atrophied spleen were found. In two dead calves, necrotic foci in the liver, kidney, and heart were observed along with the petechial hemorrhage in the heart indicating septicemia. In histopathology, generalized collapsing of the lungs' alveoli, vasculitis and focal consolidation, hepatocellular necrosis, portal hepatitis, fatty change in the liver, necrosis of the nasal gland, and necrotizing rhinitis were observed in acute conditions. In chronic situations, there were excessive collagen fibers, but normal distribution in the skin, severe lymphoid depletion, fluid accumulation, and congestion in the lymph nodes. Using a gene-specific primer and probe in TaqMan, the skin nodules showed a positive result of LSDV. The study

suggested that this calf died due to respiratory distress and secondary bacterial infection.

Keywords: Calf-mortality, LSD, complication, necropsy, mortality

O-16. Evaluation of the Determinants of Self-Medication of Antibiotics and Its Role in Antimicrobial Resistance Development in Rural People of Bangladesh

Sikder C[1], Halder DK[1], Khanam R[2], Pathan R[1], Ahammed MT[1], Majumder S[3], Rahman MT[1], Hossain MG[1], Saha S [1]*

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Abstract

Antimicrobial resistance, a growing global health threat, is largely driven by self-medication, a common practice among rural populations in Bangladesh. This study aimed to identify the determinants of self-medication of antibiotics (SMA) and assess its impact on the development of antimicrobial resistance (AMR). Data were collected from 456 participants randomly and analyzed using binary logistic regression and chi-square tests in IBM SPSS and Microsoft Excel. Subsequently, 90 rectal swab samples from SMA and non-SMA participants were collected to isolate and identify *E. coli* and *Klebsiella* spp. through cultural, biochemical, and molecular techniques. Phenotypic and genotypic resistance patterns were determined using disc diffusion method and PCR. Prevalence of self-medication (84.65%) found higher among male (86.83%), and uneducated (97.3%). Employment ($p<0.01$, 95% CI: 0.048-0.474), family members on health sector ($p<0.05$ 95% CI: 0.190-0.856), preference of self-treatment for minor illness ($p<0.05$, 95% CI: 1.144-5.125), and knowledge of antibiotics adverse effects ($p<0.01$, 95%CI: 1.991-26.449) were the significant factors which influence this behavior. Isolated *E. coli* (47.78%) and *Klebsiella* spp. (17.78%) exposed significant resistance patterns to different antibiotics. *E. coli* demonstrated 100% resistance to penicillin and cefixime; while *Klebsiella* spp. to azithromycin and penicillin. Genotypic analysis detected widespread resistance genes, with all *E. coli* from SMA participants harboring tetA, tetB, and blaTEM, while 77.78% of *Klebsiella* spp. carried the blaCMY gene. Both genotypic and phenotypic resistance were found high among SMA participants. Poor antibiotic knowledge and high levels of antimicrobial resistance underscore the need for public health interventions to reduce SMA and mitigate AMR accretion.

Keywords: Self-medication, antibiotics, antimicrobial resistance

Open Paper Session III

Date	:	2 February 2025 (Sunday)
Time	:	9.30-10.55
Venue	:	Pharmacology Gallery (Pre-clinical)
Chairman	:	**Professor Dr. Farida Yeasmin Bari** Department of Surgery and Obstetrics Bangladesh Agricultural University, Mymensingh
Co-Chairman	:	**Professor Dr. Sajeda Sultana** Department of Pathology, Sher-e-Bangla Agricultural University, Dhaka
Rapporteurs	:	**Dr. Tilak Chandra Nath** Associate Professor, Department of Parasitology, SAU, Sylhet
		DR. Popy Khatun Lecturer, Department of Pharmacology, BAU

Abs. no.	Time	Title and authors
O-17	09.30-09.40	IBH virus in broiler chickens: unveiling serotypes and molecular profiles in Bangladesh **Kamal T**, Rahman MH, Yasmin L, Hossain MJ, Ghosh S, Rahman MH, Rahman MH, Alam J, Islam T, Rahman MB
O-18	09.40-09.50	Biofilm-forming potential, agr typing, and antimicrobial profiles of methicillin-resistant *Staphylococcus aureus* isolated from oral cavity of human **Hridi AA**, Ashraf MN, Roy G, Rahman MT, Islam MS
O-19	09.50-10.00	Gastrointestinal helminthiasis in captive wild animals of Bangladesh **Rahman MS**, Tasnim J, Bhattacharjee T, Supto MSM, Siddiki T, Nath TC
O-20	10.00-10.10	Prevalence and zoonotic implications of gastrointestinal helminths in companion animals in urban Bangladesh **Tasnim J**, Rahman MS, Nath TC
O-21	10.10-10.20	Isolation and Characterization of Effective Probiotic Bacteria *Lactobacillus* spp. from Indigenous Chicken **Rahman L**, Sharna SA, Kallol MA, Rahman MB, Nazir KHMNH, Rahman M
O-22	10.20-10.30	Phylogenetic characterization and establishment of *in vitro* culture of *Babesia* sp. in Bangladesh **Parvin D**, Farjana T, Anisuzzaman , Rahman M
O-23	10.30-10.40	Isolation, phenotypic characterization and complete genome analysis of bacteriophage BAU.Micro_SLP-22 as a bio-controlling agent against multidrug resistant avian *Salmonella* spp. **Kallol MA**, Rahman L, Alam J, Rahman MB, Rahman M
O-24	10.40-10.50	Detail resistome and virulome analysis of *Klebsiella pneumoniae* from urine sample **Samio M**, Arnop KMA, Ahmed T, Rahman MB, Siddique MP
10.50-10.55		CHAIRMAN'S REMARKS

O-17. IBH Virus in Broiler Chickens: Unveiling Serotypes and Molecular Profiles in Bangladesh

Kamal T[1], Rahman MH[1], Yasmin L[1], Hossain MJ[1], Ghosh S[1], Rahman MH[1], Rahman MH[1], Alam J[2], Islam T[1], Rahman MB [1]*

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Abstract

Inclusion body hepatitis (IBH) is an acute liver disease in broiler chickens caused by fowl adenoviruses (FAdVs) of the Adenoviridae family. Recently, it has emerged as a major concern, causing outbreaks with poor feed efficiency, stunted growth, and increased mortality in poultry. This study analyzed liver and heart samples collected from suspected IBH cases across different regions of Bangladesh to detect the IBH virus through PCR targeting the Hexon and Polymerase genes. Sample preparation, DNA extraction, and PCR were conducted at the Department of Microbiology and Hygiene, BAU, while partial gene sequences have performed at NIB, Dhaka. PCR results confirmed IBH virus in 19/21 (90.47%) samples from Netrokona, 30/33 (90.90%) from Gazipur, 47/53 (88.67%) from Mymensingh, and 2/3 (66.66%) from Dinajpur. Molecular characterization through partial sequencing of Hexon and Polymerase genes identified three isolates from Trishal, Mymensingh as FAdV Class E, Serotype 8b. Additionally, FAdV Class D, Serotype 11, was detected and isolated from Katiadi, Kishoreganj, confirmed by sequencing the Polymerase gene. Among 98 PCR-positive IBH isolates, 26 were inoculated into embryonated chicken eggs via allantoic and CAM routes. Re-isolation was confirmed by PCR targeting the Polymerase gene. Partial sequencing of Hexon and Polymerase genes yielded GenBank accession numbers OP688506 to OP688511. This study highlights the widespread prevalence of IBH in broiler farms and provides valuable insights into the molecular diversity of FAdV strains. These findings underscore the need for comprehensive surveillance and effective vaccine development to mitigate the economic impact of IBH on the poultry industry in Bangladesh.

Keywords: IBH virus, hexon gene, polymerase gene, partial sequencing

O-18. Biofilm-Forming Potential, agr Typing, and Antimicrobial Profiles of Methicillin-Resistant *Staphylococcus aureus* Isolated from Oral Cavity of Human

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Abstract

Staphylococcus aureus are common inhabitants of the human oral cavity, but their emergence as antibiotic-resistant strains poses a significant public health concern. Therefore this study aimed to isolate and characterize biofilm-forming antibiotic-resistant *Staphylococcus aureus* from the oral cavity of humans. A total of 74 oral swabs were collected from a defined population, and bacterial isolation and identification were

performed using standard microbiological techniques. Antibiotic susceptibility test was conducted using the disk diffusion method. From 74 swab samples, 20 (27.03%) tested positive for *S. aureus*. MRSA (Methicillin Resistant *Staphylococcus aureus*) was identified in 20 isolates using the disk diffusion technique, and by PCR, 10 (50%) isolates were confirmed to carry the mecA gene. The Congo Red Agar test revealed that 55% (11 isolates) were biofilm-forming and 45% (9 isolates) were non-biofilm-forming. Out of 11 biofilm producer isolates 15% and 40% isolates exhibited strong and intermediate biofilm-forming characteristics, respectively. Molecular analysis revealed that 40% of MRSA isolates carried at least one gene related to biofilm formation, specifically icaB, and icaD genes were discovered in 35% and 5% of the MRSA isolates, respectively. In agr typing, the most prevalent group was agr I (30%). The overall multidrug resistance (MDR) rate was 60%, with ten distinct resistance patterns identified. This study highlights the growing concern of antibiotic resistance among oral *Staphylococcus aureus* and emphasizes the need for continuous surveillance and appropriate infection control measures to prevent the dissemination of these resistant strains.

Keywords: Oral cavity, MRSA, MDR, biofilm, agr typing

O-19. Gastrointestinal Helminthiasis in Captive Wild Animals of Bangladesh

Rahman MS, Tasnim J, Bhattacharjee T, Supto MSM, Siddiki T, Nath TC *

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Abstract

Gastrointestinal parasites pose significant health risks, including morbidity and mortality, in captive wild animals. These animals are particularly vulnerable to parasitic infestations due to confinement-induced stress and reduced natural defenses. This study aimed to identify gastrointestinal parasites in captive wild animals in Bangladesh. A total of 80 faecal samples of mammals, birds, and reptiles were collected from the Bangladesh National Zoo, Dhaka, and Tilagarh Eco Park, Sylhet, between May and December 2023 and then analyzed using the modified formalin-ether sedimentation technique. Six types of parasites were identified, with an overall helminth infection prevalence of 51.25%. Reptiles exhibited the highest infection rate (100%), while carnivorous/omnivorous mammals showed the lowest (16.67%). Artiodactyla, Perissodactyla, Proboscidea, and primates demonstrated varying infection rates. Mixed infections were detected in 27.78% of the samples, with Ascarididae and *Capillaria* species being predominant. The limited prevalence of trematode and cestode infections was attributed to their indirect life cycles. Despite the apparent good health of the animals, the high parasite prevalence suggests the presence of subclinical infections that could exacerbate under stress. This study underscores the urgent need for comprehensive epidemiological research, preventive measures, and effective management strategies for parasitic infections in zoo settings. Additionally, it highlights the importance of raising awareness among zoo personnel and visitors to mitigate zoonotic risks. Proactive interventions are essential to safeguard both animal and public health while ensuring the welfare of captive wildlife.

Keywords: Captive animals, gastrointestinal helminths, zoonoses

O-20. Prevalence and Zoonotic Implications of Gastrointestinal Helminths in Companion Animals in Urban Bangladesh

Tasnim J, Rahman MS, Nath TC *

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Abstract

Rapid urbanization in Bangladesh has shifted lifestyles, with villages becoming cities and nuclear families prevailing, and companion animals such as dogs and cats increasingly replacing traditional livestock. These animals often serve as children's playmates in limited outdoor spaces but pose notable public health, veterinary, and socioeconomic challenges due to the zoonotic potential of their enteric parasites. This study aimed to investigate gastrointestinal helminths and evaluate management practices among companion animals in Dhaka and Sylhet. Faecal samples (n=108) from dogs and cats were collected between March 2023 and February 2024. The samples were analyzed using the modified formalin-ether sedimentation technique, and factors associated with infection were modelled using descriptive statistics. Six helminth species were identified, with an overall prevalence of 64.81% (70/108). Helminths, including *Toxocara* sp., *Spirometra* sp., *Trichuris* sp., *Strongyloides* sp., Hookworms, and *Dipylidium* sp. were detected. In dogs, *Toxocara canis* was the most prevalent parasite (70.73%; 29/41), while in cats, *Toxocara cati* was dominant (41.37%; 12/29). Mixed infections were observed in 28.57% (20/70) of positive cases. Most animals were kept under free-range housing and fed a mixed diet, with frequent contact with other animals facilitating helminth transmission. Deworming practices were inconsistent, with limited awareness among pet owners about its importance. This study highlights the widespread occurrence of zoonotic helminths in Bangladeshi companion animals, emphasizing improved diagnostics, awareness, and management to reduce risks. Future research should explore molecular epidemiology and genetic diversity of gastrointestinal helminths in pets.

Keywords: Companion animals, helminths, zoonoses

O-21. Isolation and Characterization of Effective Probiotic Bacteria *Lactobacillus* spp. from Indigenous Chicken

Rahman L, Sharna SA, Kallol MA, Rahman MB, Nazir KHMNH, Rahman M*

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Abstract

Probiotic are living bacteria that, when given at sufficient quantities, offer health benefits to the host and are increasingly recognized as potential alternatives to antibiotics for managing poultry infections as well as enhancing poultry production.

Our present study was designed to isolate and characterize Lactobacillus spp. from digestive system of indigenous chickens. A total of 33 indigenous chicken intestine were collected and conducted enrichment of samples in MRS broth media followed by culturing on MRS agar media. Out of 33 samples, 15 *Lactobacillus* spp. were recovered and identified by conventional (colony characteristics, Gram's staining, biochemical tests) and molecular (PCR) methods. Of these, 5 isolates showed antibacterial activity against at least one tested pathogen (*Escherichia coli, Salmonella* spp., *Staphylococcus aureus,* and *Pasteurella multocida*) with a formation of inhibition ranging from 10 ± 0.32mm to 20 ± 0 mm by well diffusion method. Two isolates showed broad spectrum antimicrobial activity against all of the tested pathogen. All of the isolates having antibacterial activity showed good tolerance to pH 3.0, 0.3% bile, 6.5% NaCl and. These isolates showed no α-hemolytic and β-hemolytic activity on sheep blood agar. The antibiotic susceptibility test showed 100% resistance of the isolates to oxacillin, vancomycin and ciprofloxacin and showed 100% sensitivity to penicillin. Our research revealed five strains of *Lactobacillus* spp. with possessing characteristics of good probiotic. Additional research are required to assess these isolates for usage as poultry probiotic.

Keywords: Antimicrobial resistance, probiotics, *Lactobacillus* spp., poultry

O-22. Phylogenetic Characterization and Establishment of *in Vitro* Culture of *Babesia* sp. in Bangladesh

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Abstract

Babesiosis is a globally distributed disease of cattle. Immunization and chemoprophylaxis is effective for control of babesiosis. The present study is designed for molecular characterization and establishment of culture to prepare vaccines for effective control of bovine *Babesia* in Bangladesh. Giemsa's stained thin blood smears were used for identification of Babesia, and total genomic DNA from whole blood was analyzed using PCR and gel electrophoresis. Positive PCR products were sequenced commercially. Establishment of *in vitro* cell culture involved collecting blood from suspected cattle, confirming infection via Giemsa's staining, and preparing RBCs for culture. For *in vitro* culture of *Babesia*, cultures were set up in both RPMI-1640 and M-199 media separately, incubated at 37°C, and monitored using Giemsa's stain. Microscopically all the samples were positive and molecular analysis identified *Babesia bigemina* and *B. naoakii* in cattle from Sirajganj, Mymensingh and Pabna with 92.38% of positive cases showing co-infection with *Theileria* and/or *Anaplasma*. All the sequences of *B. bigemina* clustered together in the same clade and *B. naoakii* sequences were distributed in two clades showing close phylogenetic relationship with respective Babesia species previously found. Five *Babesia* cultures with subcultures were established and growth was monitored microscopically using Giemsa's stain every alternate days. *Babesia* remained viable for 10 days in primary culture and 8 days in

subculture, with cell lysis observed after 11 days. This study will help to understand and compare the biological variations among *Babesia* spp. prevailing in Bangladesh and will help in vaccine preparation for effective control of this parasite.

Keywords: Babesiosis, vaccine, *In vitro* cell culture

O-23. Isolation, Phenotypic Characterization and Complete Genome Analysis of Bacteriophage BAU.Micro_SLP-22 as a Bio-controlling Agent Against Multidrug Resistant Avian *Salmonella* spp.

Kallol MA[1], Rahman L[1], Alam J[2], Rahman MB[1], Rahman M*[1]

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Abstract

One of the key strategies in combating the multidrug-resistant bacterial outbreaks is the use of bacteriophage therapy as an alternative to antibiotics. Multidrug resistant (MDR) *Salmonella* spp. associated with Salmonellosis causes huge economic losses in poultry industries. This study focused on the isolation and characterization of a lytic bacteriophage, BAU.Micro_SLP-22, that was isolated from drain water as a therapeutic agent against MDR avian *Salmonella* spp. The phage exhibited a broad host lytic activity, remarkable thermal stability from 0°C to 70°C and pH survivability from 3 to ≥ 11. According to one step growth curve analysis, the isolated phage has relatively shorter latent period of < 20 min and larger burst size of about 300 PFU, which indicates it's strong lytic activity. The phage BAU.Micro_SLP-22 exhibited strong antibacterial activity against *Salmonella* spp.by *in vitro* antibacterial activity investigation. No toxicity was observed in case of toxicity investigation test as the phage was injected into BALB/c mice model. Moreover in vivo efficacy test of the isolated phage revealed the successful recovery report of the *Salmonella* spp. infected experimental Cobb 500 broiler chickens by the phage treatment. From Next generation sequencing (NGS) analysis data, the double stranded phage DNA length is 59738bp with 56.96% GC content, encoding 81 protein-coding genes containing no transfer RNAs, antibiotic resistance, virulence, temperate marker and CRISPR coding sequences. All the findings suggest that, BAU.Micro_SLP-22 is a potential candidate for phage therapy against MDR avian Salmonella spp. to combat against Salmonellosis as well as antibiotic resistance.

Keywords: Antimicrobial resistance, phage therapy, salmonellosis

O-24. Detail Resistome and Virulome Analysis of *Klebsiella pneumoniae* from Urine Sample

Samio M, Arnop KMA, Ahmed T, Rahman MB, Siddique MP*

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Abstract

The *Klebsiella pneumoniae (K. pneumoniae)*, next to *Escherichia coli*, is one of the major bacterial pathogens causing urinary tract infection (UTI) in human and animals. This study aimed to investigate the distribution of virulence factors, antibiotic resistance, and biofilm formation in uropathogenic *K. pneumoniae*. A total of 470 urine samples were collected from the Urology section of Mymensingh Medical College Hospital (MMCH) and preliminary screening was accomplished at MMCH. Further cultural, biochemical and molecular confirmation (through polymerase chain reaction; PCR), virulence and antibiogram was done at Bacteriology Laboratory of Department of Microbiology and Hygiene, Bangladesh Agricultural University. Antibiogram was done using disc diffusion method against recommended antimicrobial agents. PCR was used to detect virulence genes (iutA, magA, kfu, rmpA, allS, ybtS, mrkD, K2A, entB), ESBL-encoding genes (blaTEM, blaCTX-M, blaOXA-1, blaSHV), and carbapenemase genes (blaNDM, blaKPC). Among virulence genes, mrkD was most frequent (80%), while k2A was least common (2%). Antibiogram profile showed that all isolates were resistant to Ampicillin and Amoxicillin-Clavulanate, with 100% showing multidrug resistance (MDR) and 84.6% producing ESBLs. The blaSHV gene was most prevalent (66.66%), followed by blaTEM (46.67%), blaCTX-M (40%), and blaOXA-1 (26.66%). Five isolates (33.33%) carried the blaNDM gene, but none harbored blaKPC. The Congo Red Agar (CRA) method showed biofilm production, with 13.33% strong, 46.66% moderate, and 40.00% weak biofilm producers. It could be concluded that MDR virulent and biofilm-forming K. pneumoniae were prevalent in UTIs, highlighting the need for nationwide AMR surveillance, stakeholder collaboration, and point-of-care diagnostics to address this issue.

Keywords: *Klebsiella pneumoniae*, uropathogen, virulence, AMR, biofilm

Open Paper Session IV

Date	:	2 February 2025 (Sunday)
Time	:	11:15-12.40
Venue	:	Pathology Gallery (Pre-clinical)
Chairman	:	**Professor Dr. Md. Shahidur Rahman Khan** Department of Microbiology and Hygiene Bangladesh Agricultural University, Mymensingh
Co-Chairman	:	**Professor Dr. Md Taohidul islam** Department of Medicine Bangladesh Agricultural University, Mymensingh
Rapporteurs	:	**DR. Chandra Shaker Chouhan** Assistant Professor, Department of Medicine, BAU
		DR. Sayra Tasnin Sharmy Lecturer, Department of Medicine, BAU

Abs. no.	Time	Title and authors
O-25	11.15-11.25	Molecular detection and risk factor analysis of zoonotic diseases in broiler and sonali chickens at live bird markets in Dhaka city **Waliullah MM**, Marma AY, Badhy SC, Chowdhury MGA, Sultana S
O-26	11.25-11.35	Development of an inactivated vaccine against H9N2 avian influenza in chickens **Jui NN**, Shila RA, Moni SS, Karmokar D, Hossain I, Chowdhury EH, Parvin R, Begum JA
O-27	11.35-11.45	Designing of a chimeric multiepitope vaccine against bancroftian lymphatic filariasis through immunoinformatics approaches **Parvin R,** Masum MHU, Ferdous J, Mahdeen AA, Khan MSI
O-28	11.45-11.55	Development of cell mediated immune responses in cattle against *Brucella abortus* biovar 3 after immunized with experimentally developed inactivated alum adjuvant *Brucella* vaccine **Rahman MZ**, Nahiduzzaman M, Sobur KA, Bose P, Parvin R, Khatun MM, Islam MM
O-29	11.55-12.05	Tasisulum-induced suicidal death of human erythrocytes **Bhuyan AAM***, Ali MN, Choudhury MA, Lang F
O-30	12.05-12.15	Clonal relationship, antimicrobial resistance and virulence profile of mobile colistin resistance (*mcr*) gene carrying *Klebsiella pneumoniae* isolated from retail foods and environment **Nahar A,** Islam AKMA, Hosain R, Hasan MM, Alam MM
O-31	12.15-12.25	Pathotyping, genotyping and cytopathic effect assessment of Newcastle disease virus circulating in chickens at selected areas in Bangladesh **Zereen F,** Rahman MA, Sobur MA, Alam J, Rahman MT, Hossain MG, Saha S
O-32	12.25-12.35	Synbiotic and multi-strain probiotic enhance lymphoid nodule aggregation, lipid metabolism, and immunity in deshi chickens **Hussain H,** Miah MY, Siddiqui MSI
12.35-12.40		CHAIRMAN'S REMARKS

O-25. Molecular Detection and Risk Factor Analysis of Zoonotic Diseases in Broiler and Sonali Chickens at Live Bird Markets in Dhaka City

Waliullah MM[1], Marma AY[1], Badhy SC[2], Chowdhury MGA[2], Sultana S[1]*

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Abstract

This study aimed at the prevalence of zoonotic diseases and associated risk factors in live bird markets (LBM) across Dhaka city. A total of 125 swab samples were collected from 25 LBMs, including pooled environmental, oropharyngeal and cloacal swabs from broiler and Sonali chickens of three shops from each market. Molecular detection of causal agents were performed using real-time PCR at CDIL, Dhaka. Predesigned questionnaires were used to analyze risk factors with statistical analysis (SPSS v.30). The significant zoonotic disease was Avian influenza (AI) type A detected in 88% LBM markets, showing varying distribution among broiler (56%), Sonali (63%), and environmental samples (60%). H5 subtype was identified in 12% of markets, exclusively in environmental samples whereas H9 subtype was found in all positive markets. Newcastle disease (ND) showed lower prevalence, present in 31% of markets, whereas environmental samples showed higher positivity (30%) compared to broiler (16%) and Sonali samples (25%). Astrovirus was ubiquitous, detected in all markets (n=25) with 75% prevalence in both broiler and Sonali samples. Most notably, 84% of shops allowed buyers within one meter of birds, while 82% reported rodent infestations. Poor biosecurity measures were evident, with 62% of shops disposing waste directly into common drains, and only 50% cleaning poultry holding areas daily. Additionally, 29% of shops never used disinfectants, and 27% of shop workers reported regular illness. The highest prevalence of Astrovirus (100%) followed by AI type A (88%) and the least was ND, 31%. Risk factor analysis identified several concerning practices in live bird shops.

Keywords: LBM, molecular detection, poultry, risk factor, zoonosis

O-26. Development of an Inactivated Vaccine Against H9N2 Avian Influenza in Chickens

Jui NN, Shila RA, Moni SS, Karmokar D, Hossain I, Chowdhury EH, Parvin R, Begum JA *

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Abstract

Low pathogenic avian influenza (LPAI) H9N2 has been endemic since 2006, has caused significant economic damage by reducing egg production and increasing costs. In order to control H9N2 in Bangladesh and to fulfill the country's substantial demand for H9N2 vaccines (about 200 million doses/year), our study was designed to develop an inactivated vaccine using circulating tribasic H9N2 isolate A/ Broiler/ Bangladesh/ LT56/ 2021 (LT56/2021) as a vaccine candidate. The virus was inactivated using β-

propiolactone (BPL) and formalin and the inactivation was verified through two successive passages in 9-day-old embryonated chicken eggs. As an adjuvant Montanide ISA 70VG was used. A total of 200 DOC was purchased and divided into 5 subgroups: Group 1 (V1; n=30@0.25ml/SC_Formalin); Group 2 (V2; n=30@0.5ml/IM_Formalin); Group 3 (V3; n=30@0.25ml/SC_BPL) and group 4 (V4; n=30@0.5ml/IM_BPL) and Group 5 (G5; n==30@0.25ml/SC_PBS). At 21 days of age, the birds (HI titer≤3) were received two doses (@0.25 and 0.5 ml S/C and I/M) of the inactivated vaccine groups and negative control birds received only PBS. Sera were collected at 14, 21, and 28 days of post vaccination to assess the immune response by HI and ELISA tests. Sera of chickens that were vaccinated with commercial H9 vaccine was used as positive control. Throughout the study, the birds showed significantly better antibody response against BPL killed H9N2 inactivated vaccine at all timepoints compared to Formalin killed H9N2 vaccine. Following formalin killed vaccination, the significant immune response was found at 21, and 28 days through IM route. Afterward, protective efficacy was evaluated through homologous H9N2 challenge studies and found significant protection (100%). No mortality of chickens was observed throughout the experiment after vaccination. The results demonstrated that the inactivated H9N2 vaccine effectively triggered a strong and swift humoral immune response in the vaccinated chickens.

Keywords: Avian Influenza, H9N2 vaccine, immunogenicity, antibody titre

O-27. Designing of a Chimeric Multiepitope Vaccine Against Bancroftian Lymphatic Filariasis through Immunoinformatics Approaches

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Abstract

The filarial worms of *Wuchereria bancrofti* are the primary cause of lymphatic filariasis (LF), a mosquito-borne disease among the neglected tropical parasitic diseases. Considering the global endemic consequences of the disease, there is a need to develop a successful vaccine candidate against LF. Using advanced immunoinformatics approaches, we designed two multiepitope vaccines targetingW. bancrofti's glutathione S-transferase and thioredoxin. Therefore, we predicted several MHC-1, MHC-2, and B-cell epitopes from these proteins and mapped two vaccine candidates (V1 and V2). The vaccines were subsequently employed for physicochemical analysis, structural prediction and validation, docking and normal mode analysis, codon optimization, and immune simulation. The selected MHC-1, MHC-2, and B-cell epitopes were antigenic without allergenicity or toxicity. The designed vaccines were expected to be soluble, stable proteins under physiological conditions. Compared to V2, V1's secondary and tertiary structures were simultaneously favorable, with Ramachandran plot analysis

revealing 95.6% residues in favored areas. Subsequently, the molecular docking analysis indicated that the V1 had a high binding affinity for the TLR-2, TLR-4 and TLR-5, as suggested by the docking scores of -1248.7, -1038.5 and -1562.8, respectively. The NMA of these complexes further indicated their structural flexibility. Molecular dynamics simulations of V1-TLR complexes revealed V1-TLR-4 as the most stable, with the lowest free energy and minimal fluctuations, indicating the strongest binding affinity. The results of the codon optimization showed high levels of expression, with a favorable CAI score (<1.0). A three-dose vaccination analysis showed significant and persistent immunological responses, including adaptive and innate immune responses. The findings emphasize the potential of the V1 against *W. bancrofti*, but further validation is required through in vitro, in vivo, and clinical trials.

Keywords: Filariasis, vaccine design, molecular dynamics simulations, computational biology

O-28. Development of Cell Mediated Immune Responses in Cattle against *Brucella abortus* Biovar 3 after Immunized with Experimentally Developed Inactivated Alum Adjuvant *Brucella* Vaccine

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Abstract

Brucellosis is a significant infectious disease of cattle all over the world, an effective vaccine is crucial for controlling this disease. This study focuses on the development and validation of an inactivated alum-adjuvanted *B. abortus* biovar 3 vaccine. To assess the safety and efficacy of inactivated alum-adjuvanted *B. abortus* biovar 3 vaccine in cattle using cultural and molecular methods and clinical observation in mice were perfomed. Development of cell mediated immunogenicity was confirmed using BASA in skin of vaccinated cattle and PBS in skin of unvaccinated cattle. The skin thickness was measured and evaluated using slide calliperse due to effects of delayed-type hypersensitivity (DTH) reaction and subsequent histopathology. The mean values of initial double fold skin thickness were found to be 7.608±0.220 mm and 7.59±0.172 mm for the BASA-injected site and the PBS-injected site, respectively. However, skin thickness were observed (9.40±0.114 mm, 7.92 ±0.102mm), (9.40±0.114mm, 7.92 ± 0.102mm) and (9.40±0.114mm, 7.92 ± 0.102mm) at 24 hr, 48hr and 72 hr of post sensitization with BASA and PBS respectively. The results showed that the mean values of skin thickness were found to be significantly higher ($p<0.05$) at the BASA-injected site compared to the PBS-injected site (control) at 72 hours post-test. Similarly, the histopathology features of the skin after BASA-induced delayed-type hypersensitivity (DTH) reaction at 35 DPV indicate induction of cell mediated immune responses. The development of cell mediated immunity was confirmed at the site of injection by histopathological analysis and can protect any *Brucella* infection.

Keywords: *Brucella abortus* biovar 3, alum adjuvant vaccine, BASA, DTH

O-29. Tasisulum-induced Suicidal Death of Human Erythrocytes

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Abstract

Tasisulum, an acyl-sulfonamide, is used in clinical trials investigating its efficacy against several cancers, including non-small cell lung cancer (NSCLC), lymphoma, breast cancer, melanoma, solid tumors, colon cancer, and ovarian cancer. Tasisulum inhibits the growth of tumors in part by inducing apoptosis. Anemia is one of the side effects of tasisulum therapy. Theoretically, tasisulum-mediated anemia may come from increased eryptosis or suicidal death of erythrocyte, characterized by cell shrinkage, membrane blebbing, and translocation of phosphatidylserine (PS) from the inner cell membrane to the outer cell membrane. Signaling connected to eryptosis includes increased intracellular calcium activity ([Ca2+]i), oxidative stress, ceramide formation, and stimulation of kinases or caspases. This study investigated the potentiality of tasisulum in inducing eryptosis and its underlying signaling pathways. Human erythrocytes (0.4%) were incubated with different concentrations of tasisulum (75, 150, and 300 µg/ml) for 48 hours at 37° C. Externalization of PS, erythrocyte volume, cytosolic calcium, ROS formation, and ceramide generation were measured by flow cytometry. Tasisulum (≥ 300 µg/ml) significantly increases the death of erythrocytes, intracellular calcium concentration, ROS, and ceramide formation but does not shrink the cell membrane. The effect of tasisulum on erythrocyte death was significantly decreased by the removal of extracellular calcium or by inhibiting casein kinase 1, but not by inhibiting protein kinase C, p38 kinase, or caspases. Tasisulum triggers eryptosis, which is mediated by cytosolic calcium entry, ceramide generation, oxidative trauma, and the activation of casein kinase 1.

Key Words: Eryptosis; Tasisulum, calcium, oxidative stress, casein kinase 1

O-30. Clonal Relationship, Antimicrobial Resistance and Virulence Profile of Mobile Colistin Resistance (*mcr*) Gene Carrying *Klebsiella pneumoniae* Isolated from Retail Foods and Environment

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Abstract

Colistin is one of the last resorts of antibiotics to combat multidrug resistant (MDR) bacterial infections. Mobile colistin resistance (mcr), an emerging antimicrobial resistance (AMR), which pollutes our environment through the food chain. The aim of this study was to detect *mcr* carrying *Klebsiella pneumoniae* from retail foods and environment and characterize them for clonal relationship, AMR pattern and virulence potential. A total of 250 samples (beef n=100, fish n=50, vegetable n=50, soil n=25, irrigation water n=25) were tested. The highest percentage of *K. pneumoniae* was found in beef (50%), followed by fish (20%), soil (14%), irrigation water (12%) and vegetables (8%). Detection of *mcr* gene in isolated *K. pneumoniae* was done by PCR. Among the *K. pneumoniae* isolates, the highest percentage of *mcr-1* genes was found in beef (13%), followed by fish (6%), irrigation water (4%) and soil (3%). No *mcr-1* genes were found in isolates of vegetables origin. Isolates from different origins showed no clonal relationship by ERIC-PCR molecular typing. Irrespective of origin, *mcr* carrying isolates showed the highest resistance to Tetracycline, Cefoxitin, Ampicillin, and Cefotaxime. Two virulence genes, *rmpA* and *wcaG* were detected in *mcr* carrying isolates. Notably, isolates from beef origin harbored the highest prevalence of both the K5 serotype and the *rmpA* gene compared to isolates of other sources. For the first time in Bangladesh, this study find outs the emergence of genetically diversified, pathogenic and MDR *mcr* carrying *K. pneumoniae* in retail foods and environment together, which is very alarming for public health.

Keywords: ERIC PCR, *rmpA* gene, *wcaG* gene, K5 serotype

O-31. Pathotyping, Genotyping and Cytopathic Effect Assessment of Newcastle Disease Virus Circulating in Chickens at Selected Areas in Bangladesh

Zereen F[1], Rahman MA[1], Sobur MA[2], Alam J[3], Rahman MT[1], Hossain MG[1], Saha S[1*]

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Abstract

The most economically devastating infectious disease affecting Bangladesh's poultry industry is Newcastle disease (ND). The research was undertaken for pathotyping,

genotyping and assessment of cytopathic effect (CPE) of ND virus (NDV) circulating in chickens at selected areas in Bangladesh during May 2023 - August 2024. Depending on post mortem lesions, a total of 63 ND suspected samples (lung, trachea and caeca tonsil) were collected from chickens of Gazipur, Tangail and Mymensingh districts in Bangladesh. Following sample processing, 10-12 days old embryonated chicken eggs (ECEs) were injected with the inoculums of RT-PCR positive 25 NDV samples through allantoic cavity. Post 24 hours of inoculation, the allantoic fluids from ECEs were collected. NDV identity was performed by Hemagglutination (HA) and RT-PCR. The pathotype was determined by Mean Death Time (MDT), Intracerebral athogenicity Index (ICPI) and complete F gene sequences and the genotype by phylogenetic analysis. Subsequently, the CPE was assessed through culture in chicken embryo fibroblast cells. 7 isolates (28%) from ECEs out of 25 samples were verified as NDV through HA, and RT-PCR. The MDT (1.5) and complete F gene sequences showing F-protein cleavage site "RRQKRF" indicated that the NDV isolates were velogenic strain. Phylogenetic analysis demonstrated that the isolates were genotype XIII. In chicken embryo fibroblast cell culture, the cell became rounded, detached and multi-nucleated after 48 hours of NDV infection. The study revealed that the velogenic strains of genotype XIII NDVs are circulating among the poultry population at selected areas in Bangladesh triggering death of chickens.

Keywords: NDV, fusion gene, velogenic strain, genotype XIII, cytopathic effect

O-32. Synbiotic and Multi-Strain Probiotic Enhance Lymphoid Nodule Aggregation, Lipid Metabolism, and Immunity in Deshi Chickens

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Abstract

Synbiotic and probiotic supplementation are well known to enhance poultry health and performance. This experiment aimed to evaluate the effects of multi-strain probiotic and synbiotic supplementation on the histo-architectures of immune organs, lipid metabolism, and immunity of non-descript deshi chickens. Materials and Methods: A total of 108 day-old chicks were assigned to three groups (T0, T1, T2) in a completely randomized design, with each group having six replicates of six birds. The control group (T0) received a commercial diet, while the treatment groups were supplemented with multi-strain probiotic (T1) and synbiotic (T2) (Protexin®: 1 mL/L + Prebiotic Inulin-FOS: 2 g/L). Lymphoid organs were collected at 84 days for histomorphometric analysis, while blood and serum samples were obtained periodically to assess hematobiochemical parameters and humoral immune response using the Hemagglutination Inhibition test. Synbiotic supplementation (T2) resulted in significantly ($P < 0.05$) higher weights and organosomatic indices of the bursa and thymus. Histomorphometric analyses revealed increased aggregation of B and T lymphocytes, along with a greater number of aggregated lymphoid nodules in the synbiotic group. Additionally, synbiotic supplementation significantly improved (P <

0.05) hematological parameters, including total RBC, Hb, PCV, while reducing cholesterol and triglyceride levels. The immune response, measured by antibody titers, was significantly ($P < 0.05$) higher in the T2 group at days 14, 28, 42, and 56 of the experiment. Synbiotic supplementation positively influenced lymphoid organs histoarchitecture, immunity and lipid profile highlighting its potentiality as a functional dietary intervention for improving poultry health and productivity.

Keywords: Deshi chicken, lymphoid organ histoarchitecture, blood profile

Open Paper Session V

Date	:	2 February 2025 (Sunday)
Time	:	11.15-12.40
Venue	:	Physiology Gallery (Pre-clinical)
Chairman	:	**Professor Dr. Md. Abu Hadi Noor Ali Khan** Department of Pathology Bangladesh Agricultural University, Mymensingh
Co-Chairman	:	**Dr. Mohammad Rafiqul Islam** Member Director, Planning and Evaluation, BARC
Rapporteurs	:	**DR. Farzana Yeasmin** Assistant Professor, Department of Medicine, BAU
		DR. Ismail Hossain Lecturer, Department of Pathology, BAU

Abs. no.	Time	Title and authors
O-33	11.15-11.25	Risk factors influencing conception rate following artificial insemination in dairy cows: an epidemiological study in Sylhet district **Banik S**, Hossain MK, Choudhury P, Siddiqa A, Pranto PS
O-34	11.25-11.35	Multi-drugs resistant bacteria in raw and cooked edible poultry offal sold in chicken markets and restaurant: a looming health concern in Bangladesh Begum S, **Basak A**
O-35	11.35-11.45	Clarification of a unique tertiary lymphoid tissue in a lupus nephritis mouse model: its implications for the development of renal lesions **Masum MA**, Ichii O, Kon Y
O-36	11.45-11.55	Molecular pathotyping of Newcastle disease virus from naturally infected chickens at Sylhet division of Bangladesh by a novel re-based method following RT-PCR **Akter M**, Noor M, Kamal AHM, Mamun TI, Paul B, Ashour HM, Rahman MM
O-37	11.55-12.05	Prevalence of multidrug-resistant motile non-typhoidal *Salmonella* in commercial poultry farms of Feni, Bangladesh: a looming public health risk **Sarker S**, Dhar K, Hayat S, Masum MHU, Mahdeen AA, Akter S, Nohash AJ, Hasan SA, Hasnat A, Badhy SC, Chowdhury MGA, Barua A
O-38	12.05-12.15	Occurrence, virulence genes and antimicrobial susceptibility of *Campylobacter jejuni* from sugarcane juice in Mymensingh Liza RA, **Islam MR**, Nobi MA, Kabir SML
O-39	12.15-12.25	Detection and characterization of biofilm-forming antibiotic-resistant *Enterococcus faecalis* in dairy cattle and farm environments in selected areas of Bangladesh **Fahim NAI**, Salam S, Masud RI, Rana ML, Hasan MAE, Saha S, Rahman MT
O-40	12.25-12.35	Genomic insights into two ST19 multidrug-resistant *Salmonella enterica* serovars isolated from chickens in Bangladesh **Popy NN**, Khan MFR, Rahman M, Rahman MB
12.35-12.40		CHAIRMAN'S REMARKS

O-33. Risk Factors Influencing Conception Rate Following Artificial Insemination in Dairy Cows: An Epidemiological Study in Sylhet District

Banik S[1], Hossain MK[2]*, Choudhury P[1], Siddiqa A[1], Pranto PS[1]

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Abstract

Risk Factors Influencing Conception Rates Following Artificial Insemination in Dairy Cows: An Epidemiological Study in Sylhet District. This study was conducted to observe the risk factors contributing to the conception after artificial insemination of dairy cows in the Sylhet region of Bangladesh. Data of total of 280 dairy cows has been collected through face-to-face interviews with farmers using a standardized questionnaire considering breed, age, parity, semen type, and insemination site as potential risk factors impacting cow conception rate. Additionally, climate, food, housing, lack of knowledge of technicians, and improper farm management were also taken under consideration. All the data were statistically analyzed by using Microsoft Excel 2013 and SPSS version 25. Conception rate in adult aged animals varied significantly than old and young (co-efficient 1.298, P=0.014). Parity number among the animals studied did not show significant variation (co-efficient: 0.052, P=0.0510). Significant difference was observed in conception rate between local and crossbreed cows (co-efficient: 0.298, P=0.036). HF 87.5% was found to be most effective type of semen in terms of getting maximum conception rate (co-efficient: 0.236, P=0.016) while uterine body has been found the most effective site for higher conception rate in dairy cows (co-efficient: 0.38, P value:0.009). Among the other factors, climate, housing improper farm management played an important role on influencing maximum conception rate. we can conclude that, the factors discussed in the whole study can greatly made an impact on conception of dairy cows after inseminating artificially in Sylhet region of Bangladesh.

Keywords: Artificial insemination, conception rate, dairy cows

O-34. Multi-Drugs Resistant Bacteria in Raw and Cooked Edible Poultry Offal Sold in Chicken Markets and restaurant: A Looming Health Concern in Bangladesh

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Abstract

Edible poultry offal (gizzards, hearts and livers) a common source of protein for many people in Bangladesh, is readily available in poultry markets. However, this offal can harbor antibiotic-resistant microorganisms when sourced from open markets. Restaurants often use giblets to prepare mixed curries for breakfast dishes. This study investigates the prevalence and diagnosis of such resistant bacteria in these readily

available poultry parts. We explore the potential threat these resistant microbes pose to human health upon consumption of contaminated offal. The methods employed for diagnosing zoonotic (transmissible between animals and humans) antibiotic-resistant bacteria are outlined, highlighting the importance of identifying these threats for consumer safety. Raw giblets were collected from open markets and cooked giblets were collected from different restaurants and then cultured for bacteria. The presence of genes conferring resistance to antibiotics was confirmed using PCR with commercially available kits. *Salmonella enterica* and *E. coli* were found in all samples (100%), with well-grown and distinct colonies on the culture media. Additionally, multidrug-resistant genes were detected in both *Salmonella* spp. (45%) and *E. coli* (42%) . This high prevalence may be due to the practice of accumulating giblets from multiple chickens in a single container for sale in open markets. The findings emphasize the public health concern associated with antibiotic-resistant bacteria in open market poultry offal and the need for potential mitigation strategies.

Keywords: Multi-drug resistant genes, giblets, poultry, prevalence

O-35. Clarification of a Unique Tertiary Lymphoid Tissue in a Lupus Nephritis Mouse Model: Its Implications for the Development of Renal Lesions

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Abstract

Lupus nephritis (LN) is a common complication in humans and the most predominant cause of glomerulonephritis. LN is intimately linked to renal lesions (RLs) development and is characterized by the presence of infiltrating immune cells and immunocomplexes in the kidney. However, their regulation mechanism in LN is yet unknown; nevertheless, it is helpful in preventing the development of RL in LN. Here, we demonstrate how vasculature-associated lymphoid tissue (VALT) develops in LN. Kidney tissue from the LN model mouse was examined by routine histopathological techniques, immunohistochemistry, PCR, transcriptomic analysis, and scanning electron microscopy. VALT is distinct from other tertiary lymphoid tissues because it is linked to renal inflammatory cytokines. Transcriptomic analysis revealed different chemokines and costimulatory molecules for VALT induction and organization. Vascular and perivascular structures showed lymphoid tissue organization through lymphorganogenic chemokine production. Additionally, transcriptional profiling demonstrated antigen presentation, lymphocyte activity, clonal expansion, follicular, and germinal center activity in VALT. Importantly, VALT size was correlated with infiltrating immune cells in the kidney and RLs, indicating its direct correlation with the development of RLs. In addition, dexamethasone administration reduced VALT size. Therefore, inhibition of VALT formation would be a novel therapeutic strategy against LN.

Keywords: Lupus nephritis, tertiary lymphoid tissue, kidney

O-36. Molecular Pathotyping of Newcastle Disease Virus from Naturally Infected Chickens at Sylhet Division of Bangladesh by a novel RE-based method following RT-PCR

Akter M[1], Noor M[1], Kamal AHM[1], Mamun TI[2], Paul B[3], Ashour HM[4], Rahman MM [2]*

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Abstract

Newcastle disease (ND), caused by Newcastle disease virus (NDV), is a major threat to poultry worldwide, affecting commercial and backyard flocks. NDV strains are categorized into lentogenic (low virulence), mesogenic (moderate virulence), and velogenic (high virulence) pathotypes. Regular surveillance and pathotyping are essential for disease control. This study aimed to detect and characterize NDV molecularly in chickens in Sylhet district, Bangladesh. Twenty chickens suspected of ND were collected from 10 poultry farms and were subjected to post-mortem examination. RT-PCR targeting the NDV "F gene" (class-II), followed by gene sequencing and phylogenetic analysis of two representative amplicons were done. Also, in silico restriction enzyme (RE) analysis using NEB cutter was performed to discover a single RE (PstI) digestion site in F gene for detecting distinct pathotype of NDV. Characteristic lesions included tracheal hemorrhages, proventricular and caecal tonsil hemorrhages, and intestinal ulcers. RT-PCR targeting the NDV "F gene" (class-II) confirmed infection in all samples, amplifying a 535-bp fragment. Sequencing and phylogenetic analysis revealed that both broiler (S1) and layer (S2) strains belonged to genotype-VII, closely related to velogenic strain from India (Accession no. OP852793). In silico analysis identified a novel PstI RE site in the F gene cleavage site, producing distinct 113-bp and 407-bp fragments. In conclusion, highly virulent velogenic strains of NDV of genotype-VII might be circulating in chickens in Sylhet district, Bangladesh. This novel RT-PCR and RE digestion approach could facilitate large-scale molecular surveillance and pathotyping of NDV. However, experimental validation of the PstI digestion method is recommended.

Keywords: NDV, RT-PCR, pathotyping, genotyping, molecular surveillance

O-37. Prevalence of Multidrug-Resistant Motile Non-Typhoidal *Salmonella* in Commercial Poultry Farms of Feni, Bangladesh: A Looming Public Health Risk

Sarker S[1], Dhar K [2]*, Hayat S[1], Masum MHU[3], Mahdeen AA[4], Akter S[5], Nohash AJ[2], Hasan SA[2], Hasnat A[1], Badhy SC[5], Chowdhury MGA[5], Barua A[4]

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Abstract

Zoonotic motile non-typhoidal *Salmonella* (MNTS) is a leading cause of foodborne illness worldwide. Their widespread prevalence and emergence of antimicrobial resistance (AMR) is a global public health concern necessitating regular surveillance. This study was conducted to determine the prevalence of motile MNTS in commercial poultry farms within the Feni district of Bangladesh, investigate antimicrobial resistance patterns, and detect antibiotic resistance genes. MNTS were isolated and identified from 80 faecal samples based on characteristic growth on selective media and biochemical properties. Identities of the *Salmonella enterica* subspecies enterica isolates were resolved by MALDI-TOF-MS. Antimicrobial susceptibility testing was performed following standard disk diffusion method. PCR was employed to detect blaTEM-1, blaCTX-M, blaCTX-M-15, blaCMY, blaCMY-2, SHV, ndmA, tet(A), tet(B), sul1, and aac(3)-IV genes.The prevalence of Salmonella enterica subspecies enterica was 15%. All isolates (n=12) exhibited susceptibility to ceftriaxone, chloramphenicol, meropenem, nitrofurantoin and tigecycline. In addition, all isolates exhibited intermediate susceptibility to cefuroxime. Noticeably, few isolates exhibited resistance to ampicillin (33.3%,), trimethoprim-sulfonamide (25%), cefepime (8.3%), cefoxitin (8.3%), and gentamycin (8.3%). The most prevalent genotypes were blaTEM-1 (100%), blaCTX-M (91.7%), sul1 (83.4%), blaCMY-2 (58.4%), SHV (58.4%), and tet(A) (50%). Alarmingly, 58.3% (n=7) isolates were recognized as multidrug-resistant (MDR) based on the PCR analysis. The prevalence of MNTS and the presence of MDR strains in the study area pose potential risks of zoonotic transmission; raising serious public health concern. The study aligns with One Health Initiative strategy of AMR surveillance and reporting, and emphasizes the need for preventive actions.

Keywords: MNTS, AMR, *Salmonella enterica*, resistance genes, public health

O-38. Occurrence, Virulence Genes and Antimicrobial Susceptibility of *Campylobacter jejuni* from Sugarcane Juice in Mymensingh

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Abstract

This study was conducted to determine the occurrence of *Campylobacter jejuni* by isolation and identification from the sugarcane juice of 5 upzillas in Mymensingh district, and virulence characterizing and antimicrobial resistance profiling of isolated *Campylobacter jejuni* during the period of April 2022 to September 2022. By using cultural, biochemical and molecular techniques, a total number of 50 sugarcane samples were subjected to *Campylobacter jejuni* isolation and identification. And then genus specific (16S rRNA gene) polymerase chain reaction (PCR) was performed for the identification of *Campylobacter* spp. and *hip*O gene based PCR was performed for the identification of *C. jejuni*. Furthermore, *cdt* gene based multiplex PCR was performed by targeting *cdt*A, *cdt*B and *cdt*C genes. In this study, antimicrobial susceptibility testing against commercially available eight antibiotics of different groups was performed by disk diffusion method. Among the 50 samples, 04 (08%) isolates were confirmed as *Campylobacter jejuni*, and 02 (50%) isolates were confirmed as virulent because they contained virulent cytolethal distending toxins. In the current study, it was observed that the majority of the *Campylobacter jejuni* isolates were resistant to tetracycline, erythromycin, and amoxicillin. Out of 04 *Campylobacter jejuni* isolates, 04(100%) were detected as multidrug resistant. The results showed an alarming number of virulent and antibiotic resistant *Campylobacter jejuni* in sugarcane and thus there is a need to control and monitor the occurrence of virulent and multidrug resistant *Campylobacter jejuni*.

Keywords: *Campylobacter jejuni*, virulence genes, AMR, sugarcane juice

O-39. Detection and Characterization of Biofilm-forming Antibiotic-resistant *Enterococcus faecalis* in Dairy Cattle and Farm Environments in selected areas of Bangladesh

Fahim NAI, Salam S, Masud RI, Rana ML, Hasan MAE, Saha S, Rahman MT*

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Abstract

Enterococci are opportunistic zoonotic pathogens, with dairy cattle and farm environments serving as significant sources of *Enterococcus* spp. resistant to multiple antibiotics. This study focuses on isolating and molecularly identifying biofilm-forming *Enterococcus faecalis* from dairy cattle and farm environments in Bangladesh, emphasizing virulence gene detection, antibiogram phenotypes, and genotypic resistance. Among 150 samples collected from 12 farms, 145 were culture-positive for *E. faecalis*, and 54.05% (40/74) PCR-screened isolates were confirmed as *E. faecalis*. The

occurrences of *E. faecalis* were found comparatively higher in manure (72.73%), floor surfaces (71.43%), and drainage water (60%) than in drinking water (46.15%), feces (35.71%), and feed (33.33%). Biofilm formation was evaluated using the Congo red agar test, identifying 50% strong biofilm formers, 37.5% intermediate, and 12.5% weak biofilm formers. Antibiogram results showed resistance to Rifampicin (87.5%), Erythromycin (75%), Vancomycin (67.5%), and Ampicillin (62.5%). The *blaTEM* resistance gene was detected in 50% of isolates, and *vanA* was found in 80%. Notably, 70% of isolates exhibited multidrug resistance (MDR), defined as resistance to three or more antibiotic classes. Interestingly, 100% of the *E. faecalis* isolates from Ullapara, Sirajganj, were multidrug-resistant (MDR), with the highest prevalence observed in manure, accounting for 25%. Virulence genes *agg, ace, pil, fsrA, fsrB*, and *gelE* were detected in 86.67%, 93.33%, 93.33%, 73.33%, 86.67%, and 60% of isolates. This is the first investigation in Bangladesh to characterize biofilm-forming, multidrug-resistant *E. faecalis* strains from dairy cattle and farm environments. These findings highlight the urgent need for One Health monitoring to combat the threat of antimicrobial resistance.

Keywords: *E. faecalis*, AMR, MDR-mapping, resistance gene, biofilm

O-40. Genomic Insights into Two ST19 Multidrug-Resistant *Salmonella enterica* Serovars Isolated from Chickens in Bangladesh

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Abstract

Salmonellosis poses a significant threat to the global poultry industry. The study aimed to characterize *S. enterica* serovars isolated from chickens with Salmonellosis, and assess their genetic relatedness through sequence typing, phylogeny, antimicrobial resistance, virulence, and metabolic functional profiling. A total of 250 samples, including 80 pooled gallbladder and liver tissues (PGLT) and 170 cloacal swabs (CS) were screened. Using selective culture, MALDI-TOF-MS, and bcfC-gene amplification, 36 *S. enterica* isolates (14.40%) were identified. Serovar analysis identified 32 isolates either as *S. typhimurium* or *S. enteritidis*, with 22 isolates (68.75%) classified as *S. typhimurium* and 10 (31.25%) as *S. enteritidis*. Four isolates (11.11%) remained as untyped *Salmonella* serovar. Higher frequencies of *Salmonella* serovars were found in PGLT samples (59% Typhimurium, 50% Enteritidis) compared to CS samples (41% Typhimurium, 50% *Enteritidis*). Antibiogram profiling of two randomly selected isolates, *S. typhimurium* MBR-MFRK-23 and *S. enteritidis* MBR-MFRK-23, against 23 antibiotics showed that *S. typhimurium* exhibited resistance to sulfamethoxazole, sulfonamide, streptomycin, and cefotaxime, while *S. enteritidis* showed resistance to ampicillin, imipenem, and nalidixic acid. Gene-specific PCR confirmed that Typhimurium MBR-MFRK-23 carried blaSHV, blaCMY9, sul1, and aadA2, whereas Enteritidis MBR-MFRK-23 contained blaTEM1 and blaVIM. Whole-genome sequencing revealed high-quality assemblies (99.64% completeness, 6.9 Mb genomes), identifying around 6,300 coding sequences in both genomes. Core-genome MLST classified these strains as sequence type 19 (ST19), and phylogenetic analysis aligned them with diverse Shiga toxin-producing strains.

Additionally, 53 antimicrobial resistance genes (ARGs) were identified, including those located on a shared IncFIB(S) plasmid. Both genomes contained mobile genetic elements and virulence factor genes related to adherence, iron uptake, and stress response, alongside over 360 metabolic features. This study highlights the genomic profiles of multidrug-resistant *S. enterica* serovars from chickens in Bangladesh, indicating an alarming trend of antimicrobial resistance in poultry that may impact human health.

Keywords: Chicken, *Salmonella* serovars, multidrug resistance, genomics

Open Paper Session VI

Date	:	2 February 2025 (Sunday)
Time	:	11.15-12.40
Venue	:	Pharmacology Gallery (Pre-clinical)
Chairman	:	**Professor Dr. Md. Jalal Uddin Sarder** Department of Veterinary and Animal Sciences University of Rajshahi
Co-Chairman	:	**Professor Dr. Md. Shahiduzzaman** Department of Parasitology Bangladesh Agricultural University, Mymensingh
Rapporteurs	:	**Dr. Sharmin Shahid Labony** Associate Professor, Department of Parasitology, BAU
		DR. Sanjida Safawat Lecturer, Department of Surgery and Obstetrics, BAU

Abs. no.	Time	Title and authors
O-41	11.15-11.25	Molecular detection and characterization of multidrug-resistant *Pseudomonas aeruginosa* from ornamental Birds having public health significance **Masud RI**, Salam S, Fahim NAI, Jahan R, Rafi MO, Siddique MP, Rahman MT
O-42	11.25-11.35	Resistance profile, virulence determinants, and biofilm-forming ability of *Enterococcus faecalis* associated with fresh fruit surface sold in and around Mymensingh city **Jahan R**, Fahim NAI, Salam S, Masud RI, Antor MTH, Jany DA, Bakhtiyar Z, Hossain MT, Rahman MT
O-43	11.35-11.45	**O-9. Pathogenicity of tribasic H9N2 low pathogenic avian influenza (LPAI) virus in Japanese Quails** **O-10. Shila RA, Jui NN, Arifa Z, Hossain MS, Hossain I, Parvin R, Chowdhury EH, Begum JA**
O-44	11.45-11.55	Livestock and poultry feed: a potential source for multidrug resistance biofilm forming *Enterococci* **Salam S**, Fahim NAI, Masud RI, Hasan MAE, Punom SA, Islam MS, Rahman MT
O-45	11.55-12.05	Investigation on seroprevalence of big liver and spleen disease in chickens by ELISA in the Barind Tract of Rajshahi **Mallick S**, Karim R, Ferdous J, Hossain MN,. Rauf SMA, Golbar HM
O-46	12.05-12.15	Pathomorphological and molecular investigations of tuberculus infectivity in captive deer: insights into disease dynamics and conservation implications **Etu TA**, Mim SA, Sharna SR, Sournale MS, Riyad MBK, Pervin M, Khan MAHNA

O-47	12.15-12.25	Antimicrobial usage in commercial poultry farms and poultry feed of Bangladesh **Sarker BR**, Debnath K, Sarker BR, Rahman MM, Rahman MA, Siddique SS, Noman ZA, Chowdhury S, Ghosh PK, Sarkar MS, Hossain MB, Chowdhury KIA, Shanta IS, Rimi NA, Rahman M, Kennedy ED, Sikder MMH, Islam MS, Islam A
O-48	12.25-12.35	Seasonal variation and host factors of *Eustrongylides* spp. (Nematoda: Dioctophymatoidae) parasitizing on spotted snakehead, *Channa punctata* collected from Sherpur district **Juthy JP**, Bushra SS, Dey AR, Paul S, Nibir SS, Ahmed A, Suchona JT, Islam MF, Kubra KT, Rahman T
12.35-12.40		CHAIRMAN'S REMARKS

O-41. Molecular Detection and Characterization of Multidrug-resistant *Pseudomonas aeruginosa* from Ornamental Birds having Public Health Significance

Masud RI, Salam S, Fahim NAI, Jahan R, Rafi MO, Siddique MP, Rahman MT*

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Abstract

Pseudomonas aeruginosa is a critical global pathogen primarily responsible for nosocomial infections. Multidrug resistance (MDR) in *Pseudomonas aeruginosa* leads to therapeutic failures and increased morbidity and mortality. This study aimed to molecularly detect and characterize MDR *Pseudomonas aeruginosa* from fecal samples of common ornamental birds. Total 107 fecal samples were analyzed, with 42 collected from bird owners' houses and 65 from pet bird shops. Of these, 47 (43.92%) tested positive for *Pseudomonas* spp., and 29 (61.70%) as *Pseudomonas aeruginosa* via PCR. Antibiogram testing revealed high resistance to Piperacillin (89.66%), followed by Ceftazidime (72.41%), Ciprofloxacin (51.72%), Aztreonam (37.93%), Levofloxacin (27.59%), Imipenem (24.14%), Amikacin (24.14%), Meropenem (20.69%), Tobramycin (13.79%), and Doripenem (10.34%). Notably, 68.97% of isolates exhibited multidrug resistance, which is statistically significant (P-value = 0.009). Virulence genes exoA and IasB were present in 51.7% and 82.7% of isolates, respectively. Antibiotic resistance genes identified included *blaTEM* (20.7%), *blaSHV* (48.3%), *CTX-M-1* (58.6%), *tetA* (82.7%), and *gyrA* (31.1%). Additionally, 62.07% of isolates demonstrated strong biofilm formation. A strong correlation was found between the number of antibiotic resistance and biofilm formation capability in the Pearson correlation coefficient, Kruskal-Wallis test and Mann–Whitney U test. These findings highlight the increasing resistance of *Pseudomonas aeruginosa* to carbapenems, its potential to form biofilms, and its pathogenicity. The multidrug resistance trajectory poses a significant risk to public health and suggests potential environmental contamination. The study recommends the prudent use of antibiotics and caution when managing ornamental birds at home to mitigate the spread of resistant strains.

Keywords: *Pseudomonas aeruginosa*, virulence gene, biofilm, antibiogram

O-42. Resistance Profile, Virulence Determinants, and Biofilm-forming ability of *Enterococcus faecalis* associated with Fresh Fruit Surface sold in and Around Mymensingh city

Jahan R, Fahim NAI, Salam S, Masud RI, Antor MTH, Jany DA, Bakhtiyar Z, Hossain MT, Rahman MT*

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Abstract

Fruits are important in the diet because they provide proper nutrition, vitamins, and minerals needed a man for a healthy life. Fruit surfaces could be a potential source for antibiotic-resistant zoonotic enterococci. This work was aimed to isolate *Enterococcus* from the surface of the fruit, detect their virulence gene and biofilm formation ability, and determine their antibiotic resistance pattern. A total of 76 samples (18 apples, 10 oranges, 15 maltas, 16 grapes, 8 mangoes, 5 guavas, 4 dates) were collected, surface washed were used to isolate and identify *Enterococcus faecalis* by cultural and biochemical tests followed by polymerase chain reaction (PCR). The antibiotic resistance pattern of positive isolates were determined by disc diffusion method against nine different antibiotics. Forty seven (61.84% in the fruits) samples were found positive for *E. faecalis* among collected 76 samples. In the case of fruit surface, the highest resistance was found against Ampicillin (90.00%), followed by rifampicin (70.00%), Erythromycin (57.50%), Vancomycin, and Linezolid (47.50%) resistance. In PCR, 90% of isolates from fruit surface samples were found 91.67%, 50%, 83.33%, 75%, and 83.33% positive for multiple virulence genes *agg, ace, gelE, , fsrB,,* and *pil*, respectively. In the case of biofilm formation, 38.88% of fruit surface isolates showed strong biofilm-forming ability, 33.33% showed intermediate, and 27.78% of isolates were found to be non-biofilm producers. Present findings suggest that fruit surfaces harbor antibiotic-resistant *E. faecalis*, which could be a potentially risk for human health.

Keywords: *Enterococcus faecalis*, fruit surface, resistance, biofilm

O-43. Pathogenicity of Tribasic H9N2 Low Pathogenic Avian Influenza (LPAI) Virus in Japanese Quails

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Abstract

Low-pathogenic avian influenza virus H9N2 has been endemic in Bangladesh since 2006, causing devastating financial loss in the poultry sector. Although the detailed pathogenicity of circulating tri-basic H9N2 viruses is well-known in chickens, still little is known in quails. Therefore, an experimental pathogenesis study of circulating tri-basic H9N2 was conducted in quails. Thus, quails were randomly divided into the

infected group (n_i= 32) and the control group (n_c=32), respectively. Quails were infected with tribasic H9N2 isolate A/Chicken/Bangladesh/LT56/2021 (H9N2) through oculo-nasal route with a dose of 10^6 $EID_{50}/_{mL}$ at 4 weeks of age. Both groups of quails were monitored for clinicopathological changes, virus shedding, and cytokine expression. Infected quails showed decreased egg production (7-24%) and reduced weight gain (5-12%) compared to the control group. Morphologically, the trachea, lung, intestine, and kidney of infected quails revealed mild to moderate hemorrhages and congestion up to 10 dpi. Microscopically, infected quails showed, mild to moderate tracheitis, pneumonia, slight hemorrhages in the kidney at different dpi. The virus prominently replicated in the respective organs up to 5dpi, and higher virus shedding occurred through the oropharyngeal route. Following infection, IL-8, TNF-α, INF-β, and INF-γ expression was detected at 2, 5, 10 & 15 dpi in all organs except lymphoid organs with IFN- β. Pro-inflammatory response was found better in early times in respiratory organs but later times in the intestine. Antiviral response was observed over the period with a significant upregulation. Finally, this study demonstrated that the circulating tribasic H9N2 is phenotypically low pathogenic in Japanese quails in Bangladesh.

Keywords: Tribasic H9N2, Japanese quails, cytokines

O-44. Livestock and Poultry Feed: A Potential source for Multidrug Resistance Biofilm forming *Enterococci*

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Abstract

Enterococcus spp. represents an important zoonotic opportunistic pathogen. Poultry and livestock feed could be a source of *Enterococci*. This study aimed to isolate *E. faecalis* and *identify E. faecium* from poultry and livestock feed samples, determine their antibiotic resistance pattern, detect their virulence gene, resistance gene and biofilm formation ability. A total of 84 samples (56 poultry feed and 28 livestock feed) were analyzed by cultural and PCR. Among these, 84, 19 (63% in poultry feed and 37% in livestock feed) were found positive for *E. faecalis*. Additionally, 32 (78% in poultry feed and 22% in livestock feed) were positive for *E. faecium*. In antibiogram *E. faecalis*, for poultry feed sample showed highest resistance against Ampicillin (66.66%), followed by Rifampin (57.33%), and Erythromycin (33.33%). For livestock feed the highest resistance was found against Ampicillin (100%), followed by Rifampin (42.85%), Erythromycin (14.28%) etc., Ciprofloxacin (14.28%) and Chloramphenicol (14.28%). In *E. faecium*, for poultry feed samples, the highest resistance was found against Ampicillin (84%), followed by Erythromycin (56%), Rifampin (32%), and Vancomycin (28%). Additionally, for livestock feed, highest resistance was found against Ampicillin (85.71%), followed by Erythromycin (28.57%), Tetracycline (28.57%) etc. Most isolates were positive for multiple virulent genes e.g., agg, *pil*, *fsrB*, and *fsrC* genes. In biofilm test 57.89% *E. faecalis* and 50% *E. faecium* showed strong biofilm formation. Current findings reveal that

biofilm forming antibiotic-resistant *E. faecalis* and *E. faecium* are present in poultry and livestock feed, which could have implications for public health.

Keywords: *Enterococcus*, feed, antibiotic resistance

O-45. Investigation on Seroprevalence of Big Liver and Spleen Disease in Chickens by ELISA in the Barind Tract of Rajshahi

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Abstract

Big liver and spleen disease (BLS), also known as hepatitis-splenomegaly syndrome, is a viral disease of chickens caused by avian hepatitis E virus under the Hepadnaviridae family. The disease is transmitted by both horizontally and vertically. There is no published report on seroprevalence of BLS in chickens in Bangladesh. Therefore, this study aimed to investigate the prevalence of BLS by ELISA in chickens in the Barind Tract of Rajshahi. Three hundred and Sixty-eight serum samples collected from different types of chickens such as layer, broiler breeder and indigenous were analyzed by indirect ELISA (Cat# CK131 BLS, BioChek, UK). Out of the 368 samples tested 70 samples showed positivity (S/P ratio > 0.200) for Big liver and spleen disease with an overall prevalence of 19.02%. Out of the 92 broiler chicken samples tested 11 samples were positive with seroprevalence of 11.96%. In case of broiler breeder (Indian river and Ross), out of the 46 samples, only one sample was reactive for BLS (2.17%). By contrast, out of the 92 Sonali chicken samples, 22 samples were positive (23.91%), and finally, out of the 138 layer chicken samples, 37 samples were positive (26.09%). Commercial layer chickens are more susceptible to BLS followed by Sonali and broiler chickens. Further studies are warranted for differential histopathological diagnosis of the disease and genetic characterization of the virus.

Keywords: Liver, Spleen, ELISA, Chicken, Seroprevalence

O-46. Pathomorphological and Molecular Investigations of Tuberculus infectivity in captive deer: Insights into Disease Dynamics and Conservation Implications

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Abstract

Tuberculosis is a global air borne zoonosis at the interface of wildlife-livestock-human. *Mycobacterium bovis* (M. bovis) a member of *Mycobacterium tuberculosis complexes* (MTBC) has the broadest host range and captive deer are frequently infected. This study aimed to identify tuberculosis of deer in two captive conditions. Clinically diseased deer present in two tourist areas, that died ($n = 1$) or euthanized ($n = 5$), subjected for

diagnostic necropsies. The diagnosis of *M. bovis* infection in deer was based on necropsy findings, Ziehl-Neelsen-staining of impression smears, histopathology of suspected tissues, and speciation by multiplex and uniplex polymerase chain reaction (PCR). The deer examined at necropsy showed granulomas in visceral organs. The Ziehl-Neelsen (ZN) staining of impression smears from the nodular lesions showed pink color thin rod in the wall of the tubercles. H&E staining and Ziehl-Neelsen-staining of the tissue sections showed granulomas with calcification in the visceral organs, predominantly in lungs. Multiplex PCR carried out with the extracted DNA from lungs and other infected organs amplified 1030bp (Mycobacterium genus) and 372bp (*Mycobacterium tuberculosis* complex) fragments of 16S rRNA gene. Genomic DNA used in uniplex PCR amplified 600bp (MPB83 gene) amplicon, indicating infectivity due to *M. bovis*. Sequencing and sequence analysis of the cDNAs are in progress. The deer (n=06) subjected to necropsy were infected with *M. bovis*; an extreme zoonotic pathogen. Surveillance of the disease state of captive deer is required to highlight the potential zoonosis of *M. bovis*, conservation of deer in captive condition and minimizing risk of zoonosis.

Keywords: Tuberculosis, deer, necropsy, histopathology, PCR

O-47. Antimicrobial Usage in Commercial Poultry Farms and Poultry Feed of Bangladesh

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Abstract

This study aimed to explore the practices of commercial poultry farm owners regarding antibiotic use and detect the presence of antibiotic(s) in commercial poultry feed. From November 2018 to December 2019, we interviewed 523 randomly selected commercial poultry farm owners of 25 districts using structured questionnaires. We tested 146 commercial poultry feed samples using thin-layer chromatography and high-performance liquid chromatography to detect and quantify antimicrobials. We used descriptive statistics to summarize the results. We interviewed 233 broiler farm owners, 192 layer farm owners, and 94 Sonali farm owners. More than half (59%) of the farm owners were illiterate or had an education below 10th grade. 61% had below five years of rearing experience. Almost all commercial farm owners mostly used antibiotics (97%) for treatment. 46% of farm owners used antibiotics to prevent disease and 17% as growth promotors. 96% of farm owners used antibiotics without any prescription from veterinarians. We detected either one or a combination of oxytetracycline,

chlortetracycline, enrofloxacin, ciprofloxacin, and flavomycin in 40% of poultry feed samples. The use of antibiotics without following government regulations and the presence of antibiotics in poultry feed warrants strategic monitoring to reduce the risk of antimicrobial resistance development in Bangladesh.

Keywords: Antibiotics, chromatography, growth promoter

O-48. Seasonal Variation and Host Factors of *Eustrongylides* spp. (Nematoda: Dioctophymatoidae) Parasitizing on Spotted Snakehead, *Channa punctata* Collected from Sherpur District

Juthy JP[1], Bushra SS[1], Dey AR[2], Paul S[1], Nibir SS[1], Ahmed A[1], Suchona JT[1], Islam MF[1], Kubra KT[1], Rahman T[1]*

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Abstract

In freshwater ecosystem, nematodes belonging to the genus *Eustrongylides,* are considered as a zoonotic parasite that infects fish species and fish-eating birds. Aim of the present study was to investigate the seasonal variation and identify the host factors associated with *Eustrongylides* spp. infestation in *Channa punctata*. Experimental fish were collected from different fish markets located near Bhugai and Brahmaputra River under Sherpur district from October, 2023 to September, 2024. Isolated nematodes were identified morphologically by light microscopy. Out of 509 *C. punctata*, 163 were infested with 608 *Eustrongylides* spp. with an overall prevalence of 32.0%. Overall mean intensity and abundance were found 3.75 and 1.19, respectively. The highest prevalence (41.5%), mean intensity (5.95) and abundance (2.44) were recorded in the summer followed by the autumn, winter and rainy season. Interestingly, higher infestation rate of *Eustrongylides* spp. was found to be associated with higher water temperature and lower humidity but no significant effect of rainfall was revealed. The condition factor of non-infested fish (0.99) was found higher than that of infested fish (0.96). Additionally, higher prevalence was observed in larger length group of *C. punctata* (33.6%). Considering the fish weight, heavy weighted fish (34.7%) were found more consistently infested with *Eustrongylides* spp. than lower weight group (29.8%). Findings of this study could lead to the better understandings of seasonal variations and host-parasite interactions that might contribute to reduce economic loss.

Keywords: Seasonal variations, *Eustrongylides* spp., *C. punctata*, host factors

Open Paper Session VII

Date	:	2 February 2025 (Sunday)
Time	:	14.00-15.15
Venue	:	Pathology Gallery (Pre-clinical)
Chairman	:	**Professor Dr. Md. Siddiqul Islam** Dept. of Pharmacology and Toxicology, SAU, Sylhet
Co-Chairman	:	**Professor Dr. Mohammad Alam Miah** **Department of Physiology, BAU, Mymensingh**
Rapporteurs	:	**Dr. Roma Rani Sarker** Associate Professor, Department of Medicine, BAU
		DR. Amit Saha Lecturer, Department of Surgery and Obstetrics, BAU

Abs. no.	Time	Title and authors
O-49	14.00-14.10	Standing biosecurity practices and foot-and-mouth disease occurrence in mixed species livestock household farms at Chakaria upazila of Cox's Bazar, Bangladesh **Mahibullah M**, Akter MK, Khatun Z, Sen SK, Haq MM, Dilshad SM, Bhattacherjee SC, Alders R, Chowdhury S, Hoque MA
O-50	14.10-14.20	Environmental distribution of biofilm forming *Escherichia coli* associated with plastic surface and polythene materials **Rafi MO**, Fahim NAI, Hasan MAE, Masud RI, Antor MTH, Jany DA, Bakhtiyar Z, Khan MFR, Rahman MT
O-51	14.20-14.30	Emergence of multidrug resistant ESBL-producing *Klebsiella pneumoniae* in cattle, contact human and farm environment in dairy farms of Mymensingh district **Rakib MMH**, Islam AKMA, Hossain R, Yesmin F, Mita UH, Yasmin S, Alam MM, Yamasaki S, Nahar A
O-52	14.30-14.40	Anthrax outbreaks in cattle and goats investigated by FETPV advanced fellows during 2023-2024 in Bangladesh **Sen SK**, Haq MM, Khatun Z, Mahibullah M , Akter MK, Aktar K, Khanam J, Osmani TABMMG , Chowdhury S, Islam MT, Hoque MA
O-53	14.40-14.50	Development of effective sanitation methods for safe table egg production Rahman MS, **Zarin T**, FNU Nahiduzzaman, Saha A, Khatun MM, Islam MA
O-54	14.50-15.00	Validation of specificity and sensitivity of the newly developed combo kit for rapid detection of FMDV **Hayat S**, Sadekuzzaman M, Hossain MT, Siddique MP, Karmakar S, Islam MA
O-55	15.00-15.10	Pathological investigation, molecular characterization and first-time isolation of the predominant serotypes of Fowl adenovirus (fadv-D and E) from commercial poultry in Bangladesh Sadekuzzaman M, **Miah MS**, Parvin R, Haque ME, Islam TR, Sigma SH, Hossain MG, Hayat S, Hossain MT, Islam MA
15.10-15.15		CHAIRMAN'S REMARKS

O-49. Standing Biosecurity Practices and Foot-and-Mouth Disease Occurrence in Mixed Species Livestock Household Farms at Chakaria upazila of Cox's Bazar, Bangladesh

Mahibullah M[1], Akter MK[1], Khatun Z[1], Sen SK[1], Haq MM[1], Dilshad SM[2], Bhattacherjee SC[3], Alders R[4], Chowdhury S[2], Hoque MA[2*]

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Abstract

Foot-and-Mouth Disease (FMD) is a highly contagious viral disease of cloven-hoofed animals causing immense financial losses in Bangladesh. Vaccination of FMD is infrequent and biosecurity practices are poor in household livestock farms. However, there are scarcity of literature to explore the status of biosecurity practices at household farms and their association with the occurrence of FMD. Therefore, a cross-sectional study was conducted in the mixed species livestock household farms at Chakaria, Cox's Bazar from July-December 2023 to explore biosecurity practices, estimate prevalence of FMD and identify their association. Total 260 household farmers were interviewed and 207 household data were found accurate after data cleaning and validation. Among the respondents, only 10% of farmers knew the word 'Biosecurity'. Majority (91.3%) of the farmers cleaned the animal shed once-a-day and about 70% of them did not use any disinfectants. Fifty-five percent of farmers cleaned mangers once-a-day while 42.4% cleaned twice/day. Village animal doctors (non-vet) had more access to the household farm (48.2%) than veterinarians (31.3%). About 95% of farmers bury dead animals while 5% throw into the bush-river-canal. Farmers use cow-dung as fertilizer (33%) and fuel (31%). Around 56% of farmers added new animals to the herd without quarantine. The overall prevalence of FMD was 38% at the household level. About 28% of farmers vaccinated their animals against FMD. Training of farmers on biosecurity was found significantly ($p<0.05$) associated with the occurrence of FMD. The study suggests farmer training to ensure biosecurity practices and vaccination could reduce FMD incidence in livestock farms.

Key words: FMD, prevalence, biosecurity, vaccination, household livestock

O-50. Environmental Distribution of Biofilm Forming *Escherichia coli* Associated with Plastic Surface and Polythene Materials

Rafi MO, Fahim NAI, Hasan MAE, Masud RI, Antor MTH, Jany DA, Bakhtiyar Z, Khan MFR, Rahman MT*

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Abstract

Plastic surfaces are associated with the source of rich biofilm-forming microorganisms that can pose a risk to human health. Prevalence of the bacterium on the environmental plastic surface is still not well studied. Current study aimed at identifying antibiotic resistant biofilm forming *Escherichia coli* from the plastic surface collected from various environmental samples. A total of 90 plastic samples were collected from wastewater and open surface environments of Mymensingh Medical College (MMC), Bangladesh Agricultural University (BAU), and BCIC industrial area of Mymensingh. Among these 65 samples were found to be positive for *E. coli*. The plastic from drainage sources displays the highest *E. coli* prevalence. By targeting the *malB* gene of the cultured samples, 19 *E. coli* isolates were positive out of 36 in PCR, and the prevalence rate was 56%. There was a considerable variation in terms of the antibiotic-resistant pattern of the isolates. Randomly, 29 were subjected to antibiogram. All the isolates were resistant to Imipenam and Ceftazidime, 79.40% were resistant to Ampicillin and 44.82% resistant to Gentamicin. The beta-lactamase-producing genes *blaTEM* were detected in 51% (14/29) isolates that showed resistant to Ampicillin. The biofilm-forming study revealed that 91.16% strong biofilm- forming *E. coli* isolates were resistant to ampicillin. Additionally, 18.18% non-biofilm-forming tetracycline-resistant *E. coli* isolates have been found in our study. In summary, to the best of our knowledge, this is the first study in Bangladesh to isolate and identify biofilm forming antibiotic resistant *E. coli* collected from environmental plastic surfaces, but further pathogenicity tests and resistome analysis are required to know the exact genetic resistance pattern.

Keywords: *Escherichia coli*, plastic surface, biofilm, antibiotic resistant

O-51. Emergence of Multidrug Resistant ESBL-producing *Klebsiella pneumoniae* in Cattle, Contact Human and Farm Environment in Dairy Farms of Mymensingh District

Rakib M H[1], Islam AKMA[2], Hossain R[1], Yesmin F[1], Mita UH[1], Yasmin S[3], Alam MM[1], Yamasaki S[4], Nahar A[1]*

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Abstract

Klebsiella pneumoniae is one of the major environmental pathogens causing mastitis, severe respiratory infection in cattle and serious infections in humans. This study was aimed to detect and characterize ESBL-producing *K. pneumoniae* from dairy cattle, contact human and farm environment of the Mymensingh district. A total of 224 samples (cattle milk n=121, contact human n=52, effluent n=51) were collected and tested. Prevalence of *K. pneumoniae* was the highest in contact human (42.31%) followed by in milk (35.54%) and effluent (35.29%). The detection of ESBL-producing K. *pneumoniae* was done phenotypically by a double-disc synergy test. Prevalence of ESBL-producing *K. pneumoniae* was the highest in effluent (13.73%) followed by in contact human (9.62%) and milk (7.44%). Among the six ESBL gene groups tested by multiplex PCR, the prevalence of ^{bla}TEM and ^{bla}SHV was found in isolates of all origins whereas ^{bla}CTX-M-2 in milk, ^{bla}CTX-M-2, ^{bla}CTX-M-8 in effluent, and ^{bla}CTX-M-8 in contact human isolates were prevalent. In addition, the combination of ESBL genes groups was also found. The ESBL-positive isolates were highly resistant against ampicillin, cefotaxime, cefepime, cefoxitin, oxytetracycline (100%), and ceftazidime, imipenem, cotrimoxazole/trimethoprim, azythromycin (50%). Most importantly multidrug resistance (MDR) was found in a high number of the ESBL-positive isolates. So far we know, this is the first report of detection of ESBL-producing *K. pneumoniae* dairy cattle, contact human and farm environment together in Bangladesh. The presence of a high number of MDR ESBL-producing *K. pneumoniae* in dairy cattle, contact human and dairy farm environment might be alarming for public health.

Keywords: Disk diffusion method, ^{bla}CTX-M-2, ^{bla}CTX-M-8, Cefepime

O-52. Anthrax Outbreaks in Cattle and Goats Investigated by FETPV Advanced Fellows during 2023-2024 in Bangladesh

Sen SK[1,2], Haq MM[1,2], Khatun Z[1,2], Mahibullah M[1,2], Akter MK[1,2], Aktar K[2], Khanam J[2], Osmani TABMMG[2], Chowdhury S[1], Islam MT[3], Hoque MA[1]*

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Abstract

The zoonotic spread of human anthrax in Bangladesh has been linked to outbreaks in household animals at the human-animal interface. This manuscript summarizes the findings of four anthrax outbreak investigations conducted by FETPV Advanced Fellows during 2023-2024. We analyzed the data from four anthrax outbreaks in animals and humans during 2023-2024, focusing on the sources and extent of the outbreaks in animals. Investigations were conducted following the US-CDC guidelines. Meat samples were collected wherever possible and tested for the presence of *Bacillus anthracis* by using PCR. A total of 45 animals (8 cattle and 37 goats) from 20 farms in Meherpur, Kushtia, and Gazipur districts were affected during four outbreaks. About 98% of cases occurred during the wet months (June to September). The overall attack risk was 30%, with a mortality rate of 21%. Case fatality was 100% in three outbreaks, while 63% in one outbreak. The odds of having anthrax were 2.96 times higher in goats than in cattle. Animals fed freshly cut grass had 2.95 times higher risk. Nearly 49% of the moribund animals were slaughtered for human consumption just before death. All animals were unvaccinated against anthrax. Among 122 humans involved in slaughtering or handling affected animals, 41 (33%) developed cutaneous anthrax. Representative meat samples tested positive. Feeding freshly cut green grass was a probable source of exposure in animals. Slaughtering and handling infected animals was associated with human cutaneous anthrax. Vaccination and public awareness are essential to prevent future outbreaks.

Keywords: Anthrax, outbreaks, epidemiology, public health

O-53. Development of Effective Sanitation Methods for Safe Table Egg Production

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Abstract

This research aimed to develop effective sanitation methods to ensure safe table egg production by evaluating treatments that reduce egg-borne bacteria, such as *E. coli* and *Staphylococcus* spp., from eggshell surfaces. A total of 90 egg samples, each consisting of three eggs, were collected from local retail markets in Mymensingh city for bacterial analysis. The eggs underwent surface washing followed by overnight enrichment in

nutrient broth for *E. coli* and Tryptic Soy Broth (TSB) for *Staphylococcus* spp. The bacterial load was analyzed by culturing on selective media: Eosin Methylene Blue (EMB) for *E. coli* and Mannitol Salt Agar (MSA) for *Staphylococcus* spp. The efficacy of four sanitation treatments was assessed: control (untreated), 3% hydrogen peroxide (H_2O_2), fermented vinegar, and ultraviolet (UV) radiation at 3- and 5-minute exposure times. UV-5 (5-minute exposure) demonstrated the most significant reduction in bacterial load ($p<0.05$), making it the most effective treatment. UV-5 showed the lowest mean log10 Total Viable Count (TVC) of 4.83±0.22, followed by UV-3 (5.22±0.14), H_2O_2 (5.49±0.16), and vinegar (5.78±0.21). The control group showed 72.2% positive results for *E. coli* and 38.9% for *Staphylococcus* spp., while UV-5 treatment completely eliminated *E. coli* and reduced *Staphylococcus* spp. prevalence to 5.6%. This study concluded that UV radiation, particularly at 5 minutes, is the most effective method for ensuring safe egg production, while vinegar is the least effective.

Keywords: Sanitation, UV radiation, hydrogen peroxide

O-54. Validation of Specificity and Sensitivity of the Newly Developed Combo Kit for Rapid Detection of FMDV

Hayat S[1], Sadekuzzaman M[2], Hossain MT[1], Siddique MP[1], Karmakar S[1], Islam MA[1*]

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Abstract

Foot and mouth disease poses a significant threat to livestock in Bangladesh, requiring rapid, on-site, and cost-effective diagnostic tools for effective control and eradication strategies. This study aimed to develop and evaluate a lateral flow assay (LFA) kit for the detection and serotyping of FMDV targeting serotypes O, A, and Asia-1. It also involved the validation of the specificity and sensitivity of newly developed single and combo kits against the gold standard qRT-PCR for rapid detection of FMDV. The combo kit, designed in collaboration with a Chinese company, optimized the antigen-antibody reactions on nitrocellulose membranes for simultaneous detection of three target serotypes. The specificity and sensitivity evaluation of the newly developed kits employed 159 clinical samples collected from FMDV-suspected live and dead cattle in eight districts of Bangladesh. Among them, the combination LF kit identified 96 positive samples (O-73, A-18, and O/A-5), exhibiting 82.72% sensitivity and 100% specificity compared to qRT-PCR. qRT-PCR analysis of the same cohort revealed 120 positive cases (O-88, A-22, and O/A-10. Therefore, it clearly indicates that the predominant circulating serotype of FMDV is type O in Bangladesh. All qRT-PCR-negative samples also tested negative by the LF kit. While the initial development of serotype-specific LF kits is complete, field validation is in progress. Successful validation and cost-effectiveness analysis of these kits against qRT-PCR will facilitate their integration into national surveillance programs, contributing to sustainable livestock productivity in the country.

Keywords: FMDV, qRT-PCR, sensitivity, specificity, LFA

O-55. Pathological Investigation, Molecular Characterization and First-Time Isolation of the Predominant Serotypes of Fowl Adenovirus (fadv-D and E) from Commercial Poultry in Bangladesh

Sadekuzzaman M[1], **Miah MS[2]**, Parvin R[3], Haque ME[2], Islam TR[2], Sigma SH[2], Hossain MG[4], Hayat S[2], Hossain MT[2], Islam MA[2]*

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Abstract

Fowl adenovirus (FAdV) is a globally distributed virus that inflicts significant economic losses on the poultry industry. The study aimed at pathological investigation, molecular characterization, isolation, and pathogenicity determination of FAdV from commercial poultry. A total of 86 liver samples were collected from 80 commercial chicken farms. All samples were examined for gross pathology; only liver samples were used for histopathology and virus detection by PCR. PCR-positive FAdV samples were used for isolation of virus in 10-day-old seronegative embryonated chicken eggs (ECEs) via chorio-allantoic membrane (CAM). PCR confirmed virus isolates were sequenced for serotyping and phylogenetic analysis. Pathogenicity of the isolated FAdVs was assessed by oral, IM, and IP routes of infection. The study observed gross lesions including hydropericardium and enlarged, friable pale livers with ecchymotic hemorrhages. Histopathological analysis revealed hepatocytic necrosis with basophilic intranuclear inclusion bodies in liver tissues, and tubular necrosis, focal hemorrhages, and mononuclear cell infiltration in kidney tissues. Out of 86 liver samples analyzed, 40 were positive for FAdVs by PCR, and 22 were positive for virus isolation. One serotype was 11 and other 11 were 8b of FAdV and genetically close to Bangladesh, India, and Turkey isolates, according to hexon gene phylogenetic analysis. The pathogenicity test indicated that serotype 11 was more virulent than the serotype 8b. Conclusion: The study concluded that serotypes 11 and 8b of FAdVs are circulating simultaneously among commercial broiler and layer chickens, serotype 8b was found predominant one.

Keywords: Fowl adenoviruses, histopathology, PCR, serotypes-8b and 11

Open Paper Session VIII

Date	:	2 February 2025 (Sunday)
Time	:	14.00-15.15
Venue	:	Physiology Gallery (Pre-clinical)
Chairman	:	**Professor Dr. S. M. Harun-ur-Rashid** Department of Pathology and Parasitology HSTU, Dinajpur
Co-Chairman	:	**Professor Dr. S. M. Lutul Kabir** Department o Microbiology and Hygiene, BAU, Mymensingh
Rapporteurs	:	**DR. Sadia Afrin Punom** Assistant Professor, Department of Microbiology and Hygiene, BAU
		DR. Suravi Akter Lecturer, Department of Surgery and Obstetrics, BAU

Abs. no.	Time	Title and authors
O-56	14.00-14.10	Immunogenicity study of an experimentally developed inactivated avian reovirus vaccine at the field level **Pranto SA**, Rahman A, Sifatullah M, Prapti BBR, Chakraborty S, Siddique MP, Hossain MT
O-57	14.10-14.20	Isolation and identification of multidrug resistant cocci from cow and doe of milk pocket areas of Bangladesh Khatun S, **Mimi AA**, Mukta AA, Chakraborty S, Milon A, Hasan MH, Islam MA, Hossain MT, Rafiq K
O-58	14.20-14.30	Determination of antibiotic-resistant patterns of enteric bacteria isolated from milk and fecal samples of cow and doe Khatun S, **Akter L**, Akter T, Chakraborty S, Pranto SA, Dia AD, Amin MR, Islam MA, Rafiq K, Hossain MT
O-59	14.30-14.40	Isolation and detection of multidrug resistant bacteria from mud crabs (*Scylla serrata*) of coastal regions in Bangladesh Uddin MS, **Chakraborty S**, Akter T, Mukta AA, Khatun MN, Chowdhury A, Siddique MP, Rahman MB, Islam MA Hossain MT
O-60	14.40-14.50	Migratory bird: a potential sources of spreading multidrug resistant pathogenic *Escherichia coli* globally **Khatun MN**, Akter T, Chakraborty S, Akter L, Shila RA, Pranto SA, Rahman MT, Islam MA, Parvin R, Chowdhury EH, Hossain MT
O-61	14.50-15.00	Isolation and characterization of neurotransmitter producing human skin commensals **Purkayastha M**, AG Goetz, Nega M, Rahmdel S
O-62	15.00-15.10	Assessment of food safety KAP of street food vendors for improvement of hygienic status and isolation, characterization and load determination of food-borne bacteria from street foods - a public health concern **Islam M**, Akter S, Islam MS, Rahman MB and Khan MFR
15.10-15.15		CHAIRMAN'S REMARKS

O-56. Immunogenicity Study of an Experimentally Developed Inactivated Avian Reovirus Vaccine at the Field Level

Pranto SA, Rahman A, Sifatullah M, Prapti BBR, Chakraborty S, Siddique MP*, Hossain MT

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Abstract

Avian reovirus (ARV) significantly impacts poultry by causing diseases like viral arthritis, reducing growth, and increasing mortality and management costs. Numerous variants of this virus are circulating, and since immunity is primarily humoral, existing vaccines fail to provide specific protection against these variant strains. To address this issue, an inactivated avian reovirus vaccine was developed. In this study, the immunogenicity of the inactivated vaccine was determined in 1000 broiler chickens; hence, a large quantity of vaccine was produced. Samples (n=25) with affected hock joints and tenosynovitis were collected from a previously confirmed affected farm, and the presence of the virus was confirmed in 17 samples by RT-PCR. Then, the virus was propagated in the chicken embryo (n=180), followed by further confirmation of viral presence in the embryos by RT-PCR. Viral titer was determined by the EID_{50} value. The virus in suspension was inactivated by treating it with β-propiolactone and finally formulated the vaccine with potassium aluminum sulfate (Alum) adjuvant. Determination of the immunogenicity of the vaccine was carried out by ELISA test of the collected sera. The results showed that the S/P ratios for the highest dosage group (G4, 300 µL) significantly exceeded the cutoff value of 0.20 by Day 21 and maintained a high titer of 2481 by Day 28. Besides, the unvaccinated negative control group (G5) showed an S/P ratio of 0.182 (antibody titer 357) by Day 28, which is lower than the cut-off value. The lower dosage groups (G1, G2, and G3) exhibited lower antibody titers, with G1 (150 µL) and G2 (200 µL) showing S/P ratios that only crossed the threshold on Day 21, and G3 (250 µL) achieving this on Day 24. The experimental inactivated vaccine produced in this study showed remarkable potential for provoking an immune response in broiler chickens by enhancing antibody titers after vaccination.

Keywords: Avian reovirus, β-propiolactone, alum adjuvant, antibody titer

O-57. Isolation and Identification of Multidrug Resistant Cocci from Cow and Doe of Milk Pocket Areas of Bangladesh

Khatun S[1], **Mimi AA**[1], Mukta AA[1], Chakraborty S[1], Milon A[1], Hasan MH[1], Islam MA[1], Hossain MT[1], Rafiq K[2*]

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Abstract

Antimicrobials are commonly used in livestock for the prevention and control of diseases like mastitis, as well as for sustainable production. Raw or unpasteurized milk is an excellent medium for the growth of varieties of Gram-positive cocci. Transmission of such pathogens can cause a number of diseases in consumers because of poor handling. The present study was aimed to isolate and identify Gram-positive cocci from raw milk and feces of cow and doe reared in milk pocket areas with their antibiogram. A total of 126 samples (63 raw milk and 63 feces) were collected from 43 cows and 20 does of Sahajadpur, Shathia and Sariakandi of Sirajganj, Pabna and Bogura districts, respectively. All the samples were inoculated in broth for initial culture followed by streaking on selective agar media to isolate different bacterial species, and sub-cultured to obtain pure isolate, and chromosomal DNA of each isolate was extracted by boiling method; molecular detection was done by genus or species-specific primers, antibiogram of each isolate against nine antibiotics and finally data were analyzed. Among the samples collected from milk, 32 *Staphylococcus aureus*, 11 *Streptococcus* spp., and only 2 *Enterococcus* spp. were confirmed by PCR. Also, 33 *S. aureus* was confirmed by PCR in the feces samples. However, no *Streptococcus* spp. and *Enterococcus* spp. were isolated from the feces samples. All the isolates of *S. aureus*, *Streptococcus*, and *Enterococcus* were found to be 100% resistant to Ampicillin and Cloxacillin in this study, whereas variations in resistance were observed for other antibiotics. It might be concluded that *S. aureus* and *Enterococcus* spp. might be contaminating milk samples due to poor handling. Moreover, the presence of MDR Gram-positive cocci can be a potential threat to public health.

Keywords: Milk, antibiotic resistance, *Enterococcus*, *Streptococcus*

O-58. Determination of Antibiotic-Resistant Patterns of Enteric Bacteria Isolated from Milk and Fecal Samples of Cow and Doe

Khatun S[1], **Akter L**[1], Akter T[1], Chakraborty S[1], Pranto SA[1], Dia AD[1], Amin MR[1], Islam MA[1], Rafiq K[2], Hossain MT[1*]

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Abstract

Milk is one of the best energy sources and without proper handling, it can get contaminated by feces with bacteria that are harmful to the consumer. This study aimed to isolate and identify enteric bacteria from the milk and feces of cows and doe emphasizing the condition of multi-drug resistance in the isolates. A total of 126 samples (63 raw milk and 63 feces) were collected from 43 cows and 20 does reared in milk pocket areas of Bangladesh. Samples were inoculated in broth for enrichment followed by streaking on selective agar media to isolate enteric bacteria. DNA was extracted by boiling method and molecular detection was performed using specific primers, along with antibiotic sensitivity tests. Of the collected milk samples, six isolates were confirmed as *E. coli,* and four were as *Shigella* spp. by PCR, and from fecal samples, fifty-one *E. coli* isolates were confirmed by PCR. No *Salmonella* and *Shigella* were isolated from the feces; and no *Salmonella* from milk samples of the lactating animals. 100% of the *E. coli* and *Shigella* spp. isolates were resistant to Ampicillin and Cloxacillin, whereas variations in resistance were observed for other antibiotics. Our study found that most of the *E. coli* and *Shigella* spp. isolated from milk and feces were phenotypically multidrug resistant. It can be concluded that the presence of multidrug resistant enteric bacteria in milk poses significant health risks to humans. Fecal contamination may be the cause behind such a problem, thus, proper sanitation management should be employed during lactation of animals.

Keywords: Feces, antibiotic resistance, *E. coli*, *Shigella*, doe

O-59. Isolation and Detection of Multidrug Resistant Bacteria from Mud Crabs (*Scylla serrata*) of Coastal Regions in Bangladesh

Uddin MS[1], **Chakraborty S**[1], Akter T[1], Mukta AA[1], Khatun MN[2], Chowdhury A[1], Siddique MP[1], Rahman MB[1], Islam MA[1], Hossain MT[1*]

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Abstract

Mud crabs (*Scylla serrata*) are commercially important and a potential aqua species in the coastal regions of Bangladesh. The aerobic mesophilic flora of mud crab is dominated by gram-negative bacteria belonging to the family Enterobacteriaceae which might be multidrug resistant. The present study was undertaken to isolate and identify different bacterial species from both captive and wild mud crabs with their antibiogram. A total of 100 crabs were collected from natural and captive aquatic sources of Chattogram,

Cox's bazar, Khulna and Satkhira districts. The samples were processed, enriched and streaked on EMB, SS, TCBS, Aeromonas agar and MS agar media, for the isolation of *E. coli, Salmonella* spp., *Vibrio* spp., *Aeromonas* spp. and *S. aureus*, respectively. Preliminary detection was done by culture and staining characteristics followed by confirmation and differentiation of the isolates by PCR using specific primers. A total of 185 culture positive isolates were isolated from 100 wild mud crabs of which 26, 1, 2, 29 and 42 isolates were confirmed as *Escherichia coli, Salmonella* spp., *Vibrio cholerae*, *Aeromonas* spp. and *Staphylococcus* spp. by PCR with the isolation rate of 26%, 1%, 2%, 29% and 42%, respectively. Only 7 *E. coli* isolates were found to contain *ChuA* gene. Similarly, 2 isolates were detected as *V. cholerae,* out of 29 *Aeromonas* spp. 16 was confirmed as *A. hydrophilia* and 6 was as *A. veronii*; 32 out of 42 *Staphylococcus* spp. was *S. aureus.* Higher resistance of *E. coli* isolates were observed against 7 antibiotics (amoxicillin, ampicillin, cefuroxime, cephalexin, cefotaxime, erythromycin, and tetracycline); *Salmonella* against 5 antibiotics (cefuroxime, cephalexin, ampicillin, amoxicillin and cefotaxime)**;** *Vibrio cholerae* against 6 antibiotics (ampicillin, amoxicillin, cefuroxime, cefotaxime, erythromycin, and tetracycline)**;** *Aeromonas* spp. against 15 antibiotics; and *S. aureus* against 16 antibiotics.. *Aeromonas* spp. was resistant to the many antibiotics. All *Staphylococcus* spp. isolates were found 100% resistant to penicillin, 80-90% resistant to amoxicillin, ampicillin, amikacin and gentamycin, 60-70% resistant to cefotaxime, tetracycline, doxycycline azithromycin, erythromycin, almost 50-70% resistant to ceftriaxone. From this study it might be concluded that wild mud crab may harbor and transmit multidrug resistant pathogenic bacteria to human which may cause life threatening illness.

Keywords: Antibiogram, multidrug resistance, mud crab, coastal region

O-60. Migratory Bird: A Potential Sources of Spreading Multidrug Resistant Pathogenic *Escherichia coli* Globally

Khatun MN[2], Akter T[1], Chakraborty S[1], Akter L[1], Shila RA[2], Pranto SA[1], Rahman MT[1], Islam MA[1], Parvin R[2], Chowdhury EH[2], Hossain MT[1*]

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Abstract

Antimicrobial resistance (AMR) is a major global health crisis. When migratory birds contain multidrug resistant pathogenic *Escherichia coli*, they can spread it globally while migration. To investigate the prevalence of MDR *E. coli* in migratory birds and possible relationships with the environment, a total of 167 fresh voided fecal samples were collected during two consecutive winter seasons (January/2023 and January/2024) from Tanguar haor, Sunamganj, Bangladesh. Freshly collected fecal materials of birds were analyzed for *E. coli* identification based on cultural properties, and polymerase chain reaction (PCR). Antibiotic sensitivity patterns against 21 antibiotics were studied by the disc diffusion method and antibiotic resistant genes were detected by PCR. Among 167 samples, 100 (59.88%) were confirmed as *E. coli*, of which 68.62% (n=70) were isolated during winter 2023 and 46.15% (n=30) during winter 2024. Fifty *E. coli* pathotypes (29.94%) were detected among the isolates of migratory birds is alarming. All the *E. coli* isolates were 100% resistant to amoxicillin. On the other hand, *E. coli* isolated during

winter 2024 were 100% resistant to colistin sulphate, a reserve group of antibiotics. More than 80% of the isolates of winter 2023 were resistant to meropenem and colistin sulphate. The same resistance rate was observed against gentamycin, streptomycin, oxytetracycline, cefuroxime, cephalexin, amoxicillin, amikacin from the isolates of winter 2024. Most of the pathogenic isolates contained multidrug resistant genes. It can be recommended that migratory birds should be kept under an AMR surveillance program to minimize the potential risk of contaminating the environment with AMR and reduce their adverse impacts on public health.

Keywords: Migratory bird, *Escherichia coli*, MDR, AMR, PCR

O-61. Isolation and Characterization of Neurotransmitter Producing Human Skin Commensals

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Abstract

A group of monoamines represent the 'Trace amines' which refers to the low abundance in brain tissue. The major trace amines (TAs) in mammals include tryptamine (TRY), tyramine (TYM), phenylethylamine (PEA) and octopamine (OCT), which act as neurotransmitters or neuromodulators. TAs are not only produced by the host but also by a number of bacterial species belonging to the human microbiota. It has been shown that the bacterial production of such TAs interacts with adrenergic receptors thus controlling invasion of bacteria into host cells or wound healing. Certain staphylococcal species possess a *Staphylococcal* aromatic amino acid decarboxylase (SadA) which is unusually unspecific. Here we analyzed the spectrum of TA-producing species on the human skin. From 30 subjects, we isolated about 1909 skin bacteria under aerobic conditions. The number of CFU in the subjects varied considerably from $19x10^1$ to $1381x10^3$ CFU/100cm^2. Subsequently, the culture supernatants of all skin isolates were analyzed for their TA production by RP-HPLC. Our findings revealed trace amines in the culture supernatant of 269 skin isolates (14%). Furthermore, we categorized the trace amine producers based on their capacity to produce one, two, or all three trace amines. By 16S rRNA analysis we could assign the isolates into two major bacterial families: Staphylococcacae (80%) and Bacillacae (20%). Remarkably, staphylococcal species were found to predominantly produce all three trace amines, including Dopamine (DOPA), while bacteria from other genera exhibited greater diversity in trace amine production. Overall, our study signifies the spectrum of neuromodulator-producing skin bacteria and elucidates the enzymes responsible for their synthesis. This work contributes significantly to our understanding of the role of the skin microbiota in interacting with neuronal receptors.

Keywords: Skin commensals, neurotransmitter, trace amines, RP-HPLC, 16s rRNA analysis

O-62. Assessment of Food Safety KAP of Street Food Vendors for Improvement of Hygienic Status and Isolation, Characterization and Load Determination of Food-Borne Bacteria from Street Foods - A Public Health Concern

Islam M, Akter S, Islam MS, Rahman MB and Khan MFR*

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Abstract

Present study aimed for food safety KAP (Knowledge, Attitude and Practice) assessment, molecular epidemiological study of food borne bacteria and hands on training to the street food vendors for the improvement of hygienic status of street foods during processing and handling. Collection and processing of street food samples and cultivation of major food-borne bacterial (*Staphylococcus aureus, E. coli, Salmonella sp. Shigella sp. and Vibrio sp.*) isolates in different cultural media (Staph. 110, SS, BGA, MacConkey, XLD and TCBS agar) plates aerobically. Isolation and identification of food borne bacteria were done by microscopic, conventional cultural and biochemical methods. The bacterial isolates were identified by using specific biochemical tests (Sugar fermentation test, catalase test, coagulase test, Urease test, MR-VP test, Indole test). A total of 40 samples of different street foods such as phuchka (n = 06), toppings (n = 04), salad (n = 06), chotpoti (n=06), tap water (n=04), jhalmuri (n=02), chanachur (n=02) and vendors' hand wash (n = 10) were collected aseptically in buffered peptone water in plastic ziplock bags and transported ensuring cool chain. Exactly 10 µl of 10-fold dilution from each suspended samples were inoculated as drop onto a previously prepared Plate count agar, Mannitol salt agar, and MacConkey agar to determine total viable count (TVC), total coliform count (TCC), and total staphylococcal count (TSC) respectively. The Gram-staining and biochemical tests such as sugar fermentation tests, indole production, methyl-red voges–proskauer, and motility tests were carried out to for bacterial isolates identification. Food safety KAP assessment of street food vendors and load determination of food-borne bacteria indicated that street foods can pose a public health problem. The most contaminated sources were the vendors' hand washes as coliform bacterial load were higher than acceptable limit. To reduce this contamination, vendors should be trained about maintaining personal hygiene.

Keywords: KAP, food safety, hygienic status, food-borne bacteria

Open Paper Session IX

Date	:	2 February 2025 (Sunday)
Time	:	2.00-3.00 pm
Venue	:	Pharmacology Gallery (Pre-clinical)
Chairman	:	**Professor Dr. Md. Golam Haider** Department of Pathobiology, BSMRAU
Co-Chairman	:	**Prof. Dr. Mohammad Eliusur Rahman Bhuiyan** Dept. of Physiology, BAU, Mymensingh
Rapporteurs	:	**Dr. Md. Iqramul Haque** Associate Professor, Department of Physiology, BAU
		DR. Md. Rafiqul Islam Lecturer, Department of Anatomy and Histology, BAU

Abs. no.	Time	Title and authors
O-63	14.00-14.10	Triclabendazole resistant, parthenogenic *Fasciola*, a foodborne zoonotic trematode is rapidly spreading in Bangladesh **Ali MH**, Hossain MS, Labony SS, Islam MA, Hasan MM, Dey AR, Alam MM, Khan MAHNA, Alim MA, Anisuzzaman
O-64	14.10-14.20	Isolation, identification and molecular characterization of multidrug resistant *Escherichia coli* from locally produced tomato sauce used by the street food vendors Ahmed MR, Hossain MK, **Fakhruzzaman M**
O-65	14.20-14.30	Molecular investigation of *Eustrongylides* spp. (Nematoda: Dioctophymatoidae) isolated from *Channa punctata* of the south-central part of Bangladesh **Bushra SS**, Dey AR, Juthy JP, Nibir SS, Kubra KT, Rahman T
O-66	14.30-14.40	Prevalence and antimicrobial susceptibility of *Listeria monocytogenes* in broiler farms and retail markets at Mymensingh city **Howlader AA**, Annan RI, Nahiduzzaman M, Saha A, Islam MA, Khatun MM
O-67	14.40-14.50	Molecular detection and antibiogram of *Edwarsiella tarda* from *Heteropneustes fossilis* **Prapti BBR**, Siddique MP, Aktar MT, Rahman A, Ahmmed MT, Islam MS, Hossain MT
O-68	14.50-15.00	Indiscriminate use of ciprofloxacin antibiotic in broiler causes significant antibiotic residues in broiler meat **Islam MS***, Islam MS
O-69	15.00-15.10	Outbreak investigation of african swine fever (ASF) in Bangladesh **Akter MS**, Jhantu MNI, Badhy SC, Shadia
15.10-15.15		CHAIRMAN'S REMARKS

O-63. Triclabendazole Resistant, Parthenogenic *Fasciola*, a Foodborne Zoonotic Trematode is Rapidly Spreading in Bangladesh

Ali MH[1,2], Hossain MS[1], Labony SS[1], Islam MA[3], Hasan MM[4], Dey AR[1], Alam MM[5], Khan MAHNA[6], Alim MA[1], Anisuzzaman[1,*]

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Abstract

Parthenogenic *Fasciola* has been developed by the hybridization of *F. hepatica and F. gigantica*. This form of *Fasciola* is aspermic but capable of clonal expansion through parthenogenesis and is spreading very rapidly throughout the globe. Here, we unambiguously prove the occurrence of parthenogenic *Fasciola* in cattle in Bangladesh, along with their long-term *ex vivo* culture protocol and anthelmintic efficacy. We confirmed the presence of both spermic *F. gigantica* (sFg) (31.7%; 814/2575) and aspermic *Fasciola* (asF) (68.3%; 1761/2575) in Bangladesh. Adult flukes survived well in DMEM supplemented with 20% bovine serum and 20% bovine bile. Using DMEM-based *ex vivo* culture protocol, we found that nitroxynil (NTX) and oxyclosanide (OCZ) efficiently killed both sFg and asFg in a concentration and time dependent manner. Surprisingly, triclabendazole (TCBZ) and Clorsulon (CRL) killed neither sFg nor asF. Also, prazequantel, albendazole and levamisole did not affect the viability of the flukes. We found that all TCBZ survivors had more than one mutation both in nucleotide (G440A, G643A, and G788A) and amino acid (R147K, E215K and R263K) of the binding pocket of carboxylesterase B (*CestB*), providing molecular validation of TCBZ resistance in *Fasciola*. Taken together, asF constitutes more than two third of *Fasciola* population in Bangladesh. This study unambiguously proved TCBZ resistance in both asF and sFg circulated in Bangladesh. Therefore, for the treatment and control of fascioliosis only OCZ and NTX, but not TCBZ and CRL, can be used. And, people of the country are at risk to the TCBZ-resistant fascioliosis.

Keywords: *Fasciola gigantica*, parthenogenic *Fasciola*, liver fluke, triclabendazole resistance, carboxylesterase B mutation

O-64. Isolation, Identification and Molecular Characterization of Multidrug Resistant *Escherichia coli* from Locally Produced Tomato Sauce Used by the Street Food Vendors

Ahmed MR, Hossain MK, **Fakhruzzaman M**

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Abstract

Sauces are very popular nutritive food additives which are especially consumed with fast foods. Contamination can occur by misuse, drastic changes in storage temperatures, unhygienic condition of the preparation area, quality of the raw ingredients etc. The nutritive properties present in sauces and the low pH can give enough opportunities to the acid loving microorganisms. The present study was conducted for isolation and molecular characterization of *Escherichia coli* from locally produced tomato sauce from different places of Dinajpur District of Bangladesh. A total of 60 locally produced tomato sauce samples were collected aseptically from different street food vendors and then brought to the Bacteriology Laboratory for bacteriological examinations. Bacterial isolation, identification, and antibiotic sensitivity testing were performed by using the standard microbiological techniques. Molecular detection of *E. coli* isolates was confirmed by polymerase chain reaction. The antibiotic resistance profile of the isolates was obtained using the agar disk diffusion method. Out of 60 samples, 73% (44) samples were positive for *E. coli*. PCR primers targeting gene of *E. coli* amplified 232 bps fragment of DNA confirmed the identity of the isolated *E. coli*. The antibiogram studies revealed *E. coli* isolates were sensitive to ciprofloxacin, ceftriaxone, enrofloxacin, azithromycin, levofloxacin, tetracycline, and doxycycline whereas the isolates were resistant to amoxicillin, ampicillin and cefixime. The results of this study suggested that tomato sauce should not be eaten without making sure that sufficient care, sufficient purity and sufficient quality control of the sauce have been taken during preparation and serving.

O-65. Molecular Investigation of *Eustrongylides* spp. (Nematoda: Dioctophymatoidae) Isolated from *Channa punctata* of the South-Central Part of Bangladesh

Bushra SS[1], Anita RD[2], Juthy JP[1], Nibir SS[1], Kubra KT[1], Rahman T[1]*

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Abstract

The genus *Eustrongylides* contains parasitic nematodes that infest fish and fish-eating birds living near aquatic environments. *Eustrongylides* spp. has zoonotic potentiality whenever raw or undercooked fish is consumed. The present study was aimed to determine the evolutionary relationship(s) of *Eustrongylides* spp. (Nematode: Dioctophymatoidae) infestation in *Channa punctata* and to analyse the molecular characterization using internal transcribed spacer (ITS) rDNA regions. A total of 75 *C.*

punctata were collected from the fish markets of Barisal districts and a total of 38 isolated parasites were selected for sequencing. The sequences were analysed using the BLAST at NCBI to verify species level. Two phylogenetic trees were produced using the Neighbor Joining (NJ) and Minimum Evolution (ME) approaches (using MEGA software, version 11). The study showed six genotypes with 0.2930 genotype diversity and 0.0005 nucleotide diversity. Seven single nucleotide polymorphisms (SNPs) and twenty-four SNPs were obtained while aligned with the sequences of *Eustrongylides* sp. and *E. excisus* respectively. The average genetic similarity between the species were ranged from 96.9% to 100%. Phylogenetic analyses showed two distinct clades, one grouped with *E. ignotus* and the other with *Eustrongylides* sp., the studied sequences and *E. excisus*. One comparing phylogenetic tree was also constructed using the previous genotypes obtained from Mymensingh division. Out of total 10 genotypes, 8 were revealed by the DNA polymorphism analysis. The comparison tree showed phylogenetic link between the isolates and circulation of one population in the country.

Keywords: Molecular investigation, *Eustrongylides*, nematodes, *C. punctata*

O-66. Prevalence and Antimicrobial Susceptibility of *Listeria monocytogenes* in Broiler Farms and Retail Markets at Mymensingh City

Howlader AA, Annan RI, Nahiduzzaman M, Saha A, Islam MA, Khatun MM*

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Abstract

This study investigated the prevalence and antimicrobial susceptibility of *Listeria monocytogenes* (*L. monocytogenes*) in various farms and markets. A total of 74 samples, including poultry feed (n=8), water (n=8), litter (n=8), raw poultry meat (n=34), processed meat (n=6), and frozen meat (n=10), were collected from various sources, including poultry farms, markets, hotels' refrigerators, and retail markets in Mymensingh. Samples were cultured onto Listeria selective PALCAM broth and PALCAM agar to isolate *L. monocytogenes*. *Listeria* spp. produced black zones around colonies on PALCAM agar. Identification was confirmed through Gram staining, biochemical tests (Catalase, Voges-Proskauer, Methyl Red, and Indole), and sugar fermentation tests (Dextrose, Sucrose, Mannitol, Lactose, Maltose, and D-xylose). Antibiotic sensitivity test was performed against ten antibiotics such as penicillin G, ampicillin, erythromycin, tetracycline, vancomycin, streptomycin, gentamycin, ciprofloxacin, clindamycin and oxacillin by disc diffusion method. The overall prevalence of *L. monocytogenes* was 0% in poultry feed, water, litter, and processed meat; 14.71% in raw poultry meat; and 10% in frozen meat. Area-wise prevalence was highest in Kewatkhali Bazar (20%) and Mechua Bazar (16.66%), while other locations, including KR Market and Pagla Bazar, reported no contamination. Antimicrobial susceptibility testing revealed that isolates were sensitive to erythromycin, tetracycline, vancomycin, streptomycin, and gentamycin but resistant to penicillin G, ampicillin, ciprofloxacin, clindamycin, and oxacillin. The detection of multidrug-resistant *L. monocytogenes* in poultry products highlights significant public health concerns. This study underscores the need for stringent monitoring and control measures to mitigate the risks of *L.*

monocytogenes contamination and the spread of antimicrobial resistance in broiler farms and retail markets.

Keywords: *Listeria monocytogenes*, prevalence, antibiotic sensitivity, PCR

O-67. Molecular Detection and Antibiogram of *Edwarsiella tarda* from *Heteropneustes fossilis*

Prapti BBR, Siddique MP*, Aktar MT, Rahman A, Ahmmed MT, Islam MS, Hossain MT

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Abstract

The present study was conducted to isolate and characterize *Edwardsiella tarda* from shing (*Heteropneustes fossilis*) with antibiogram. A total of 40 shing fish samples were collected from different fish farms of Trishal (n=12), Muktagachha (n=17) and Gouripur (n=11) upazilas of Mymensingh district. Isolation was done by culturing on MacConkey agar media, Salmonella-Shigella agar media, ET-agar media, and 10% Bovine blood agar media, and characterization was accomplished based on cultural, staining, biochemical, motility test, and finally by polymerase chain reaction (PCR). Virulence genes were detected using PCR and antibiogram was done using disc diffusion technique. Among 40 samples, 32 samples were found positive for *E. tarda*, based on cultural characteristics, which were also found positive for the species-specific *E. tarda* and in all cases a positive band appeared for gyrB at 415 bp; etfA at 415 bp; etfD at 445 bp. The virulence profile showed the distribution of virulence genes as gadB 17%, mukF 35%, fimA 10%, and citC 12.5%. Antibiogram profile revealed that 88.24% isolates showed resistance to Cotrimoxazole and Amoxicillin, while, all the isolates showed 100% sensitivity to Gentamicin and Meropenem. Viable resistance patterns were observed for Oxytetracycline, Azithromycin, Kanamycin, Streptomycin, and Novobiocin. This study revealed *E. tarda* carrying potential virulence and antimicrobial resistance determinants indicating a threat to animal, human and environment.

Keywords: *Edwardsiella tarda*, shing, virulence genes, antibiogram

O-68. Indiscriminate Use of Ciprofloxacin Antibiotic in Broiler Causes Significant Antibiotic Residues in Broiler Meat

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Abstract

Indiscriminate antibiotic use is frequently observed in the poultry industry, which is a global issue in terms of antibiotic residue and resistance. This study aimed to detect ciprofloxacin residues in edible tissues and assess their impact on broilers'

hematological and major enzymatic parameters. Thirty day-old broiler chicks were used to investigate the effects of controlled and uncontrolled ciprofloxacin usage. On day 14, chicks were randomly assigned to control, discriminate, and indiscriminate groups. Treatment commenced from day 14, with the discriminate group receiving ciprofloxacin at 100 mg/L in drinking water for 7 days followed by a 7 days withdrawal period. Conversely, the indiscriminate group received ciprofloxacin at the same concentration for 14 days without any withdrawal period. On day 14, the body weights among all groups showed no significant differences, but by day 28, the indiscriminate group exhibited a significantly higher mean body weight. Thin Layer Chromatography analysis revealed the presence of ciprofloxacin residues in all samples from the indiscriminate group, while no residues were detected in the control group. In the discriminate group, residues were found in 2 liver, 3 kidney, 1 spleen and 1 breast muscle sample, but not in thigh muscle. Hematological analysis indicated significant differences in Total Erythrocyte Count, Hemoglobin, and Erythrocyte Sedimentation Rate among the groups, with no significant differences in Packed Cell Volume. ALT and AST showed no substantial changes between treated and control birds. Therefore, the controlled use of ciprofloxacin in the poultry sector is crucial to safeguard human health.

Keywords: Ciprofloxacin, antibiotic, residues, public health, broiler meat

O-69. Outbreak Investigation of African Swine Fever (ASF) in Bangladesh

Akter MS[1], Jhantu MNI[2], Badhy SC[3], Tasnim S[1], Hossain MR[1], Chowdhury MH[1], Parvin R[1]*

[1]*Department of Pathology, Faculty of Veterinary Science, Bangladesh Agricultural University, Mymensingh-2202.* [2]*Divisional Director,* [3]*Central Disease Investigation Laboratory (CDIL), Department of Livestock Services, Ministry of Fisheries and Livestock, Dhaka, Bangladesh; *Corresponding author: rokshana.parvin@bau.edu.bd*

Abstract

African swine fever (ASF) is an important infectious disease with severe hemorrhage and high mortality caused by the African swine fever virus (ASFV) in boar. The disease has huge socio-economic impacts on the pork industry worldwide. The study aimed to investigate clinicopathological observation and molecular detection of ASF from the field case. On 28 August 2024, the outbreak occurred on a farm in the Panchagarh district of Bangladesh containing 230 boars. Among them 210 were dead. Clinicopathological observation was performed by postmortem examination and tissue samples (spleen, lungs, liver) were collected from three boars for laboratory tests. TaqMan-based one-step RT-qPCR was performed. Clinically, the animals showed high fever (40-42 ^{0}c), respiratory distress, epistaxis, lethargy and sudden death with 91% mortality. At the postmortem examination, hemorrhagic splenomegaly, hemorrhagic lymphadenitis, consolidation of lungs and congestion in liver and kidney were found. In histopathology, the spleen showed severe necrosis and lymphoid depletion, the lungs exhibited severe hemorrhagic pneumonia, alveolar collapsing, thickening of alveolar septa and bronchitis and bronchiolitis. In addition, the liver showed multifocal portal hepatitis with paracentral degeneration and hepatic necrosis. All 3 samples were

confirmed as ASF virus by detecting the VP72 gene by qRT-PCR. This field study represents the first detailed investigation of ASF in Bangladesh. Therefore, a comprehensive study and continuous surveillance strategy are needed to control ASF in Bangladesh.

Keywords: ASF, clinicopathology, necropsy, RT-QPCR, boar

Open Paper Session X

Date	:	2 February 2025 (Sunday)
Time	:	15.15-16.30
Venue	:	Pathology Gallery (Clinical)
Chairman	:	**Professor Dr. Siddiqur Rahman** Department of Medicine Bangladesh Agricultural University, Mymensingh
Co-Chairman	:	**Prof. Dr. Dibyendu Biswas** Department of Medicine, Surgery and Obstetrics, PSTU
Rapporteurs	:	**DR. Chandra Shaker Chouhan** Assistant Professor, Department of Medicine, BAU
		DR. Sayra Tasnin Sharmy Lecturer, Department of Medicine, BAU

Abs. no.	Time	Title and authors
O-70	15.15-15.25	Assessment of vaccine efficacy and effective dose of Bangladeshi goat pox vaccine (GPV) against lumpy skin disease (LSD) of cattle in Bangladesh Siddiqui MSI, Begum S, Mahtab JNH, Ahmed R, **Talukder S**, Islam S, Tushar AH, Badya SC, Chowdhury MGA
O-71	15.25-15.35	Host-parasite dynamics of *Strongyloides* in Bangladesh: who infects whom? **Nath TC**, Rahman MS, Lee D, Streit A
O-72	15.35-15.45	Investigating the risks of amoxicillin residue: a study through animal experimentation **Islam MS**, Islam MS
O-73	15.45-15.55	Unveiling zoonotic diseases of ruminants in local meat market **Mim SA**, Khan MAHNA
O-74	15.55-16.05	Pathological investigation of nitrate poisoning in a sheep farm **Ahmed MS**, Pervin M
O-75	16.05-16.15	Assessment of gut microbes isolated from retail chicken in Mymensingh district for probiotic potential **Biswas S**, Nahar A, Yasmin S
O-76	16.15-16.25	Prevalence, antimicrobial resistance, and virulence gene profiles of *Pseudomonas aeruginosa* isolated from companion animals at pet clinics in Dhaka **Khan O**, Hayat S, Ferdows S, Moon SM, Akter S, Badhy SC, Chowdhury GA, Siddique MP
16.25-16.30		CHAIRMAN'S REMARKS

O-70. Assessment of Vaccine Efficacy and Effective Dose of Bangladeshi Goat Pox Vaccine (GPV) against Lumpy Skin Disease (LSD) of Cattle in Bangladesh

Siddiqui MSI[1]*, Begum S[2], Mahtab JNH[1], Ahmed R[1], **Talukder S**[1], Islam S[1], Tushar AH[1], Badya SC[3], Chowdhury MGA[3]

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Abstract

This study was conducted to assess the efficacy of the goat pox vaccine (GPV), to determine effective or proper dose rate against lumpy skin disease (LSD) in cattle. Unvaccinated healthy cattle (free from vaccination and any diseases, particularly from natural LSD infection) of two age groups were selected randomly and vaccinated with GPV following three factorial randomized complete block design (RCBD). Factor –A: Two age category cattle (X= 06 M up to 05 years) and (Y= above 05 years). Factor-B: Four category doses of GPV ; dose category A, B, C & D; where A = 1 ml, B = 1.5 ml, C = 2 ml and D = 2.5 ml s/c).Factor- C = Two time category (35 days of post vaccination - DPV & 42 days of post vaccination - DPV) for blood collection, serum separation and cELISA test for LSD antibody determination. Over all seroprevalence were found 58.33% and 54.16% of experimentally vaccinated cattle on both 35 and 42 DPV irrespective to the doses and ages. Dose wise study revealed that highest seroprevalence were found 66.66% and 58.33% on dose D (2.5 ml of GPV) on both 35 and 42 DPV respectively. It is conclude that, GPV on a dose of 2.5 ml subcutaneous can be use to prevent LSD in Cattle to check emergency i.e LSD epidemics, though vaccine efficacy is moderate level, but development of a potent effective vaccine using local LSD strain is a time demand.

Keywords: Epidemics, lumpy skin disease, goat pox vaccine, efficacy, cattle

O-71. Host-parasite Dynamics of *Strongyloides* in Bangladesh: who infects whom?

Nath TC[1]*, Rahman MS[1], Lee D[2], Streit A[3]

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Abstract

This study explores the genetic relationships between Strongyloides spp populations in humans and dogs from Bangladesh, aiming to understand the zoonotic potential and evolutionary history of these parasitic nematodes. Samples of *Strongyloides* spp. were collected from humans and dogs in Sylhet and Dhaka. Molecular taxonomic and genomic analyses were conducted using nuclear and mitochondrial sequences to determine genetic variations and historical interactions between host-specific parasite

populations. Two genomic types of *S. stercoralis* were identified: a "dog-only" type and a "human-and-dog" type. Nuclear genome analyses revealed significant genetic distinctions between human- and dog-derived *S. stercoralis*, with evidence of rare cross-infection events. Mitochondrial genome analysis indicated historical introgression between the two host groups. The findings suggest that *S. stercoralis* originated as a canid parasite, adapting to infect humans following dog domestication, leading to host-specific differentiation without full speciation. Additionally, an unexpectedly high incidence of *S. fuelleborni* infections in humans was observed, contrary to previous studies in Bangladesh. Population genomic analyses indicate that human- and dog-derived *S. stercoralis* in Bangladesh are genetically distinct but capable of occasional cross-infection. The evolutionary trajectory underscores the zoonotic potential and highlights the need to reassess the role of *S. fuelleborni* as a significant human parasite in Bangladesh.

Keywords: *Strongyloides* spp, zoonotic infections, genomic analysis, cross-infection

O-72. Investigating the Risks of Amoxicillin Residue: a Study Through Animal Experimentation

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Abstract

Antibiotic therapy is essential in human and veterinary medicine, but resistance and prolonged exposure to antibiotic residues pose significant risks to health. This study investigated the long-term effects of amoxicillin residue on Swiss Albino male mice. Mice (n=20) were divided into control (no antibiotics) and treated (Amoxicillin @ 10 ppm in drinking water for one year; MRL 0.01ppm) groups. Body weight, physical condition, immune status, blood parameters, ALT and AST enzyme levels, histopathology and residue accumulation in organs was examined. Antibiotics-treated mice exhibited significant weight gain ($P<0.05\sim0.01$) from the third month, peaking in the 10th month before declining. Treated mice appeared robust yet lethargic. Blood analysis showed decreased lymphocyte & neutrophil count and while no significant changes were observed in monocyte, eosinophil & basophils counts. ALT and AST levels were elevated but not statistically significant. Histopathology revealed liver steatosis, glomerular atrophy, and inflammatory cell infiltration in the liver and kidneys. TLC analysis confirmed Amoxicillin residue accumulation in the liver, kidneys, spleen, intestine, and muscles. The findings suggest that long-term exposure to antibiotic residues may adversely affect health and highlight the need for controlled antibiotic use to prevent potential hazards.

Keywords: Amoxicillin, antibiotic residues, mice, health hazards, ALT, AST

O-73. Unveiling Zoonotic Diseases of Ruminants in Local Meat Market

Mim SA, Khan MAHNA*

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Abstract

The One Health concept emphasizes the interrelation of environmental, animal health, and human health with zoonosis. In impoverished nations like Bangladesh, local meat markets are important hubs for the spread of zoonotic diseases. Between December 2023 and August 2024, this study examined the slaughtered animals and apply molecular features of zoonotic diseases in sheep, goats, and cattle in meat markets of Mymensingh city. A total of 50 animals (18 cattle, 20 goats, and 12 sheep) were examined at slaughter, collected 138 samples including liver, lungs, and mesenteric lymph nodes (MLNs). Gross pathology, impression smear staining, hematoxylin and eosin staining, Gram's staining and acid-fast staining were performed to frame the diagnosis. PCR was employed to confirm TB and CLA. Caseous masses, calcified MLNs, pipestem liver, hydatid cysts, and cirrhosis were gross findings; smears of MLNs revealed the presence of acid-fast bacilli and gram-positive bacteria; histologically, two cases displayed granulomas with calcifications and the presence of acid-fast bacteria, while caseous lymphadenitis displayed necrotic lesions with gram-positive bacteria; bile duct hyperplasia and cirrhosis were indicative of fascioliasis. Using PCR, *Mycobacterium* genus (1030 bp/16S rRNA) and *Mycobacterium tuberculosis* complex (372 bp/16S rRNA) were detected in a cow and a goat. *C. pseudotuberculosis* (632 bp/16S rRNA) was detected in nine goats. Fascioliasis (goats =18, cattle =08, and sheep =03) was predominant followed by hydatidosis (cattle=01 and goats=02) and linguatulosis (goat=01). The influence of these diseases on public health is shown by their prevalence; need consistent monitoring, epidemiological research, and routine investigation before and after slaughter.

Keywords: Ruminants, pathology, PCR, one health, zoonotic diseases

O-74. Pathological Investigation of Nitrate Poisoning in a Sheep Farm

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Abstract

Nitrate intoxication in the ruminants is occurred due to the consumption of feed containing a high concentration of nitrate and cause significant mortality in case of acute poisoning. This study investigated a case of suspected nitrate poisoning in a sheep farm (n=106) of Muktagasa Upazilla, Mymensingh. The pathological investigation includes haematological examinations, gross and histopathology, and toxicological analysis.

Affected sheep showed lameness, dyspnoea, anorexia, dullness, cyanosis of mucous membrane, and sudden death at a regular interval. A total of 17 sheep died within a short period of time. Necropsy of dead sheep showed mucosal discharges in oral and nasal cavities, congested and consolidated lungs, congestion in visceral organs, cyanotic blood and mucous membranes, greyish lesion on the medulla oblongata, widespread congestion and hemorrhages. Histopathological examination revealed tubulointerstitial nephritis, haemorrhages in brain, kidney, and liver, widespread congestion and fibrinious inflammation in lungs, lymphopenia in spleen, hemorrhagic enteritis indicating *Peste des petits ruminants* (PPR) viral infectivity. Routine blood analysis revealed a rise of total leukocyte count (14-27x103µl) but other parameters of blood like haemoglobin estimation, total red blood cell count, ESR were at standard level. Suspected grasses while tested with diphenylamine revealed higher concentration of nitrate (+++) and indicating a state of nitrate poisoning. Treatment with acetylcysteine through intravenous route and replacing grasses bringing significant clinical improvement and help surviving infected animals. This study highlights a combination of nitrate poisoning with subclinical PPR viral co-infectivity. Acetylcysteine appeared as a viable therapeutic option for treating nitrate poisoning in farm animals.

Keywords: Poisoning, hemorrhages and congestion, acetylcysteine, PPRV

O-75. Assessment of Gut Microbes Isolated From Retail Chicken in Mymensingh District for Probiotic Potential

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Abstract

Probiotics are non-pathogenic live microorganisms, providing health benefits on the host, serving as effective alternatives to antibiotics for managing animal infections and enhancing production. The objective of this study was to assess the probiotic potential of bacteria isolated from the gastrointestinal tract of the retail chicken. From 12 intestine and 12 cecum samples, 24 microbial bacterial colonies were isolated. The isolated bacteria were characterized and evaluated for probiotic properties including hemolysis activity, tolerance to NaCl, bile salts and low pH, antagonistic activity, and antibiotic susceptibility tests. Based on morphological, biochemical, and probiotic characteristics, 4 potential probiotic candidates were selected and identified genotypically. The new strains belonged to *Enterococcus faecium* MCI7, *Pedicoccus pentosaceus* MCI10, *Pedicoccus pentosaceus* MCC6 and *Pedicoccus pentosaceus* MCC12. The selected strains were non-hemolytic and showed high tolerance to low pH and bile salts. They exhibited acid tolerance to pH 3.0 and after 3h incubation, viable counts were 7.02 ± 0.08 to 7.29 ± 0.07 CFU/ml. Furthermore, the strains displayed bile salt suppression ranging from 21.91 to 32.77% and a wide range of antimicrobial activities, particularly against antibiotic-resistant pathogens such as *Escherecia coli*, *Staphylococcus aureus, E. faecalis, Salmonella typhimurium* and *Klebsiella pneumoniae* with zone of inhibition ranging from 10 to 16.5

mm. *P. pentosaceus* MCI10, *P. pentosaceus* MCC6 and *P. pentosaceus* MCC12 were sensitive to majority of the tested antibiotics. The selected bacterial strains exhibited promising probiotic properties; however, further in vivo studies are needed to evaluate their impact on broiler growth, meat quality, and immunological attributes.

Keywords: Probiotics, hemolysis, bile salts, antagonistic activity

O-76. Prevalence, Antimicrobial Resistance, and Virulence Gene Profiles of *Pseudomonas aeruginosa* Isolated from Companion Animals at Pet Clinics in Dhaka

Khan O[1,*], Hayat S[2], Ferdows S[3], Moon SM[1], Akter S[3], Badhy SC[3], Chowdhury GA[3], Siddique MP[2]

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Abstract

The study aimed to determine the prevalence of *Pseudomonas aeruginosa* (*P. aeruginosa*) in dogs and cats treated at pet clinics in Dhaka, focusing on antimicrobial resistance profiling and virulence gene distribution. A total of 84 samples were collected from dogs and cats from various clinical sources including the ear, wound exudates, rectum, nose, skin, urinary tract, and pus. The collected samples were cultured on cetrimide agar and incubated at 37°C for 24 hrs to isolate *P. aeruginosa*. Phenotypically identified pure colonies were subjected to further characterization onto MacConkey agar, followed by biochemical testing. The isolates were subsequently re-confirmed by PCR and MALDI-TOF. Antibiotic susceptibility was assessed using the disc diffusion method, following CLSI guidelines. Virulence genes encoding elastase (lasB), exotoxin A (toxA), alkaline protease (aprA), rhamnolipids (rhlAB), and exoenzyme S (exoS) were detected by PCR. The study identified P. aeruginosa in 26 out of 84 collected pet samples (30.95%). AMR profiling revealed that Gentamycin exhibited the highest resistance (7.69%), with intermediate resistance to Ciprofloxacin (7.69%). All the isolates were susceptible to Cefepime, Piperacillin/Tazobactam (TZP), Meropenem and Imipenem. Molecular analysis revealed that 85% of isolates harboured the lasB, aprA, and rhlAB virulence genes, while exoS and toxA were detected in 46.15% and 84.62% of the isolates, respectively. This study highlights the importance of monitoring *P. aeruginosa* in companion animals, to mitigate both antimicrobial resistance and the risk of infection emphasizing the need for continuous surveillance.

Keywords: AMR; Virulence; companion animal; *Pseudomonas*

Open Paper Session XI

Date	:	2 February 2025 (Sunday)
Time	:	15.15-16.30
Venue	:	Physiology Gallery (Pre-clinical)
Chairman	:	**Professor Dr. Md. Abdul Alim** Department of Parasitology Bangladesh Agricultural University, Mymensingh
Co-Chairman	:	**Professor Dr. Md. Khaled Hossain** Department of Microbiology, HSTU
Rapporteurs	:	**Dr. Mst. Sonia Parvin** Associate Professor, Department of Medicine, BAU
		DR. Popy Khatun Lecturer, Department of Pharmacology, BAU

Abs. no.	Time	Title and authors
O-77	15.15-15.25	Impact of lameness and their associated risk factors on dairy cows welfare in Sirajganj district of Bangladesh **Shanta SA**, Akter T, Aktaruzzaman, Rahman AKMA, Islam MA
O-78	15.25-15.35	Assessment of knowledge, attitude and practices of milkers in the dairy farms in and around Mymensingh city **Morsheed MG**, Nahiduzzaman FNU, Saha A, Islam MA, Khatun MM
O-79	15.35-15.45	A need for improved poultry farm management in Bangladesh: barriers and gaps in farmers' perception of chicken coccidiosis control **Karmakar BC**, Shohana NN, Sumona FH, Dey AR, Rony SA, Anisuzzaman, Alam MZ
O-80	15.45-15.55	Management of *Aedes* mosquitoes: holistic public health approaches **Sharower GM**
O-81	15.55-16.05	Further evidence of brucellosis among hospital patients in Bangladesh **Shanta IS**, Rahman MZ, Hossain ME, Rakib TM, Hossain K, Islam Z[1], Islam MM, Ahmed N, Rahman AKMA, Banu S, Qadri F, Ahmed T
O-82	16.05-16.15	Assessment of the use of alternatives to antibiotics, vaccination, and biosecurity practices on small-scale broiler farms in three districts of Bangladesh **Rahman MM**, Hasan M, Keya AN, Rahman A, Maliha M, Turna AA, Miti AA, Lira SA, Tasnuva S, Sharmy ST, Parvin MS, Islam MT
O-83	16.15-16.25	Determination of risk factors of conception failure at first AI service in dairy cows at the northern part of Bangladesh **Rahman MM**, Mondul MAH, Islam MH, Uddin J, Bhuyan AAM, Md. Akhtarul Islam MA, Sarder MJU
16.25-16.30		CHAIRMAN'S REMARKS

O-77. Impact of Lameness and their Associated Risk Factors on Dairy Cows Welfare in Sirajganj District of Bangladesh

Shanta SA, Akter T, Aktaruzzaman, Rahman AKMA, Islam MA*

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Abstract

A cross-sectional study was conducted on randomly selected 643 cows from 60 dairy herds in Shahajadpur upazilla of Sirajganj districts, the highest milk-producing areas in Bangladesh. Logistic regression was applied to assess the prevalence of lameness and its association with potential risk factors. We found the estimation of lameness was higher by Veterinarians (21.82%) than farmers (14.25%). This study revealed that 36.52% of dairy farmers agreed that lameness (pain) reduce milk yield. Most of the farmers (78.5%) supported the requirement for alleviating unnecessary pain, but they did not call Veterinarians immediately. In addition, farmers (82.48%) used anti-inflammatories, analgesics, and antiseptic hoof wash as treatment remedies by themselves and sometimes by Quack. Out of 643 dairy cattle examined, 107 (16.64%) showed lameness in different grades, with 58.0% mild, 29% moderate, 11% lame, and 2% severe lame. Lameness was significantly associated with floor type, concentrate feed, parity, pregnancy, and milking status ($P<0.05$). The study revealed that lameness mainly occurred due to hoof disorders like overgrowth, lesions, and cracks (20.56%) and carpal/tarsal joint lesions (14.95%). Lameness was significantly higher in hind limbs (13%) than in forelimbs (3.5%). In addition, the study revealed that the mean daily milk yield (av. 11.46 L/day/cow) was significantly reduced (av. 9.38 L/day/cow) after the onset of lameness in milking cows. Lameness is prevalent in the selected study areas and reduces milk production. Thus, farmers' awareness regarding the impact of lameness and management practices for lactating cows should be improved to reduce the prevalence of lameness.

Key words: Dairy cows, lameness, prevalence, risk factors, milk yield, Bangladesh

O-78. Assessment of Knowledge, Attitude and Practices of Milkers in the Dairy Farms in and around Mymensingh City

Morsheed MG, Nahiduzzaman FNU, Saha A, Islam MA, Khatun MM*

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Abstract

This study aimed to evaluate the knowledge, attitude and practices (KAP) of dairy milkers in and around Mymensingh city, alongside a microbiological assessment to understand how KAP affects milk safety and hygiene. A cross-sectional study was conducted using semi-structured questionnaires and direct observation of 100 farmers

from 7 selected areas. The farms were categorized into four groups based on the number of cattle. Microbiological analysis involved hand swabs from 60 milkers, with total viable count (TVC) and pathogen identification conducted using Polymerase Chain Reaction for *E. coli* (stx-1, stx-2 genes) and *S. aureus* (nuc gene). Socio-demographic data showed that 75% of respondents were male and 25% were female, with varying ages and educational levels. Approximately 75% of respondents washed their hands with water only, while 25% used water with soap. Notably, 92% did not take precautions to avoid sneezing or coughing over milk. Additionally, 95% washed udders with water alone, and only 5% used soap and water. For milk collection, 95% used aluminum containers, whereas 5% used plastic buckets. Awareness of milk-borne zoonoses was low, at 20%. The highest mean TVC was observed in D category farms (5.797 ± 0.553 log CFU/ml), and the lowest in A category farms (3.592 ± 0.504 log CFU/ml). Pathogenic *E. coli* and *S. aureus* were present in 18.33% and 30% of samples, respectively. The findings indicate poor KAP regarding milk hygiene and limited awareness of milk-borne zoonoses, emphasizing the need for improved hygiene practices and education among dairy milkers.

Keywords: Milk-borne zoonoses, KAP, dairy farm, TVC, milker's hygiene

O-79. A Need for Improved Poultry Farm Management in Bangladesh: Barriers and Gaps in Farmers' Perception of Chicken Coccidiosis Control

Karmakar BC, Shohana NN, Sumona FH, Dey AR, Rony SA, Anisuzzaman, Alam MZ*

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Abstract

Coccidiosis is risking commercial poultry production systems by misusing anticoccidials, compromising worldwide economic stability. One possible countermeasure is ensuring adequate knowledge, attitudes, and practices on farm management and anticoccidials used by farmers. Therefore, this study was designed to explore the prevailing field scenario of coccidiosis, farmers' current operation practices and commonly used anticoccidials in Bangladesh. For this, small-scale poultry farmers of the Mymensingh, Cumilla, Tangail, and Gazipur districts were interviewed using semi-structured questionnaires. Out of the 200 farmers, only 33.1% passed higher secondary education with newly startup male owners (84.0%) prioritizing floor rearing (67.5%) for poultry breeds, especially broiler (66.0%). Only 67.5% and 42.0% of farmers could identify actual transmission routes and clinical signs of coccidiosis, respectively; thus, leading to weak biosecurity practices (38.8%). Besides, 88.1% of the respondents used new litter as bedding and 70.6% of farmers took consultation services from a veterinarian. We further noted that usage of sulpha drugs was the highest both as treatment (19.1%) and chemoprophylaxis (24.1%) followed by amprolium (6.4%, 8.6%), diclazuril (6.9%), and toltrazuril (4.5%) respectively. In terms of prevention techniques used, the application of drugs in feed/water was mostly preferred (23.6%). Besides, significant differences ($p<0.05$) were reported among study farmers of four districts

regarding farmers'knowledge of coccidiosis, level of education, biosecurity status, and local strain vaccine requirement. Among the four study zones, farmers of the Cumilla district were found to have comparatively better disease-related knowledge and management status. In conclusion, this study reported the timely demand for coccidia vaccine containing the local strains prevailing in Bangladesh and farmers'training in poultry disease management, especially biosecurity.

Keywords: Coccidiosis, knowledge, attitude, practice, biosecurity

O-80. Management of *Aedes* Mosquitoes: Holistic Public Health Approaches

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Abstract

Mosquito control is a multisectoral public service critical to advancing the 2030 sustainable development goals (SGDs). The management of dengue fever and other mosquito-borne diseases primarily depends on the control of the vector mosquitoes by using insecticides. This study emphasized on mosquito population density in Dhaka city corporation with control practices. The conventional government-controlled chemical-based pesticides has resulted in the development of resistance among mosquitoes and also causing concerns when it comes to the health of human being, other organisms and the environment. With dengue accounting already breaking all the records from 2000 to 2022, the number of dengue infections and the number of deaths has set two new records in 2023. Calling the year 2023 the year of dengue panic would not be wrong. But the horror that is being observed in 2024 after breaking that record is really scary. Up to May 25, 2023, the number of infected people was 1620 and the number of deaths was 13 people. And up to May 26, 2024, the total number of infections is 2745 and the number of deaths is 33. On top of this, sometimes the evil and unusual behavior of nature makes the mosquito more powerful and reckless. All the factors of nature and human creation are in favour of mosquito breeding and spreading diseases.

Key words: Mosquito-borne diseases, holistic approaches, larvae and adults

O-81. Further Evidence of Brucellosis among Hospital Patients in Bangladesh

Shanta IS[1]*, Rahman MZ[1], Hossain ME[1], Rakib TM[1], Hossain K[1], Islam Z[1], Islam MM[1], Ahmed N[1], Rahman AKMA[2], Banu S[1], Qadri F[1], Ahmed T[1]

[1]*International Centre for Diarrhoeal Diseases Research, Bangladesh (icddr,b), Dhaka, Bangladesh,* [2]*Department of Medicine, Bangladesh Agricultural University, Mymensingh-2202; *Corresponding author: ireenshanta@icddrb.org*

Abstract

Brucellosis is a neglected and underreported zoonotic disease globally, including in Bangladesh. *Brucella abortus* is transmitted to humans from cattle and *Brucella melitensis* from goats. Although enzootic in Bangladeshi livestock, human infections are rarely documented. From February 12 to July 31, 2022, we tested 120 fever patients at the Severe Acute Respiratory Infection, Isolation and Treatment Centre, icddr,b, Teknaf, Cox's Bazar for brucellosis using a triple antigen test alongside tests for Salmonella and Rickettsia. Positive patients were further investigated from August 3–5, 2022. A follow-up survey from October 4 to December 14, 2022, enrolled 33 patients with ≥7 days of fever (undulant fever), muscle ache, headache, and joint pain from local villages and the refugee camps of Forcibly Displaced Myanmar Nationals. Among the 120 tested patients, 7 (5.8%) were positive for *Brucella spp.* Among the positive patients, 5 patients we could trace during the investigation, 1 confirmed positive by PCR. During the survey, 1 of 33 patients (3%) tested positive by both triple antigen and PCR. All positive patients and their families reported raw milk consumption and livestock exposure. Among the survey participants, 21% reported consuming raw milk. Raw milk consumption may be a significant driver of brucellosis in this area. A nationwide survey to detect *Brucella* in humans and animals is urgently needed. Public health interventions should focus on promoting safe milk consumption practices, especially in high-risk areas like refugee camps and livestock-owning communities.

Keywords: Brucellosis, hospital patients, Bangladesh

O-82. Assessment of the Use of Alternatives to Antibiotics, Vaccination, and Biosecurity Practices on Small-Scale Broiler Farms in Three Districts of Bangladesh

Rahman MM, Hasan M, Keya AN, Rahman A, Maliha M, Turna AA, Miti AA, Lira SA, Tasnuva S, Sharmy ST, Parvin MS, Islam MT*

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Abstract

Implementing alternatives to antibiotics, effective vaccination practices, and robust biosecurity measures can reduce antimicrobial resistance (AMR) and enhance farmers' profitability. The study objective was to identify and characterize the patterns of using

alternatives to antibiotics and evaluate vaccination practices and biosecurity levels in small-scale broiler farms. Data on demography, use of antibiotics and alternatives to antibiotics, vaccination, biosecurity management etc. were collected through on-farm interviews with the broiler farmers of randomly selected 300 broiler farms across six upazilas of three districts (Mymensingh, Kishoreganj, Sherpur). Around 98% of farmers used antibiotics, with 78.6% starting from day one. The highest mean of usual daily dose (UDD) values were found in Hossainpur upazila (73.36 mg/kg) followed by Sherpur sadar (71 mg/kg) and Trishal (70.26 mg/kg) upazilas. Tylosin having the highest UDD at 361.61 mg/kg, followed by Neomycin at 339.35 mg/kg. It was revealed that 37.7% of farmers knew about alternatives to antibiotics but 69.3% of farmers used it on their farms with or without knowing the concept of it. All farmers practiced vaccination, with 96.3% vaccinating regularly, and the majority (75.7%) followed schedules recommended by dealers. Biosecurity scores ranged from 30-80% (median: 60%), with 3.3% of farms rated "Very good," 64.3% "Good," 23.3% "Poor," and 8.7% "Very poor." Biosecurity level was inversely correlated with antibiotic use, indicating that better practices reduced consumption. The findings envisage the importance of improving farmers' awareness of the usage of alternatives to antibiotics and good vaccination practices.

Keywords: Vaccination, biosecurity, antibiotic-free broiler

O-83. Determination of Risk Factors of Conception Failure at First AI Service in Dairy Cows at the Northern Part of Bangladesh

Rahman MM, Mondul MAH, Islam MH, Uddin H, Bhuyan AAM, Islam MA, MJU Sarder*

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Abstract

The present study was to evaluate risk factors for conception failure at the first Artificial Insemination (AI) service in dairy cows at northern parts of Bangladesh. The study was conducted at 12 districts in the Rangpur and Rajshahi divisions of Bangladesh from June 2023 to December 2024. Primary data were collected from the selected farmers by interview method. Both tabular and financial analyses were done to achieve the objectives. Most of the respondents were male (96.4%), with a small number of females (3.6%), of these non-service jobs (42.6%) and farming (33.2%), with smaller groups in business (09%), retirement (1.4%), homemaking (3.9%) and the rest have other occupations. The average farming age among respondents was around 12 years, with most respondents having 5 to 20 years of farming experience. The highest (74.3%) respondents were engaged in traditional farming, followed by subsistence farming (24.8%), with only 0.9% involved in commercial farming, among them (88.2%) had small farms, followed by medium-sized farms (11.6%), while only 0.8% had large farms. The body weight of the cows of 33.3% were 200 kg and other common body weights included 130 kg (7.8%), 160 kg (5.9%), and 250 kg (9.8%). This work was done to assess the impact of some non-genetic factors age at 1st service (AFS), parity, days from calving

to 1st service (DFS), number of services per conception (S/C), and incidence of diseases on the conception rate (CR) of dairy cows with estimating the economic losses of 1st AI failure. The study was carried out through field surveys on 3118 dairy cows from 942 dairy farmers. The overall conception rate was 61.12%, it differed significantly among the parity. The CR of FAI with good, moderate, and poor feeding systems of cows were 65.1% and 21.1%, respectively. The CR of FAI of HFC, SWC, and Local breeding bulls were 53.0% and 67.0%, respectively. Failure of the 1st AI resulted in extra costs of BDT.14,650/ extra one day of days open (DO) with BDT.1150/- for an extra service per conception (S/C). The farmers reported irregular vaccination (54%) and deworming (65%) practices for their cows. Many also reported not vaccinating (25%) or deworming (17%) their cows at all. A significant portion of respondents (83.3%) reported that their cows were affected by diseases. Repeat breeding was the most common (40%), followed by retention of the placenta (19.5%), vaginal prolapse (17%), Dystocia (08%), FMD (07%), Ketosis (05%) and Milk Fever (03%). It may be concluded that the first service conception rate was significantly influenced by the breed, age, and parity of cows. It is suggested that training the farmers on dairy farming with community veterinary care improves the CR of FAI in Bangladesh. Finally, we recommend the owner replace the old cows, with regular cow supervision to inseminate cows in the estrus shortly after calving, with a cost-benefit analysis on their dairy farms regularly.

Keywords: AI, first service, conception, risk factor, economic impact

Open Paper Session XII

Date	:	2 February 2025 (Sunday)
Time	:	15.15-16.30
Venue	:	Pharmacology Gallery (Miscellaneous)
Chairman	:	**Professor Dr. Md. Tanvir Rahman** Department of Microbiology and Hygiene Bangladesh Agricultural University, Mymensingh
Co-Chairman	:	**Professor Dr. Md. Golbar Hossain** Department of Veterinary and Animal Sciences, RU
Rapporteurs	:	**DR. Sabbya Sachi** Assistant Professor, Department of Pharmacology, BAU
		DR. Md. Eftakhar Jahan Bhuiyan Lecturer, Department of Physiology, BAU

Abs. no.	Time	Title and authors
O-84	15.15-15.25	Development and standardization of chitosan-graphene-based nano-biosensor for electrochemical detection of *Pasteurella multocida* **Rahman A**, Kafi MA, Rahman M, Siddique MP, Hossain KS, Deb GK
O-85	15.25-15.35	Safe slaughtering and carcass disposal of poultry, use of a killing cone, in rural and urban areas of Bangladesh **Baker MM**, Chowdhury KIA, Yeasmin D, Kamal AHM, Islam MT, Islam SS, Islam A, Islam MS
O-86	15.35-15.45	*Escherichia coli* O157:H7 and non O157:H7 from milk samples: detection, virulence characterization and antibiogram **Islam MR**, Islam F, Abdullah-Al-Mamun S, Khan MFR, Kabir SML
O-87	15.45-15.55	Climate smart poultry production: challenges and opportunity from developing country perspective **Golbar HM**
O-88	15.55-16.05	WASH, biosafety and biosecurity intervention in small scale poultry farms to reduce antibiotic use: prospects in safe meat production **Shanta IS**, Ahmed N, Ahmed A, Hossain K, Monir MM, Islam MT, Sultana M, Alam M, Monira S
O-89	16.05-16.15	Bacteriological evaluation of beef with special emphasis on identification and characterization of *Arcobacter butzleri* **Monzor-E-Morshed G**, Islam MR, Khan MSR, Kabir SML
O-90	16.15-16.25	Food safety threats: molecular surveillance, antibiogram and virulence profiling of biofilm forming *Enterococcus faecalis* in Bangladeshi restaurants **Shadique SA**, Islam MS, Ferdous FB, Ashraf MN, Kabir M, Rahman MT
16.25-16.30		CHAIRMAN'S REMARKS

O-84. Development and Standardization of Chitosan-Graphene-based Nano-biosensor for Electrochemical Detection of *Pasteurella multocida*

Rahman A[1], Kafi MA, Rahman M[1]*, Siddique MP[1], Hossain KS[2], Deb GK[3]

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Abstract

Here, we study the development and standardization chitosan-graphene-based nano-biosensor to electrochemical characterization of Pasteurella multocida, the causal agent of haemorrhagic septicaemia of buffalo calves. The chitosan-graphene-based nano-biosensor was developed by contact-printed method. The sensor was characterized by High Magnificent Microscopy and Scanning Electron Microscopy to realize the topography. For standardization, electrochemical characterization (EC) of analytes was performed through Cyclic voltammetry (CV) and Linear sweep voltammetry (LSV) following standard electrochemical setup. Finally, field isolates of P. multocida was confirmed by polymerase chain reaction (PCR), followed EC using developed nano-biosensor. The physical characterization data revealed the formation of a multilayer of graphene and Chit-GO on the chitosan membrane. The PCR revealed *P. multocida* serotype B:2 (amplicon size: 620 bp). The CV of the target bacterium revealed redox peak potentials were at 0.17V, while the oxidation peak potential was absent. Whereas, the redox current peak was a maximum 4.1×106 and the anodic current was 85mV when applied 108 CFU/ml bacteria. The LSV oxidase peak potential was at 0.13V, the peak current was 2.3×10-6, and the anodic current was 35mV. Such a potential peak was also absent for PBS. The stability of the peak potential was revealed the redox peak of the bacterium was reproduced at 0.17V voltammetry when applied scan for 50 cycles. The developed nano-biosensor was able to signal acquisition of the *P. multocida* from the nasopharyngeal cavity of buffalo calves.

Keywords: Nano-biosensor, electrochemical workstation, CV, LSV

O-85. Safe Slaughtering and Carcass Disposal of Poultry, Use of a Killing Cone, in Rural and Urban Areas of Bangladesh

Baker MM*[1], Chowdhury KIA[1], Yeasmin D[1], Kamal AHM[2], Islam MT[1], Islam SS[1], Islam A[1], Islam MS[3]

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Abstract

Emergence and re-emergence of highly pathogenic avian influenza (HPAI) H5N1 have been primarily associated with poultry markets, emphasizing the critical need for

intervention in these settings. It is essential to recognize the potential risks posed by mobile poultry vending, as this practice also plays a role in the transmission dynamics of HPAI. The aim was to devise an intervention to improve safe poultry slaughtering and waste disposal practices among mobile poultry vendors and mitigate the risk of HPAI transmission. Mobile poultry vendors and their customers were interviewed to understand their practices. During an intervention component, poultry killing cones along with a hygiene pamphlet were introduced and the feasibility of this intervention was assessed. Observations over 416 hours of 40 vendors revealed no use of personal protective equipment. Practices included open-area slaughtering and inadequate waste disposal. Following the killing cone intervention, notable improvements were observed in vendors' waste disposal practices, overall cleanliness, and understanding of HPAI risks. Recommendations include strengthening biosecurity by designating slaughter zones, improving cage sanitation, and providing vendors with protective gear. Future research should focus on long-term surveillance of behavioral changes and direct testing for H5N1 transmission risks. Expanding these measures to additional areas could further reduce avian influenza transmission risk. This research highlights how poultry killing cones can change behaviors and be used as an innovative and feasible approach to reducing HPAI transmission risks. This intervention is not only applicable in Bangladesh but also in similar contexts globally.

Keywords: Avian Influenza, poultry vendors, safe slaughtering, waste disposal

O-86. *Escherichia coli* O157:H7 and non O157:H7 from milk samples: detection, virulence characterization and antibiogram

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Abstract

This study was carried out to detect the virulence gene and antibiogram test in *Escherichia coli* O157:H7 and non O157:H7 from raw milk and pasteurized milk samples from 5 upazillas of Mymensingh district during the period of January 2020 to July 2020. A total of 70 raw milk and 30 pasteurized milk samples were collected randomly from different upazilas of Mymensingh district. The milk samples were tested within 24h for the isolation and identification of *E. coli* O157:H7 and non O157:H7 using staining characteristics, cultural properties on selective media, Latex agglutination test, and PCR. Antimicrobial susceptibility of the isolates was done using disk diffusion method. In this study, out of 70 raw milk and 30 pasteurized milk samples, 5 samples were found to be positive for *E. coli* O157:H7 and 18 samples were positive for *E. coli* non-O157:H7. The amplification of isolates stx_1 and stx_2 confirmed by PCR using specific primers, 1(20%) were positive for stx_1, 4 (80%) were positive for stx_2 and 0(0%) were positive for both stx_1 and stx_2 in *E. coli* O157:H7 isolates genes respectively. However *E. coli* non O157:H7 isolates 13(72.22%), 5(27.78%), 2(11.11%) were positive for stx_1, stx_2 and both stx_1 and stx_2. The degree of susceptibility ranges for *E. coli* O157:H7 about 20-60% and for non-

	Masum AH, Huq MR, Kalam MA, Akter MA, Alam MM
P-63	Prevalence, virulence profiles and antibiotic resistance of biofilm-forming *Enterococcus faecalis* isolated from raw seafood in Bangladesh **Antor MTH** , Ullah MA, Islam MS, Ferdous FB, Fahim NAI, Rana ML, Hassan J, Rahman MT
P-64	Knowledge, attitude, and practices regarding bovine brucellosis among farmers in Mymensingh district: a cross-sectional study **Saha A**, Zarin T, Nahiduzzaman FNU, Rahman MZ, Khatun MM, Islam MA
P-65	Prevalence and characteristics of mobile colistin resistance (*mcr*) gene carrying *Klebsiella pneumoniae* isolated from retail foods in Mymensingh district **Nahar A**, Khatun M T, Islam AKMA, Hasan MM, Hasan MM, Alam MM
P-66	Clinico-epidemiological features and complications of lumpy skin disease in cattle in Mymensingh district (2019–2024) **Chouhan CS**, Mamun AA, Foysal M, Razzak MA, Hoque MN, Faruk MO, Nirob MNJ, Uday TM, Biswas JK , Barman S, Chakrabartty S, Haque Z
P-67	Prevalence and associated potential risk factors of ill-thrift in calves in selected areas of Bangladesh **Chouhan CS**, Haque R, Foysal M, Nirob MNJ, Uday TM, Biswas JK, Barman S Konok KA, Ehsan MA
P-68	Hematological profiles of cattle infected with lumpy skin disease in Mymensingh district **Chouhan CS** , Hoque MN , Mamun AA , Barman S, Chakrabartty S, Siddique MP, Ehsan MA, Islam MT
P-69	Epidemiology and economic impact of foot and mouth disease in Mymensingh and Jamalpur district of Bangladesh **Chouhan CS**, Hasan M, Haque R, Nirob MNJ, Uday TM, Konok KA, Foysal M, Biswas JK, Sarker RR, Siddique MP , Rahman AKMA, Ehsan A
P-70	Biochemical alterations in lumpy skin disease affected cattle of Mymensingh district **Chouhan CS**, Hoque MN, Razzak MA, Chakrabartty S, Nirob MNJ, Uday TM, Mamun AA, Islam MT
P-71	Prevalence and determinants of bovine neosporosis in major dairy herds in Bangladesh **Ema AA**, Mamun AA, Rahman AKMA, Alam MS, Rahman MS
P-72	Molecular detection of *blaTEM-1* gene of *Salmonella* spp. responsible for amino-penicillin resistance **Morshed MT**, Rumi NA, Hossain MK, Rahman MS, Jakiul Hasan Jihad JH, Maksud FA
P-73	Assessing the relationship between bacterial load and post-consumption gastrointestinal symptoms induced by street fruits **Nahiduzzaman FNU**, Zarin T, Saha A, Rahman MZ, Khatun MM, Islam MA
P-74	Composition and bacteriome diversity of rooftop and surface gardens soil in urban and peri-urban areas of Bangladesh **Bakhtiyar Z**, Rana ML, Hoque MN, Pramanik PK, Rahman MS, Islam MS, Punom SA, Ramasamy S, Schreinemachers P, Oliva R, Rahma MT
P-75	Protective effects of tris (hydroxymethyl) aminomethane and egg yolk on the cryopreservation of goat sperm **Kamal MM**, Islam MH, Alam MR, Islam MA, Gofur MR, Kabir A, Alam ME
P-76	Resident wild birds: a potential source for fluoroquinolone-resistant *Escherichia coli* **Jany DA**, Neloy FH, Rana ML, Punom SA, Rahman MT
P-77	Knowledge, attitudes, and practices of dairy farmers of smallholder farms in

	Nepal **Adhikari J**, Chaudhary P, Hasan TB, Akter MT, Shanta SA, Islam MA
P-78	Prevalence and determinants of bovine paratuberculosis in large dairy herds across Bangladesh **Kibria AM**, Mamun AA, Mahmud MS, Rahman AKMA, Alam MS, Rahman MS
P-79	Epidemiology of ectoparasites in livestock, and pet animals in Bangladesh: a systematic review and meta-analysis **Debnath K**, Sarker BR, Sarker BR, Siddique SS, Rahman A, Noman MRZA, Raquib A, Anisuzzaman, McKee C, Islam A
P-80	Prevalence and risk factors associated with bovine viral diarrhea in large dairy herds of Bangladesh **Mahmud MS**, Mamun AA, Kibria AM, Rahman AKMA, Chouhan CS, Alam MS, Rahman MS
P-81	Necropsy investigation of ducks, chickens and pigeons revealed infectivity due to infectious and emerging diseases **Sournale MS**, Promi FF, Karmokar D, Huda N, Pervin M, Khan MAHNA
P-82	Biometrical study of female reproductive system in sheep at Barind area of Bangladesh **Rahman MM**, Islam MS, Ullah MN, Islam MMH, Uddin J, Bhuiyan AA, Moni IZ, Sarder MJU
P-83	Microbiological quality assessment of broiler meat and raw milk in Nikli haor **Ayshe NJ**, Rakon TH, Islam MR, Kabir SML
P-84	Seasonal dynamics of *Eustrongylides* spp. (Nematoda: Dioctophymatoidae) infestation in spotted snakehead, *Channa punctata* collected from Jamalpur district **Paul S**, Kubra KT, Juthy JP, Ahmed A, Dey AR, Rahman T
P-85	Prevalence and pathological study of Newcastle disease in commercial poultry farms at Bogura district of Bangladesh **Khaton R**, Farhana NN, Shaziea Rahman S, Sarder MJU
P-86	Decoding anticestodal arsenal: a chemoinformatics, molecular docking, and dynamics exploration of phytochemicals against EgTGR of *Echinococcus* **Parvin R**, Masum MHU, Akter F, Hossain MA, Siddiki AMAMZ
P-87	Surgical management of femur fracture using intramedullary pin and wire suture in a Persian cat **Huq MR**, Masum AH, Kalam MA, Akter MA, Alam MM
P-88	Topical application of extra virgin olive oil intermingled turmeric paste for healing of purulent wound in cat **Huq MR**, Masum AH, Kalam MA, Akter MA, Alam MM
P-89	Ecology and molecular characterization of molluscan intermediate hosts of zoonotic human liver flukes in Bangladesh **Esha SA**, Anisuszzaman, Alim MA, Labony SS
P-90	Screening of multi-drug resistant and virulent genes of *Escherichia coli* responsible for calf diarrhea in the northern part of Bangladesh **Islam S**, Rumi NA, Rahman MM, Hasan E, Maksud FA
P-91	Current scenarios of reproductive diseases of the female pet animals at local pet clinic's perspectives **Islam MS**, Rahman MM, Ferdous J, Ullah MN, Islam MMH, Khaton R, Uddin J, Bhuiyan AAM, Moni IZ, Sarder MJU
P-92	Black cumin (*Nigella sativa*) seed oil protects against cadmium-induced neurotoxicity in mice **Akter S**, Sarkar K, Mozumder A, Kawsar I, Bhuiyan MEJ, Hossain MG
P-93	Microbiological assessment of water and raw fish of Nikli haor **Rakon TH**, Ayshe NJ, Islam MR, Kabir SML

P-94	Production of hyperimmune serum against foot-and-mouth disease, lumpy skin disease and *peste des petits ruminants* viruses in goat and their validation **Anjuman A**, Hossain MT, Hayat S, Sadekuzzaman M, Islam MA
P-95	Conception rate on the event of post-estrus hemorrhage at Tangail region of Bangladesh **Roknuzzaman M**, Islam MS, Rahman MM, Paul BR, Islam MR, Rashid ANI, Moni MIZ, Sarder MJU
P-96	Prevalence of sheep diseases and develop the technologies to reduce sheep mortality at Barind area of Bangladesh **Sarder MJU**, Islam MH, Islam MA, Rahman MM, Paul BR, Islam MR, Rashid ANI, Khaton R
P-97	Semen parameters of breeding bulls reared at the Rural Development Academy, Bogura, Bangladesh Sani MTA, **Islam MR**, Tanzin M, Juyena NS, Bhuiyan MMU
P-98	Trehalose-based diluent for PPR vaccine (PPR VAC): efficacy comparison with conventional diluent **Akter S,** Rashid M, Kamal MM, Badhy SC, Akter Z, Mozumder S
P-99	Duck plague vaccine production: a comparative study of duck plague virus inoculation in embryonated chicken eggs **Singha P**, Parvin M, Kamal M, Kalam A
P-100	Country-wide scenario of parasitic burden in domestic birds of Bangladesh **Suraiya MJ**, Sumi, Anisuzzaman, Alam MZ, Islam MA, Rony SA

Abstract Poster

P-01. Prevalence, Diagnosis and Therapeutic Management of *Malassezia* Infection in Dog and Cat

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Abstract

The aim of the study was to analyze the prevalence of *Malassezia* infections with or without bacterial infections in dogs and cats as well as the efficacy of treatment protocol. A 2-year study with 203 cases of *Malassezia* infection in dogs and cats was conducted where cases included *Malassezia* infections with or without bacterial co-infections. Cytological examination was done for confirmation and tropical and systemic drug was provided based on infection. For prevalence, data of patients age, sex, breed, rearing types was collected. *Malassezia* infection was isolated from 60% dogs and 40% cats. Males were found more prevalent than females. About 45.81% more infections were confirmed in adult age (3-6 years) than any other age group. Local dog breeds were the rich number for occurrence of *Malassezia* dermatitis and in case of cat, the infected rates recorded more in exotic Persian cat breeds. *Malassezia* infection rate was higher in ear pinnae and canals (27.59%) followed by ventral trunk (23.15%), dorsal trunk (14.78%), generalized dermatitis (14.29%), arm pits (6.90%), neck region (5.42%), perennial region (4.43%) and interdigital area (3.45%), respectively. Free roaming patients developed *Malassezia* compared to indoor patients. Bacterial infection along with *Malassezia* was isolated from 57% patients and otitis externa encountered from 33% patients. The proposed treatment protocol was effective in managing infections with timely intervention.

Keywords: *Malassezia* infection, bacterial infection, otitis externa, cytological examination

P-02. Multidrug-Resistant *Staphylococcus aureus* in Healthy Domestic Cats: Prevalence and Virulence

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Abstract

To investigate the prevalence of *Staphylococcus aureus* in healthy domestic cats, antimicrobial resistance, multidrug resistance, and the presence of methicillin resistance (mecA) gene and enterotoxin (seaA) gene. From 61 cats, a total of 122 oral and nasal samples were collected from Gazipur Sadar upazila between March 2023 and March 2024. Samples are isolated and identified by using standard microbiological procedures and

then confirmed and analyzed different genes by PCR using specific primers (nuc, mecA, sea). Overall 25.41% incidence rate was found and the incidence rate is higher in oral (36.07%) than nasal sources (14.75%). Out of the total positive samples, 45.16% of these samples carried the methicillin-resistant gene and 16.12% of these samples carried the sea gene. All of the isolates are multidrug-resistant with >0.2 MAR index. Conclusion: These findings indicate the potential public health risks of rearing cats in the house as findings show that domestic cats can serve as the reservoir of multidrug resistance and virulence-associated genes. Monitoring antimicrobial use and awareness regarding rearing cat is required to mitigate public health risks.

Keywords: *Staphylococcus aureus*, healthy domestic cat, AMR, MDR

P-03. Knowledge and Practice in the Assessment of Frequent Landscape Diseases in Cattle Populations along the Madhumati River, Gopalganj, Bangladesh

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Abstract

Despite advancements in technologies in livestock farming, challenges like disease outbreaks continue to impact productivity and economic stability. The aim is to investigate the prevalence and factors associated with various diseases in cattle around the Madhumati River in Gopalganj, Bangladesh. It also provides insights into the current landscape of diseases and focuses on animal health status, farmer knowledge, treatment and prevention strategies in Gopalganj. A standardized closed-ended questionnaire was administered using KoboToolBox (2021.2.4) for data collection. Statistical analyses involved descriptive statistics, Fisher's exact test, $\chi 2$ test, and multivariate logistic regression models with 95% confidence intervals. R (4.4.0) and SPSS (27.0.1) were used to explore associations between variables influencing disease prevalence. The findings of the study indicate that FMD (17.39%) and LSD (13.04%) were the most prevalent diseases and have a significant correlation between disease prevalence and risk factors with a p-value of 0.05. A linear model (95% CI) predicted that poor husbandry practices, lack of knowledge, and inadequate treatment strategies contributed to disease occurrence in different regions of Gobra, Gopalganj. This cross-sectional study investigated the major prevalence rate and causes of diseases in Gobra region of Gopalganj, recognizing FMD and LSD as significant diseases in cattle farming. From the study, we can suggest some strategies to mitigate disease prevalence, including seasonal preventive measures, routine vaccination, deworming protocols, and stringent sanitation practices.

Keywords: FMD, LSD, disease prevention, husbandry practices, epidemiology

P-04. First Time Detection of *Burkholderia cepacia* Complex (Bcc) in Goat and Horse in Bangladesh

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Abstract

Burkholderia cepacia complex (Bcc) is a diverse group of opportunistic pathogens that hold significant importance in human and animal health. In Bangladesh, the extent and impact of *Burkholderia* remain largely unknown, primarily due to the lack of research focusing on livestock populations. Hence, this study was undertaken to identify the presence of *B. cepacia* complex (Bcc) in goats and horses in Bangladesh. Blood samples were collected from 15 goats and 15 horses exhibiting respiratory distress, fever, and nasal discharge symptoms. These samples underwent serological, molecular, and phylogenetic analyses. The Genomix Glanders Ab Rapid Detection Test Kit identified six positive goats and ten positive horse samples. Enzyme-linked immunosorbent assay (ELISA) confirmed seven out of ten Glanders kit-positive horse samples and all six Glanders kit-positive goat samples. In PCR analysis, two out of ten horse samples and four out of six goat samples were tested positive for B.urkholderia cepacian. Phylogenetic analysis of PCR-positive goat samples confirmed the presence of the *B. cepacia* complex (Bcc). The sequences have been deposited in GenBank under the accession numbers PQ764482, PQ657137, PQ657138, PQ657139, and PQ657140. This is the first time detection of *B. cepacia* complex (Bcc) in animals in Bangladesh. It emphasizes the potential for cross-species transmission of Bcc between horses and goats, raising significant concerns for animal and public health. These findings highlight the critical need for strengthened diagnostic strategies, improved microbiological surveillance, and further research into Bcc's epidemiology and zoonotic potential within the One Health framework to understand better and mitigate its zoonotic risks.

Keywords: *Burkholderia cepacia* complex (Bcc), horses and goats, serological and molecular detection, one health.

P-05. Assessment of Proximate Composition of Dragon Fruit Peel Powder and Pineapple Peel Powder and their Effects on Growth Performance, Hematological Profile and Gut Health in Broiler Chickens

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Abstract

The study was designated to assess the proximate composition of Dragon fruit peel powder (DFPP) and Pineapple peel powder (PAPP), and their supplementation on growth performance, hematological profiles and gut health in broiler chicken. 120 day old broiler chicks were randomly selected into five groups, each containing 24 birds and reared for 35 days. The groups were T0 (Control group, No supplementation), T1 (Supplemented with 0.5% DFPP), T2 (Supplemented with 1% DFPP), T3 (Supplemented with 0.5% PAPP) and T4 (Supplemented with 1% PAPP). To assess gut health total bacterial count was estimated by ten-fold dilution from broiler droppings. Results of proximate analysis revealed that dry matter, moisture, crude protein, crude fiber, ash and carbohydrate content of the PAPP were significantly higher compared to DFPP. Moreover, the FCR was significantly higher in group T3 among all groups, and body weight gain was found to be the highest in this group. However, the 0.5% PAPP treated group had significantly higher carcass characteristics than all other groups. In contrast, DFPP supplementation negatively affects growth performances, such as body weight, FCR, and carcass characteristics compared to PAPP treated groups and even control group. However, the values of hematological parameters were not significantly different among the groups. Moreover, total bacterial count of PAPP treated group had significantly lower compared all other groups. It can be concluded that, 0.5% PAPP as a feed additive may be useful in broiler ration to gain better growth and carcass characteristics of broiler chickens.

Keywords: Dragon fruit, pineapple, growth performances, hematological profiles, gut health

P-06. The First Human Case of Rhabditiasis in Bangladesh

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Abstract

The genus Rhabditis is a member of the order Rhabditida, and contains many species with differing hosts. This study presents the first rhabditiasis case in a 12-year-old boy from an

urban slum in Bangladesh. Stool samples were collected from asymptomatic patients, and identification was based on morphometric features and a molecular approach. Parasitological assessment used a modified formalin ether sedimentation method, and morphometric analysis involved mounting isolated worms on lactophenol. PCR amplification of the cytochrome c oxidase I (cox1) gene was performed on all isolates, followed by sequencing of the products. A copro-microscopic examination revealed a heavy nematode infection, displaying various developmental stages (larvae, adult males, and females), but no eggs were found in fecal smears. Morphometric analysis identified the nematode as Rhabditis sp., based on its prominent elongated tail and developmental stage in stool. Cox1 sequences (381 bp) of the larvae showed 98.8-99.3% similarity to known Rhabditis sp. sequences. Phylogenetic analysis indicated that *Strongyloides stercoralis* and *Rhabditis* sp. were placed in two distinguishable clades. The larvae (n=6) were (0.52-0.78x0.023- 0.03) mm, females (n=3) were (0.99-1.01x0.04-0.05) mm and males (n=5) were 0.87-0.99x0.03-0.04) mm when measured. Male has 2 spicules, parallel and nearly equal in size, measuring (0.037 to 0.041)mm long. The oval-shaped eggs (n=5) measuring (46-49x24-31) µm. This is the first report of Rhabditis nematode in Bangladesh. During examinations, it can be misdiagnosed as *Strongyloides*, highlighting the need for careful inspection, especially in endemic areas where humans contact soil and animals.

Keywords: *Rhabditis* sp., strongyloidiasis, human

P-07. Molecular Epidemiological Investigation of Caprine Babesiosis in Sylhet District, Bangladesh

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Abstract

Caprine babesiosis, a protozoan disease with significant economic implications for small ruminants, is under-researched in regions like Sylhet, Bangladesh. This study aimed to determine the prevalence and risk factors of caprine babesiosis using molecular diagnostics to detect Babesia species and identify associated tick genera. A cross-sectional study was conducted from March to June 2023, involving 403 randomly selected goats from five upazilas in Sylhet. Blood samples were collected from all goats, while ticks were obtained from 251 infested animals. Additional data on farm management practices and risk factors were gathered through farmer interviews. Molecular diagnostics via duplex PCR detected *Babesia motasi* in 6.45% (95% CI: 4.55-9.94) of goats, while no cases of *Babesia ovis* were identified. Disease prevalence was highest in Sylhet Sadar (11.25%; 95% CI: 5.96-22.70) and Jaintapur (21.25%; 95% CI: 16.57-39.65). All ticks collected were identified as belonging to the genus *Haemaphysalis*. Significant risk factors associated with caprine babesiosis included floor type (PR=19.06), proximity to adjacent farms (PR=3.16), use of acaricides (PR=5.51), older goat age (PR=12.61), and tick infestation (PR=14.67) ($p<0.05$). This study highlights the urgent need for targeted interventions addressing identified risk factors to mitigate the impact of caprine babesiosis. Findings provide a

framework for developing comprehensive disease management strategies to enhance goat health and productivity, offering valuable insights for veterinary epidemiology and zoonotic disease control.

Keywords: Babesiosis, goats, molecular study, risk factors, prevalence

P-08. Dual Action of *Bacillus subtilis*: Counteracts *Salmonella* Infections and Enhancing Poultry Health

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Abstract

Salmonella infections in poultry are a significant concern, threatening animal health, food safety, and economic stability. However, the emergence of probiotics, particularly *Bacillus subtilis*, has sparked new hope in the fight against these infections. In a previous randomized controlled trial, we demonstrated that *Bacillus subtilis* reduces *Salmonella* colonization, boosts the immune response, and enhances growth performance in broiler chickens. In this study, we used in silico methods to explore the protective mechanisms by which *Bacillus subtilis* modulates *Salmonella* infection in chickens. Our analyses, which included genome-wide comparisons, molecular docking, molecular simulations, immune response evaluations, and pathway enrichment studies, revealed that bioactive compounds produced by *Bacillus subtilis*, such as polyketide peptides and antimicrobial surfactins, exhibit strong binding affinities to key *Salmonella* virulence factors like HlyE, SipA, and InvA. This suggests potential mechanisms of action, including disrupting *Salmonella* cell membrane integrity and interfering with its metabolic pathways. The findings indicate that *Bacillus subtilis* inhibits *Salmonella* growth through direct antimicrobial activity and strengthens the host's immune defenses, providing a dual mechanism of protection. Our study highlights the potential of *Bacillus subtilis* as a natural, effective probiotic for controlling Salmonella infections in poultry, contributing to improved food safety. We stress the importance of future research to further explore the applications of *Bacillus subtilis* in commercial poultry production systems.

Keywords: *Bacillus subtilis*, polyketide peptides, antimicrobial activity, *Salmonella*, poultry

P-09. Molecular Identification of *Klebsiella aerogenes* from Milk from Sylhet Region

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Abstract

The emergence of multidrug-resistant pathogens poses a significant threat to

public health, particularly when present in food sources such as raw milk. *Klebsiella aerogenes*, a common environmental bacterium, has been increasingly implicated in healthcare-associated infections and is known for its ability to acquire resistance to multiple antibiotics. In this study, we aimed to isolate, identify, and molecularly detect multidrug-resistant strains of *K. aerogenes* from raw milk samples. Milk samples were collected from dairy farms and market. Isolation of *K. aerogenes* was performed using selective culture media and biochemical tests. Antimicrobial susceptibility testing was conducted to assess the resistance profile of the isolated strains against a panel of commonly used antibiotics. Molecular detection of resistance determinants was carried out using polymerase chain reaction targeting specific resistance genes. Findings revealed the presence of multidrug-resistant K. aerogenes strains in milk, with resistance observed against multiple classes of antibiotics, including Tetracycline (TE), Amikacin (Ak), Streptomycin (S), Gentamicin (GEN), Meroprnem (MEM), Azithromycin (AZM), and resistant against Cefoxitin (CX), Ceftazidime (CAZ), Oxocilin (Ox), Cefotaxime (CTX), Cefuroxime (CXM). This Study underscores the importance of monitoring antibiotic resistance in dairy products and emphasizes the need for stringent control measures to prevent the dissemination of multidrug-resistant bacteria. Understanding the prevalence and mechanisms of antibiotic resistance in *K. aerogenes* from raw milk can inform strategies for mitigating the spread of antimicrobial resistance and safeguarding public health.

Keywords: AMR, *Klebsiella aerogenes*, public health

P-10. Isolation and Molecular Identification of *Salmonella* spp. from Duck and Quail at Dinajpur District

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Abstract

Salmonella is a major foodborne pathogen with significant public health implications, causing considerable losses in ducks and quails. *Salmonella* infection, particularly in ducks and quails, attracted the interest of researchers, as ducks are a primary reservoir of *Salmonella* transmissible to humans. This study aimed to identify circulating *Salmonella* strains in ducks and quails from live bird markets in Dinajpur Sadar and to assess their antimicrobial susceptibility profile. A total of 90 cloacal and fecal samples (60 from ducks and 30 from quails) were collected from apparently healthy birds in retail markets. *Salmonella* was detected in 26% of duck samples and 20% of quail samples, with an overall occurrence of 24.44% (22/90). Molecular confirmation of the *Salmonella* isolates was carried out by PCR amplification of the invA gene, resulting in a 284 bp product, verifying the isolates as *Salmonella* spp. Antimicrobial susceptibility testing was conducted using the Kirby-Bauer disk diffusion method on Mueller-Hinton agar with various antibiotic discs. The isolates from both ducks and quails demonstrated 100% resistance to Ampicillin, Chloramphenicol, Ciprofloxacin, Doxycycline, Levofloxacin, Tetracycline, Cefuroxime, Cefalexin, Streptomycin, and Gentamicin and sensitive to Co-trimoxazole and

Erythromycin. The presence of the blaTEM resistance gene was confirmed through PCR, producing a 643 bp amplicon. In conclusion, the study highlights the presence of antimicrobial-resistant *Salmonella* in duck and quail of live bird market, posing a potential risk for human health. The detection of resistance genes in these isolates emphasizes the need for attention to antimicrobial resistance patterns in foodborne pathogens to ensure consumer safety.

Keywords: *Salmonella*, resistance, live bird markets, PCR

P-11. Comparison of Physical Egg Quality Parameters between Commercial Chicken (ISA Brown) and Duck (Khaki Campbell)

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Abstract

This study evaluated the internal and external quality parameters of eggs from commercial chicken and duck to identify variations and their statistical significance. A total of 120 eggs were analyzed: 90 chicken eggs and 30 duck eggs. Parameters assessed included egg weight, shape index, shell thickness, Haugh unit, yolk index, yolk colour, and shell weight. All data were subjected to One- way ANOVA, Duncan multiple range test, SD, and Mean values. The values of $P<0.001$ were considered significant at a 99.99% confidence interval. The results revealed that duck eggs were significantly heavier (62.80±4.03 g) than chicken eggs (58.13±5.70 g; $P<0.005$). Chicken eggs exhibited a higher shape index (77.80±2.51%) compared to ducks (73.16±2.32%; $P<0.00001$). Haugh unit was superior in duck eggs (83.18±5.24) versus chicken eggs (77.07±5.97; $P<0.005$), indicating better albumen quality. Similarly, yolk index (0.42±0.03 vs. 0.38±0.04; $P<0.005$) and yolk colour (7.6±1.35 vs. 6.6±0.90; $P<0.005$) were higher in ducks. Shell weight was greater in duck eggs (6.45±0.80 g) compared to chicken eggs (5.75±0.62 g; P0.05). Furthermore, after 2 weeks of storage for both species, the HU ($P<0.001$) units and Yolk index ($P<0.05$) of ducks were lesser than chicken eggs. These findings highlight the superior internal quality of duck eggs and their comparable external parameters to chicken eggs, suggesting duck eggs as a nutritionally valuable alternative in human diets. Future studies should explore consumer preferences and broader applications of duck eggs.

Keywords: Comparison, egg quality, external parameters

P-12. A Hospital-Based Cross-Sectional Study on Dengue Case Fatality Rates in Bangladesh

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Abstract

The study was conducted to know the impact of spatial and temporal aspects over the fatality rates of dengue infected patients. A cross-sectional study design was adapted to collect data from 132 hospitals on 557 patients who died after being infected with dengue throughout January 1 to December 18, 2024. Data were collected based on the gender, age, geographic location of the patient and seasonality. The reliability of the data was verified by the Directorate General of Health Services, Bangladesh. Case fatality rate was computed as the proportion of deaths in a group of patients who had been admitted as observational cases of the disease during the study period. Analysis of the data were done using linear regression method on SPSS software version 25. The total case fatality rate stood at 0.51% with a greater number of women died from the disease than men at 0.70% and 0.40% respectively. The fatality rate was significantly higher in women in the specified age group of 71 to 75 years (5.26%, $P<0.05$) and in men older than eighty years (4.32%, $P<0.01$). Among the divisions studied, Barishal had significantly higher case fatality rate (0.66%, $P<0.05$) and among the four seasons, the fatality rate was highest (1.92%, $P<0.05$) in spring. The study demonstrates the present situation of dengue together with the determinants influencing its fatality rate which can further assist the government to take appropriate measures in order to alleviate its burden on the population.

Keywords: Dengue; fatality rate; Bangladesh.

P-13. Molecular Epidemiology of Tick-Borne Pathogens from Selected Areas of Chittagong, Bangladesh

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Abstract

Tick-borne pathogens pose significant threats to livestock and public health worldwide. We investigated the prevalence of three tick-borne pathogens (*Rickettsia*, *Ehrlichia*, and *Coxiella*) in cattle from Chattogram region of Bangladesh. We analyzed 300 blood samples from 4 endemic areas (Chakaria, Manikchari, and Teknaf areas) and 20 tick samples collected from cattle (Makinchari area) through conventional PCR for molecular detection. The overall prevalence of tick-borne pathogens in blood samples was 5.3%, with *Rickettsia* at 3.33% (n=10) and *Ehrlichia* at 2% (n=6). Among the 20 *Rhipicephalus microplus* ticks from Manikchari, 15% (n=3) were positive for *Rickettsia* and 20% (n=4) for Ehrlichia ($p<0.05$). Analysis revealed that cattle in Manikchari had the highest prevalence Rickettsia (7%) compared to other regions. Female animals showed significantly higher infection rates (6.4%) compared to males (1.6%) ($p<0.05$), while young cattle displaying higher prevalence (3.2%) than older age groups. For *Ehrlichia*, only 2% prevalence was observed across all regions, with males showing slightly higher rates (2.1%) than females (1.8%). Adult cattle demonstrated higher *Ehrlichia* prevalence (2.35%) compared to young cattle

(2.14%). Sanger sequencing of nine samples revealed that the circulating *Rickettsia* strain closely matched with the clone DR548SW25c, while the *Ehrlichia* strains showed high similarity to *Ehrlichia* strain Omatjenne. Phylogenetic analysis indicated that the *Ehrlichia* was most similar to a Namibian strain, while the *Rickettsia* were closely aligned with a South African strain. This study provides crucial baseline data on the presence and phylogenetic relationships of these pathogens in Bangladesh.

Keywords: Tick, vector, pathogen, cattle

P-14. Isolation and Molecular Identification of Multidrug Resistant *Escherichia coli* and *Salmonella* spp. from Chicken in Dinajpur District and Study of the Antibacterial Effect of Garlic Extract Against Them

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Abstract

Poultry birds, especially chickens are widely consumed in Bangladesh. But excessive and indiscriminate use of different antibiotics have led to the rapid spread of antibiotic-resistant bacteria (ARB) in chicken and the environment, creating global public health problems. This study aims to determine the antibiotic resistance profile of *E. coli* and *Salmonella* spp. isolated from chicken, and to study the antibacterial effect of garlic (*Allium sativum*) extracts against the multidrug-resistant (MDR) poultry pathogens. A total of 90 faecal samples (from 50 broilers and 40 Sonali chickens) were collected from different farms and retail market at Dinajpur district. The bacteria were isolated through culture in different bacteriological culture media and identified through microscopic examination, biochemical tests, and polymerase chain reaction (PCR) test. From 90 fecal samples, 74 isolates of *E. coli* (82.22%) and 32 isolates of Salmonella (35.55%) were identified. For further confirmation molecular identification of *E. coli* and *Salmonella* isolates was carried out by amplification of Eco gene and invA gene. Antibiotic sensitivity tests on 10 isolates of *E. coli* and 10 isolates of the Salmonella spp. were conducted using 10 commercially available antibiotic through disc diffusion method. The result revealed that 100% *E. coli* and *Salmonella* spp. were resistant to Ampicillin, Chloramphenicol, Ciprofloxacin, Tetracycline, Doxycycline and Cefalexin. On the other hand, the antibacterial activity of crude and diluted garlic extracts against MDR *E. coli* and Salmonella were determined by paper disk diffusion method. The results revealed that crude garlic extracts have higher antibacterial effect than diluted extracts.

Keywords: MDR bacteria, antibacterial effect, garlic extracts

P-15. Comparative Whole Genome Analysis of *Anaplasma marginale* to Explore Global Genetic Diversity

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Abstract

Anaplasma marginale is the leading cause of bovine anaplasmosis, the most prevalent tick-borne infection in cattle worldwide, and it poses a serious threat to animal health. This infection causes significant financial losses in the livestock industry worldwide and is spread by various tick species, particularly by Ixodes and Rhipicephalus species. While *A. marginale* exhibits substantial genetic diversity, the underlying mechanisms influencing host specificity, pathogenicity, and vaccine evasion remain unexplored. In this study, we performed a comparative whole genome analysis on 22 accessible *A. marginale* genome sequences from cattle and other species retrieved from the globally accessible NCBI database. We employed available computational biology tools to explore genetic diversity based on whole genome sequence datasets. This study provides insights into the genetic basis of *A. marginale* pathogenesis, evolution, and transmission dynamics, which have important implications for vaccine development and a better understanding of pathogen evolution research. The pan-genome analyses data revealed unique features of rickettsial biology towards the development of vaccines against bovine anaplasmosis, which is still a major concern for cattle farmers around the world.

Keywords: *Anaplasma*, whole genome, pan-genome, diversity, bioinformatics

P-16. Molecular Epidemiology of Circulating Buffalo Foot-and-mouth Disease Virus in Bangladesh

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Abstract

This study explores the molecular epidemiology of Foot-and-mouth Disease Virus (FMDV) in buffalo in Bangladesh, assessing the prevalence and genetic characteristics of circulating strains. A cross-sectional study was undertaken to collect 622 nasal swab samples of buffalo from three Upazilas, namely Fenchuganj, Godagari, and Companiganj, located in the Sylhet, Rajshahi, and Noakhali districts, respectively, through January to June 2024. Reverse transcription polymerase chain reaction (RT-PCR) was used for the detection of FMD viruses. Representative part of positive samples was subjected to the Sanger sequencing method. RT-PCR detected FMDV in 41% (95% CI: 37.10-44.98) of the samples, with positivity rates of 47.06% (95% CI: 40.05-54.15) in Fenchuganj, 37.13% (95% CI: 30.45-44.19) in Godagari, and 38.89% (95% CI: 32.35-

45.74) in Companiganj. Additionally, herd-level prevalence reached 88.06% (95% CI: 77.82-94.70), highlighting the widespread nature of FMDV among buffalo in the regions studied. Sequencing of selected samples revealed the presence of serotypes O and Asia 1. Phylogenetic analyses showed a close genetic relationship between the isolated strains and FMDV strains found in cattle and buffalo from Bangladesh and neighboring countries, including India, Nepal, and Myanmar. This genetic similarity suggests both intra-country and transboundary transmission, likely facilitated by shared grazing areas and international trade routes. The findings of this study will aid in implementing preventive and control measures for FMDV transmission within the country and in developing strategies for international trade in animals and animal products.

Keywords: Molecular epidemiology, FMDV, buffalo

P-17. Effects of the Aqueous Extract of *Vernonia amygdalina* Leaves in Alloxan Induced Diabetic Albino Rats

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Abstract

The anti-diabetic effects of Fenugreek seed extract and Vernonia amygdalina leaf extract were studied in alloxan-induced (@140mg/kg) diabetic rats. Six groups of four rats (n=4) each were created out of the divided rodents. Four groups were treated with amyral® therapy, vernonia, fenugreek, and vernonia with fenugreek, while one group was called diabetes control. Seven weeks were spent administering the therapy. Over the course of seven weeks, the fasting blood sugar (FBS) levels of each group of diabetic rats were observed to decrease from 18.7 mmol/L to 5.42 mmol/L (Group C), 15.3 mmol/L to 8.54 mmol/L (Group D), and 16.4 mmol/L to 6.10 mmol/L (Group E) in comparison to 15.9 mmol/L to 5.69 mmol/L (Group F) when administered with *Vernonia* amygdalina leaf extract, fenugreek seed extract and *Vernonia* with fenugreek extract. The *Vernonia amygdalina* leaf extract group had lower mean FBS levels than the Amyral® group, indicating a hypoglycemic effect, and histopathological analysis showed the extract significantly slowed diabetes progression. When compared to a diabetic control rat treatment with *Vernonia* and *Vernonia* combined with fenugreek improved body weight reduction and dramatically lowered blood glucose levels ($P<0.01$). The combination of Fenugreek and *Vernonia* considerably lowers the triglyceride level ($P<0.01$). The purpose of this study was to assess how *Vernonia amygdalina* aqueous leaf extract affected the lipid profile, blood glucose levels, nephropathy and pancreatic injury of rats with diabetes that had been given alloxan. Data suggest that *Vernonia amygdalina* leaf compounds may have antidiabetic effects, requiring further study.

Keywords: *Vernonia amygdalina*, nephropathy, pancreatic injury, rat

P-18. Molecular Detection and Antimicrobial Profile of *Escherichia coli* Isolated from Raw Salad Vegetables Collected from Markets nearby Bangladesh Agricultural University

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Abstract

The presence of antibiotic-resistant bacteria in salad vegetables has come to light as a potential health risk for consumers worldwide. The current study focused on molecular detection and antimicrobial profiling of *Escherichia coli* isolated from raw vegetables obtained from K.R and Shesh Mor wet markets nearby Bangladesh Agricultural University (BAU), Mymensingh, Bangladesh. A total of 30 raw vegetable samples, including coriander leaves (n=6), chili (n=6), carrot (n=6), cucumber (n=6), and tomato (n=6) were collected. After collection, the samples were enriched in nutrient broth and then cultured in Eosin Methylene Blue (EMB) agar. Identification of *Escherichia coli* was performed by Gram`s staining followed by biochemical tests and molecular detection was achieved through PCR using malB gene specific primers. In later, antibiogram of the *Escherichia coli* isolates were determined by disc diffusion method using 10 antibiotics. All samples showed metallic sheen on EMB agar; small, rod, single or pair and pink colored on Gram`s staining; biochemically, positive for dextrose, maltose, lactose, sucrose, mannitol, methyl red and indole and negative for voges-proskaure test and finally detected positive for *Escherichia coli* through PCR. 100% isolates showed resistance against ampicillin and ceftazidime, 11.11% against sulfamethoxazole, cefotaxime, and tetracycline, and 33.33% against gentamicin. Conversely, 88.89% isolates exhibited sensitivity to ciprofloxacin, 100% to chloramphenicol, nitrofurantoin, and meropenem. The findings specified that raw salad vegetables sold in the wet markets nearby Bangladesh Agricultural University could harbor multidrug resistant (MDR) Escherichia coli that likely to threaten of public health as well as highlighting significant concerns for food safety.

Keywords: *Escherichia coli*, multi-drug resistant, food safety

P-19. Biogenic Extraction and Antibacterial Effect of Ecofriendly Synthesized Chitosan Nanoparticles from Shrimp (*Penaeus monodon*) Shell

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Abstract

Shrimp shell, and shrimp waste were collected for chitosan extraction biogenically following demineralization, deproteinization, and deacetylation employing the isolated decomposer bacteria. The chitosan powder formation confirmed with Fourier Transform Infrared Spectroscopy (FTIR). The extracted powder (1%) was subjected to the eco-friendly synthesis of ChiNPs as particle source, and lemon extract as cross-linker. The particle yield was initially confirmed by UV-visible spectroscopy, DLS, AFM, FE-SEM, TEM and FTIR. The antibacterial activity was determined against MDR bacteria using disc diffusion test. Chitosan-specific

spectral peak at 564 cm–1, 711 cm–1, and 1174 cm–1 for C–O–C, CH2, and C– O chemical groups revealed from FTIR confirmed the formation of Chitosan. The ChiNP-specific UV-vis λmax peak at 320 nm revealed the formation of NPs. The distribution of particle size (150- 250 nm) was determined by DLS, AFM, SEM, and TEM. While FTIR confirmed the acetylation of chitin polymer to form chitosan oligomer with stretching at 1678 cm−1 for -NH2 followed by crosslinking of chitosan oligomers with citric acid (lemon) with stretching at 1157 cm−1 for H3N+ and at 1015 cm−1 for C-O-C during ChiNPs synthesis. The inhibitory zone's diameter was 30 ± 0.4 mm, 34 ± 0.2 mm, and 36 ± 0.8 mm against methicillin- (mecA) and penicillin (blaZ)-resistant *S. aureus*, and streptomycin (aadA1)-resistant *E. coli*, respectively. Biogenically extracted and green synthesized ChiNPs showed competitive antibacterial effects with commercial antibiotic against MDR bacteria.

Keywords: Biogenic extraction, ChiNPs, antibacterial effect, shrimp shell

P-20. Comparative Genomic Analysis of *Fasciola* to Characterize Genes Associated With Triclabendazole Resistance

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Abstract

Fasciolosis, an important parasitic disease in livestock and humans, is caused by liver flukes *Fasciola* sp. Triclabendazole (TCBZ), is the only drug effective against both adult and immature flukes. Apparent TCBZ resistance presents a serious challenge in controlling the disease in endemic areas. While mechanisms of TCBZ resistance in F. hepatica have been partially explored, the genetic basis of resistance in *F. gigantica* remains unknown. Exploring biological features involving F. hepatica genes associated with TCBZ resistance might help identification of potential drug targets against *F. gigantica*. We attempted bioinformatics analysis of the *F. gigantica* genome to investigate genes associated with TCBZ resistance and possible mechanism of developing drug resistance. We compared the draft genome of Fasciola gigantica (GCA_034768655.1) with the *Fasciola hepatica* (BioProject PRJEB50899) and identified several genes, while differences noticed in both annotations include gene fragmentation, missing exons, and missing genes. The gene families studied include tubulins, ATP-binding cassette transporters (ABC), AC, RAS, ADP ribosylation factor, cytochrome P450 (CYP450), GSTs, and Fatty Acid Binding Proteins (FABPs). Findings in this study indicate TCBZ has multiple mechanisms in the parasite to develop resistance. This indicates that all the three proposed TCBZ mode of action and resistance mechanisms in *F. hepatica* could be implicated in drug TCBZ resistance against *F. gigantica*.

Keywords: *Fasciola*, drug resistance, whole genome, triclabendazole

P-21. Enhancing Yogurt Sensory and Microbial Quality with Fructooligosaccharides: A comparative Analysis of Storage Conditions, Sensory Quality and Bacterial Growth Dynamics

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Abstract

Yogurt is a widespread fermented dairy product that offers substantial nutritional and probiotic benefits; though, there is an expanding demand for functional enhancements. This research investigates the impact of inulin, a Fructo-Oligosaccharide, on enhancing the microbial, and sensory attributes of yogurt, aiming at improving its overall quality and shelf-life. Through a controlled experimental setup, yogurt samples were prepared with 1.5% concentrations of inulin and analyzed against control samples over different storage conditions. Our findings indicate that the inulin treated group has a better sensory profile than the control group and microbial stability by fostering the growth of beneficial lactic acid bacteria, thereby enriching the yogurt's probiotic profile. Additionally, sensory evaluations reveal that inulin addition maintains desirable yogurt characteristics, enhancing taste and texture and potentially extending shelf life. These enhancements not only contribute to the product's nutritional value but also its appeal to health- conscious consumers. The study underscores the importance of prebiotics in developing functional dairy products and suggests further research to optimize inulin concentrations and explore its synergistic effects with probiotics. Our results pave the way for the dairy industry to produce high- quality, functional yogurts that cater to the growing demand for health-oriented food products.

Keywords: Inulin, Probiotic, Sensory, Yogurt

P-22. Hazardous Effects of Mosquito Coil Fumes on the Lung and Liver of Adult Male Rabbits (*Oryctolagus cuniculus*)

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Abstract

The toxicity of insecticides for non-target organisms is of worldwide concern: insect killers/repellents are silent environmental chemical toxicants to human health. The present study was designed to evaluate the toxicity of mosquito coil fumes (Night guard® Coil, 0.05% Meperfuthrin) exposure in the vital organs of adult male rabbits by analyzing serum biochemistry and gross- and histo-morphology of target organs. The group of mosquito coil exposure rabbits (n=5) received 3 hours of coil fumes every day at night for up to 30 days. Control rabbits (n=5) free from mosquito coil fumes exposure. No clinical sign appeared during exposure and no gross lesion was found in visceral organs. Interestingly, the hepatic enzymes

aspartate transaminase and alanine transaminase levels were significantly increased in coil fumes-exposed rabbits compared to control rabbits. Histopathologically, the lung showed numerous granulomatous inflammation with infiltration of the inflammatory cells around the terminal bronchiole and marked congestion of blood vessels. In the liver, coagulation necrosis with infiltration of the inflammatory cells in the portal area and no lesion in the central vein area were seen. Therefore, mosquito coil fumes affect the body's homeostasis and produce toxicity in the liver and lungs of adult rabbits. In conclusion, exposure to mosquito coil fumes can cause pulmonary and hepatologic manifestations.

Keywords: Meperfuthrin, histopathology, vital organs, rabbits

P-23. Prevalence and Associated Risk Factors of Anaplasmosis in Goats at Chattogram District, Bangladesh

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Abstract

Anaplasmosis is a vector-borne haemoparasitic disease caused by the genus *Anaplasma* , poses a significant threat to animal health. It is primarily transmitted by ticks such as *Rhipicephalus* and *Dermacentor* This study was aim to detect the prevalence and associated risk factors of anaplasmosis in goats within the Chattogram district of Bangladesh. The research was conducted at the SA Quadery Teaching Veterinary Hospital (SAQTVH), Chattogram Veterinary and Animal Sciences University (CVASU), involving observations of 202 goats. Blood samples were collected from the ear veins of 44 goats. Thin blood smears were prepared, stained with Giemsa, and examined under a microscope that revealed 36 positive samples and the prevalence was 81.82% among total sample. Statistical analysis was performed using Chi-square tests in SPSS Statistics version 26. Breed specific prevalence recorded that numerically Black Bengal goats and crossbreed showed higher susceptibility to anaplasmosis than Jamunapari.The study found that goat rearing systems significantly influenced infection rates ($P < 0.05$). Anaplasmosis was more prevalent in goats displaying pale mucous membranes and symptoms such as fever or weakness ($P < 0.05$). However, Anaplasmosis is mostly detected in animals infected with ectoparasites without showing any significant difference. To mitigate the disease, strategic control measures, including vector reduction and routine health monitoring, are recommended.

Keywords: Anaplasmosis, prevalence, vector-borne

P-24. Prevalence and Epidemiology of Lumpy Skin Disease in Cattle at Bhola District, Bangladesh

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Abstract

Lumpy Skin Disease (LSD) is a highly contagious viral disease of cattle caused by LSD virus of Poxviridae family and Capripox genus. This disease is transmitted by vector direct contact. The present study was undertaken to detect Lumpy Skin Disease prevalence and associated risk factors among cattle population in Bhola District of Bangladesh. The research was conducted from 01 November 2023 to 20 January 2024 at the Upazila Livestock Office and Veterinary Hospital, Bhola Sadar, Bhola that involved comprenhensive examination of 147 cattle cases out of these, 45 cattles were diagnosed with LSD on the basis of clinical signs provided by OIE manual. This study revealed a high prevalence rate of 30.61%. Gender and age emerged as significant factors in disease susceptibility. Male were more prone to infection and 0-6 months age group showed the higher incidence. Furthermore, the study indicated that indigenous cattle exhibited milder symptoms compared to crossbreed. The research highlighted that limited use of vector control measure also increases the susceptibility. Three different treatment protocols were followed for the LSD affected cattle showed apparently good outcomes. In conclusion, the research emphasizes the urgent need for targeted interventions to mitigate the impact of Lumpy Skin Disease on cattle populations in Bhola district . Further research are required to detect better identification of LSD, associated risk factors and molecular detection of the disease.

Keywords: LSD, prevalence, vector, risk factors

P-25. Study on Comparative Liver Pathology of Different Species of Animals in Mymensingh

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Abstract

Liver is the largest gland and plays a vital role in the body with its versatile functions. However, liver damage can make it unsuitable for human consumption and contribute to the spread of zoonotic diseases. Hence, this study aimed to examine liver lesions in different animal species through gross and histopathological methods. A total of 80 liver samples were collected from cattle (n=30), sheep (n=5), goats (n=20), chickens (n=15), and fish (n=10) from slaughterhouses and local market in Mymensingh, between May and October 2024.Grossly, various type of liver damages found in 25 (31.25%) out of 80 livers such as discoloration, hemorrhage, congestion, necrosis, abscesses with pus, and fasciola infestations. Histopathological examination revealed that 72.5% (58/80) of the livers showed various lesions,

including circulatory disturbances (hemorrhage, congestion, hemosiderosis), degenerative changes (fatty infiltration, necrosis, inflammatory conditions (lymphoplasmacytic hepatitis, nodular hepatitis, abscesses), parasitic infestations, cirrhosis, and bile duct changes (hyperplasia, chronic cholangitis, metaplasia, fibrosis). Fibrosis and abscesses were the most common findings. Among five species, goats showed the highest rate of hepatic lesions, followed by cattle, chickens, sheep, and fish. From the present study, it proved that considerable numbers of liver lesions were observed in animals that is crucial for animal health and public safety. These results underline the importance of liver examination in slaughterhouses for diagnosing and preventing liver diseases, and further studies are needed to explore the full impact of these conditions on animal and human health.

Keywords: Liver, pathology, slaughterhouse

P-26. Attenuated Duck Plague Vaccine Seed Development from Local Virus Isolated from Suspected Ducks

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Abstract

Duck plague (DP) is an acute disease, caused by Duck Enteritis Virus (DEV) which belongs to species Anatid-alphaherpesvirus 1. This study aims to develop live attenuated Duck Plague vaccine seed using local strain of DEV isolated from suspected duck. DEV samples (n=180, positive=45) were isolated, characterized and adapted in 10-13 day old embryonated duck eggs through CAM- route and Duck-embryo fibroblast (DEF) primary cells. Presence of DP virus was indicated through thickened, hemorrhagic CAMs and petechial hemorrhages on dead embryos while DEF cell-culture showed clear CPE and confirmed by PCR (UL-30, DNA-Pol, GC gene). Pathogenicity test was carried out on three-week old ducklings (N=10, Death=07, Non-infected=03), which validated highly pathogenic nature and the titer of 107.7 EID50/ml. Partial genome sequencing and phylogenetic analysis confirmed the isolated DEV and obtained GenBank accession number (PP996337). This virulent isolate of DEV virus was selected for attenuation by 80 serial passages in chicken embryo (09-11 day-old) and 05 passages in the chicken embryo-fibroblast (CEF) primary cell culture. Adaptation of virus in cell culture and chicken embryo was signified by appearance of CPF and hemorrhage on embryo, resulting virus titer of 106.5EID_{50}/mL after 80 passages. After completing each passage, virus has been confirmed by PCR. Eighty (80) passages completed and to test reversion of virulence by 05 back passages in ducklings resulting no infection. Whole genome sequencing (01) has been completed and submitted to NCBI for accession number. Attenuated DP Virus was completed as we designed in this experiment to use as DP vaccine seed.

Keywords: DEV, PCR, cell culture, genome sequence

P-27. Development of Attenuated Fowl Pox Vaccine from Field Isolates of Fowl Pox Virus

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Abstract

Fowl pox is a viral disease causing significant economic and health challenges in poultry. It is marked by nodular lesions on featherless skin and mucous membranes, with recent outbreaks reported in Bangladesh's Mymensingh and Netrakona districts. This study aimed to develop a live attenuated vaccine for the Fowl pox virus (FPV) to address these issues. Nodular lesion samples were collected, and 30% tested positive for FPV via PCR targeting the P4b gene. Positive isolates were propagated in 9–11-day-old chicken eggs through the chorioallantoic membrane (CAM) route, confirmed by PCR, and sequenced. Phylogenetic analysis showed a 99.65% to 100% similarity among isolates and with strains from Europe and Asia. Virus attenuation was achieved through 10 serial passages in duck embryonated eggs, resulting in a final titer of 106.43 EID_{50}/mL. A field trial evaluated the vaccine's efficacy using a diluted dose of 104.43 EID_{50}/mL, chosen for safety and immunogenicity. Blood samples collected at 7, 14, and 21 days post-vaccination revealed a robust immune response via ELISA, with antibody titers peaking between 14 and 21 days (absorbance values: 2.32–2.55, above the cutoff 0.2116). In challenge trials, vaccinated birds showed complete protection with no clinical signs, while unvaccinated birds developed symptoms. This study confirms the vaccine's safety and effectiveness in eliciting strong immunity against FPV. The findings highlight its potential as a critical tool for controlling Fowl pox, improving poultry health, and reducing economic losses in affected regions.

Keywords: FPV, PCR, CAM, phylogenetic analysis, ELISA

P-28. Glanders in Horses and Humans in Bangladesh

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Abstract

Glanders is an infectious, fatal, zoonotic, notifiable, reemerging bacterial disease of solipeds. Though the disease has eradicated from many developed countries but yet it is endemic in many developing countries. A cross-sectional study was conducted in Dhaka, Manikganj, Mymensingh, Tangail, Jamalpur, Chattogram and Kurigram to see the prevalence and risk factors of glanders in the horses and human. 753 horse serum samples and 50 human serum samples were collected and were tested by various serological tests like CFT, ELISA and Immunoblot (IB) technique following recognized protocol. The tests were carried out both in FLI, Germany and ICAR-NRCE laboratory in India. Some samples were also tested in Bangladesh by using Rapid Test Kit (RTK) and ELISA. To investigate Knowledge, Awareness and Practice (KAP) of the associated people of horse rearing, a survey was carried out.

Univariable and Multivariable logistic regression analysis were used to identify factors associated with knowledge, awareness & practices followed. As per the study, the sero prevalence of glanders among the horse's samples was 3.45%. No human sera were positive for glanders. In case of horses, sex variable was found significantly associated with *Burkholderia mallei*. In case of KAP study, among all respondents of survey, age variable was found significantly associated with knowledge and awareness but in case of practice, there was no significant variable. Glanders poses a particular risk for native horses used for cart-pulling in the districts of Mymensingh, Tangail, and Jamalpur. To effectively control and prevent the spread of glanders in Bangladesh, it is essential to implement regular and systematic testing of horses within high-risk groups and geographic areas. A "test-and-cull" policy, accompanied by a compensation program for affected horse owners, will encourage prompt reporting and compliance, minimizing the risk of further transmission. Educating horse owners, caretakers, and veterinarians on recognizing glanders symptoms, understanding its modes of transmission, and practicing preventive measures can significantly reduce infection prevalence.

Keywords: Glanders, horses, human, CFT, Immunoblot, ELISA

P-29. Antiobesity and Hypolipidemic Effects of Ethanolic *Annona muricata* L. Leaf Extract in High-Fat-Diet-Induced Obese Mice

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Abstract

Annona muricata L., or *Graviola* (Soursop), is known for its rich phytochemical profile, including alkaloids, flavonoids, and phenolic compounds, which contribute to its medicinal properties. This study evaluated the anti-obesity and antihyperlipidemic effects of ethanolic leaf extract of *Annona muricata* (AMLE) in a high-fat diet-induced obesity model using Swiss Albino mice. Thirty mice were categorized into two groups: a Normal Diet (ND) group (n = 6) and an HFD group (n = 24). After six weeks of HFD feeding, obese mice were divided into four groups (6 mice each): the Model group (HFD-only), a positive control group treated with L-carnitine (150 mg/kg), and two treatment groups receiving AMLE at low (25 mg/kg) or high (50 mg/kg) doses via intraperitoneal injection for four weeks. Both AMLE doses demonstrated significant anti-obesity and lipid- lowering effects. However, the high-dose AMLE group exhibited significant reductions in body weight (35.01 ± 0.45 g, $p<0.05$), triglycerides (89.22 ± 0.52 mg/dL), total cholesterol (93.21 ± 0.88 mg/dL), and low-density lipoprotein cholesterol (42.35 ± 0.59 mg/dL) compared to the model group. The AMLE significantly improved liver health and lipid profiles by reducing fat deposition and restoring tissue integrity. While high-density lipoprotein cholesterol levels remained unchanged, these results highlight its potential as a natural intervention for obesity and related metabolic issues. Further research is needed to explore its mechanisms and clinical use.

Keywords: *Annona muricata*, obesity, hypolipidemia, high-fat diet, natural therapy

P-30. Assessing Knowledge, Attitude, and Practices (KAP) of Food Safety Among Dhaka City's Street Food Vendors: A Public Health Issue

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Abstract

Street food is a popular food culture in Bangladesh, offering affordable and accessible meals to the population. However, it raises significant public health concerns due to inadequate hygiene practices, leading to widespread foodborne illnesses. Therefore, this study aimed to assess the food safety knowledge, attitude, and practice (KAP) of food vendors in Dhaka. A cross-sectional study was conducted among 400 street food vendors in Dhaka City. Descriptive statistics were used to analyze the KAP, and multivariate models, including linear and ordinal logistic regression, were used to explore the associations between these factors. The study revealed that approximately 96% of sellers were male. Most of the participants (48.25%) had a primary level of education and 93.50% of vendors had no training in food safety. Approximately 62% of respondents had adequate knowledge of food safety, 81% had a righteous attitude, and only 12% exhibited a proper food safety practice regarding food handling. Factors such as experience, education, training in food safety and preparation, and body weight of vendors influenced KAP. These results highlight the need for focused education and training on food safety among vendors. The government needs to implement and uphold legislation and regulations concerning food safety among street food vendors.

Keywords: Food safety, food vendors, KAP, food hygiene

P-31. Temporal Analysis of Meteorological Factors and Their Impact on Dengue Incidence in Bangladesh: A Time Series Approach

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Abstract

Dengue is a significant public health challenge in Bangladesh. This study aims to analyze the temporal patterns of dengue cases from January 2018 to August 2024, and the relationship between meteorological factors and the incidence of dengue fever by utilizing SARIMA and MPR. Monthly dengue case data was sourced from IEDCR, while meteorological data was obtained from the Climate Engine platform. LOESS (STL) was applied to explore seasonal, trend, and residual components. The SARIMA model was developed to forecast dengue cases. Poisson regression was utilized to analyze the effects of meteorological factors on dengue incidence with

one- and two- month lags dengue cases. Autocorrelation analysis showed strong positive correlations at 6-month and 12-month lags, the selection of the SARIMA (1,0,0) (0,1,1) [6] model, which effectively captured the seasonality with an AR1 coefficient of 0.82 and an SMA coefficient of -0.99. Forecasts from 2024 to 2027 predict dengue will oscillate between 20,000 and 60,000 annually. Spearman's rank correlation shows the strongest positive associations between dengue and humidity ($r = 0.48$, $p < 0.01$), minimum ($r = 0.43$, $p < 0.05$), and mean temperatures ($r = 0.32$, $p < 0.05$). Multivariable Poisson regression revealed that maximum temperature (IRR = 2.2, $p < 0.001$) and humidity (IRR = 1.2, $p < 0.001$) significantly increased dengue incidence, whereas minimum temperature (IRR = 0.46, $p < 0.001$), mean temperature (IRR = -3.2, $p < 0.001$), precipitation (IRR = -0.02, $p < 0.001$), and wind speed (IRR = -0.97, $p < 0.001$) were associated with reduced cases.

Keywords: Dengue, meteorological factors, SARIMA, Poisson regression, time-series

P-32. Detection of *Brucella melitensis* in Goat in Bangladesh Agricultural University Sheep, Goat and Horse Farm

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Abstract

Brucella melitensis is a communicable agent which may seriously endanger the efforts for increasing and improving the production of small ruminants, particularly in developing countries. Brucellosis of goats is caused by *Brucella melitensis* and is an important public health problem. The diagnosis of caprine brucellosis is based largely upon serologic tests. The aim of the current study was to estimate the frequency of caprine *Brucella* seropositivity in Bangladesh Agricultural University (BAU) Goat Farm, Mymensingh in Bangladesh. A total of 18 goat blood samples were obtained for the current investigation from BAU Goat Farm. A questionnaire was used to gather information on sex, age etc. *Brucella* Ab Rapid Kit Test, Rose Bengal Test (RBT) and Enzyme Linked Immunosorbent Assay (ELISA) and Polymerase Chain Reaction (PCR) were used to screen blood samples. On the Rapid Kit test, the frequency of *Brucella melitensis* was 6 (33.33%). On the RBT test, the frequency of *Brucella melitensis* was 4 (22.22%). On the ELISA, the frequency of *Brucella melitensis* was 3 (16.67%). On the PCR, the frequency of *Brucella melitensis* was 3 (16.67%) The frequency was higher in female goats (23.07%) than in male goats. The findings of this study may help to launch and build a program for prevention and control through testing and slaughter, removing diseased animals from flocks.

Keywords: RBT, i-ELISA, PCR, goat, frequency

P-33. First Time Detection of *Burkholderia pseudomallei* in Rural Horses of Bangladesh

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Abstract

Melioidosis, an infectious disease caused by *Burkholderia pseudomallei* is an emerging disease with high impact on animals and man. A Little is known about its seroprevalence and risk factors in working equines in Bangladesh. A cross-sectional study was conducted in Mymensingh, Jamalpur and Kurigram districts of Bangladesh during 2023-2024. A total of 118 horse serum samples were screened for the diagnosis of Melioidosis serially with Antibody Rapid Detection Kit, ELISA and PCR. The overall seroprevalence was found to be 21.53%, 15.25% and 1.69% in Antibody Rapid Detection Test, ELISA and PCR Test respectively. The findings of this study may help to launch and build a program for prevention and control strategy. There is risk of zoonotic transmission of this disease for in-contact humans. Further studies are needed to know the detail epidemiology of Melioidosis in Bangladesh.

Keywords: i-ELISA, PCR, horse, prevalence, melioidosis

P-34. Internal Fixation Technique for Bone Fractures Osteosynthesis in Cats and Dogs: A Retrospective Study

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Abstract

As the pet population in Bangladesh continues to grow, there is a rising demand for veterinary orthopaedic surgeons proficient in internal fixation techniques to treat bone fractures in cats and dogs. This retrospective study aims to evaluate the internal fixation method using different implants for osteosynthesis in feline and canine bone fractures over a one-year period. Medical records of 40 cases, comprising 35 cats and 5 dogs, were reviewed for patient history, clinical features, radiographic findings, and treatment options. Cases with follow-up radiographs taken at least 12 weeks postoperatively were included. Data on patient signalment, fracture localization and type, implant types, and complications were analyzed. A total of 40 fractures were treated, including femur (14), tibia (14), mandible (4), humerus (3), vertebra (2), radius (1), ilium (1), and combined tibia and humerus (1). Various implants were employed including intramedullary pins (IMP) (27.5%), IMP with stainless steel wire (20%), bone plates (17.5%), rush pins (12.5%), stainless steel wires (10%), IMP with bone plates (7.5%), and rush pins with bone plates (5%). Closed fractures (62.5%) were more common than open fractures (37.5%). However, postoperative complications revealed a higher rate of wound dehiscence in open fractures (53.33%) compared to closed fractures (16%). Implant displacement was observed more frequently with single implants (21.74%) than with multiple implants (5.88%). The findings suggest that internal fixation is a reliable method for managing bone fractures in cats and dogs, with the choice of implant, fracture type, and soft tissue condition playing critical roles in treatment success.

Keywords: Internal fixation, fracture, cats, dogs

P-35. High Performance Liquid Chromatography Analysis of *Azadirachta indica*: A Pathway to Drug Discovery for Safe Poultry Production in Bangladesh

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Abstract

TLC analysis provided the information that the neem extracts contained azadirachtin, nimbidin, nimbolinin, nimbin and salannin. HPLC analysis confirmed that these compounds were truly azadirachtin, nimbidin, nimbolinin, nimbin and salannin. This solution was applied to safe poultry production in Bangladesh. Our results demonstrated that on day 28, a significantly ($P<0.05$) increased body weight was found in neem leaf extracts. Gross inspection of GIT and carcass were found healthy in all groups of birds. Better FCR was recorded in neem leaf extracts. Blood profile such as Hb, TEC, PCV, and ESR examination showed no harmful effects in any groups of birds; but, DLC examination revealed neem leaf extracts significantly ($P<0.05$) increased lymphocyte in comparison with danofloxacin & butaphosphan groups respectively. AST/ALT enzyme analyses showed significant ($P<0.05$) decreased level of AST and ALT in neem treated groups than that of the antibiotic and butaphosphan groups. Histopathology revealed neem extracts treated birds preserved healthy duodenum and caecum. Neem leaf extracts demand a candidate drug for the healthy poultry production in Bangladesh.

Keywords: Antibiotic alternatives, HPLC, TLC, immunity

P-36. Standardization of FAMACHA© Technique for Management of Anemia in Small Ruminant

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Abstract

This study evaluated the correlation between FAMACHA© scores and hematological parameters in sheep and goats, focusing on anemia caused by *Haemonchus contortus*. The objective was to determine the effectiveness of the FAMACHA© system in detecting severe anemia and its impact on animal health. Sheep and goats were categorized based on FAMACHA© scores (1–5) by assessing mucus membrane color. Blood samples were analyzed for total erythrocyte count, hemoglobin concentration, packed cell volume (PCV), mean corpuscular volume (MCV), white blood cell (WBC) count, and platelet count. Sensitivity and specificity were assessed at various thresholds, particularly FAMACHA© scores ≥3 and PCV ≤15%. *H. contortus* was detected by faecal ova count. Results showed a significant decline in erythrocyte count and hemoglobin levels with increasing FAMACHA© scores. In sheep, erythrocyte counts ranged from 5.890×10^6/µL (FAMACHA© 1) to 0.986×10^6/µL (FAMACHA© 5), and hemoglobin concentrations from 10.7 g/dL to 4.6 g/dL. Goats exhibited

similar trends. PCV levels decreased, indicating more severe anemia, while MCV increased as a compensatory response. Elevated WBC counts suggested an immune reaction, and platelet counts showed variability linked to anemia severity. The FAMACHA© system demonstrated optimal sensitivity and specificity at scores ≥3, highlighting its accuracy in identifying severe anemia. These findings validate its utility for managing parasite burdens, improving the health and productivity of small ruminants. The system provides a practical and efficient tool for controlling *H. contortus* infestations in resource-limited settings.

Keywords: FAMACHA© system, *Haemonchus contortus*, hematological parameters

P-37. Evaluation of the Antibacterial Potential of Mango (*Mangifera indica*) Seed Kernels in Bangladesh

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Abstract

Antimicrobial resistance poses a global threat. Bangladesh produces high-quality mangoes, yet the medicinal components of mango (*Mangifera indica*) seed kernels remain unused. This study investigated the antibacterial potential and toxicity of ethanol extracts from mango seed kernels, targeting *Staphylococcus aureus*, *Bacillus cereus*, *Escherichia coli*, and *Klebsiella* sp. Amrapali mango seeds were dried, powdered, and extracted with ethanol at various ratios. The efficacy of the extract was tested via the disc diffusion method. Significant antibacterial activity was observed against gram-positive bacteria (*S. aureus* and *B. cereus*), with a 23 mm inhibition zone for S. aureus, comparable to doxycycline. The extract was effective against multidrug-resistant *S. aureus*, showing a 22.5 mm inhibition zone, slightly smaller than gentamicin (23 mm) but larger than chloramphenicol (21 mm), vancomycin (20 mm), and tetracycline (16 mm). Activity against gram- negative bacteria (*E. coli* and *Klebsiella* sp.) was limited. In vivo toxicity tests in mice showed no significant hepatic or renal damage at low doses (100 µl), though higher doses caused mild histopathological changes in the liver and kidneys. These findings suggest mango seed kernel extract as a promising alternative antibacterial agent, particularly against gram-positive and multidrug-resistant bacteria, with minimal toxicity at lower doses. Further research is needed to identify active compounds, elucidate mechanisms of action, and explore broader applications in combating antibiotic-resistant infections.

Keywords: *Mangifera indica*, seed kernel, ethanol extraction, antimicrobial, AMR

P-38. Efficiency of Artificial Insemination in Local And Crossbred Dairy Cows

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Abstract

From April 2023 to May 2024, records were collected from AI centers, livestock offices and

veterinary hospitals, government and commercial dairy farms in Sylhet, Savar and Mymensingh. For analyzing the first five factors, data from 421 animals were included, while additional 650 animals were specifically selected to assess sexed semen usage. To find out significant differences in conception rate across the variables and factors, Chi-square test was conducted. Significantly higher ($P<0.05$) pregnancy rate was found in crossbred dairy cows at 63.22%, while local breeds had only 42.42%. Conception rates for cow aged 6 years were 58.03%, 53.33%, and 44.94%, respectively. Seasonal variation indicates superiority in spring, then summer at 54.54%, winter at 47.29%, rainy season at 41.17%. The semen percentage had also significant effect on efficiency; the highest was with 50% semen (60.74%) and the lowest rate was at 100% semen (41.50%). Differences were not significant ($P>0.05$) for AM (61.02%) versus PM (53.26%) insemination times. Unexpectedly, Sexed semen had the lowest conception rate: just 14.76%, compared to the other five factors. Nonetheless, X-chromosome bearing (Trump-Flame) had a bit lower conception rate (14.4%), than Y-chromosome bearing (Bombaroo-Snowmobile), 16%. These insights provide informed decision-making features related to insemination efficiency and help to promote sustainable reproduction in the dairy sector in Bangladesh.

Keywords: Insemination efficiency, physiological factors, reproduction

P-39. Retrospective Study on Cattle and Poultry Diseases at Sylhet Division of Bangladesh

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Abstract

Cattle and poultry businesses play significant roles in food security and socioeconomic upliftment in Bangladesh. Nevertheless, their productivity is hindered by numerous diseases. A retrospective investigation spanning five years from July 2018 to June 2023 was carried out, utilizing data from the Field Disease Investigation Laboratory (FDIL), Sylhet, to identify the most common diseases affecting cattle and poultry in Sylhet. The Laboratory received 4133 livestock samples and 6531 poultry samples had a confirmative diagnosis of disease causation this tenure. Among the overall diseases of livestock Bacterial disease (8.03%), Viral disease (0.21%), Parasitic Disease (74.59%), Protozoal disease (13.94%) Nutritional disease (0.17%) Inflammation (1.48%), Others (1.57%). The prevalence and distribution of diseases in Livestock showed that they are most common during the Winter (40.43%), followed by the Rainy season and Summer (27%). According to fiscal year, livestock disease burden in 2018-2019 (23.28%), in 2019-2020 (23.16%), in 2020-2021 (21.20%), in 2021-2022 (17.32%), and in2022-2023 (15.05%). In the case of Poultry diseases, Viral disease (35.71%), Bacterial disease (41.13%), Mycoplasmal disease (6.28%), Fungal disease (9.48%), Protozoal disease (7.23%), Nutritional disease (0.18%). Based on the season, most disease burden is in the Rainy season (35.91%), followed by winter (35.34%) and Summer (28.76%). Based on the fiscal year, in 2018-2019 (16.55%), in 2019-2020 (19.34%), in 2020-2021 (29.69%), in 2021-2022 (17.85%) and in 2022-2023 (16.57%) were the percentage of disease occurrence in poultry. The generated data could valuable for effective disease control and strategies and do further specific disease-based studies.

Keywords: FDIL, retrospective study, disease burden

P-40. Effect of Prebiotic and Probiotic Supplementation on Growth Performance of Broilers Infected with Coccidiosis

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Abstract

Coccidiosis, caused by *Eimeria* spp., significantly impacts the poultry industry globally and in Bangladesh, affecting broiler health and productivity. This study aimed to evaluate the efficacy of prebiotic and probiotic supplementation as a sustainable alternative to traditional anticoccidial medications for managing coccidiosis and enhancing broiler performance. A total of 10,240 broilers were divided into three treatment groups: a control group, an anticoccidial-treated group, and a prebiotic/probiotic supplementation group. Growth performance, feed conversion ratio (FCR), mortality rates, lesion scores, and oocyst shedding were assessed across all groups to determine treatment efficacy. Broilers in the prebiotic/probiotic group demonstrated notable improvements in performance metrics, achieving a final average weight of 1.92 kg and the lowest FCR of 1.35. Mortality rates decreased by 51.5% compared to the control group. Lesion scores and oocyst shedding were significantly reduced, indicating improved gut health and disease resistance. Additionally, the European Production Index (EPI) was highest in the supplemented group, emphasizing its economic viability. Pathological findings corroborated these results, revealing minimal lesion severity in the intestinal system of supplemented birds. Prebiotic and probiotic supplementation proved to be an effective and sustainable approach for managing coccidiosis, reducing reliance on conventional anticoccidial drugs, and supporting antibiotic-free poultry production. This strategy promotes both animal welfare and consumer safety while addressing the economic challenges of the poultry sector.

Keywords: Prebiotics, probiotics, coccidiosis, FCR, EPI

P-41. Efficacy of Thankuni (*Centella asiatica*) And Flaxseed (*Linum usitatissimum*) Supplementation on Growth Performance, Meat Quality Traits, And Serum Biochemical Parameters of Turkey

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Abstract

The current study investigated the efficacy of thankuni (*Centella asiatica*) and flaxseed (*Linum usitatissimum*) supplementation on growth performance, meat quality traits and serum biochemical parameters of turkey. A total of 120-day-old unsexed poults were purchased from a hatchery and randomly categorized into the control group (T0 = only basal diet) and treatment groups consisting of T1 = basal diet + 0.5% thankuni; T2 = basal diet + 1% flaxseed; T3 = basal diet

+ 0.5% thankuni and 1% flaxseed. The results demonstrated that the turkeys treated with thankuni and flaxseed had a tremendous improvement in terms of the body weight gain, FCR, carcass weight, and dressing percentage, and the best performance was attained from the T3 group. The water holding capacity of both breast and thigh meat increased in all treated groups, with the highest (p 0.05) ultimate pH of both breast and thigh meat was found in the T3 group. The highest decrease in the lightness and the highest increase in the redness and yellowness of the breast and thigh meat was observed in the T3 group. The total cholesterol, triglycerides, ALT, and AST showed a significant ($p < 0.001$) decrease in all treated groups, within normal physiological ranges. It can be implied that combined supplementation of thankuni and flaxseed improved the growth performance, meat quality, and health status and could be used as a potential feed additive in turkey meat production.

Keywords: Thankuni, flaxseed, growth performance, meat quality, serum biochemistry

P-42. Occurrence and Bioavailability of Heavy Metals in Fish Species, Water and Sediments of the Pasur River in Bangladesh along with Assessment of Ecological, and Human Health Risk

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Abstract

This study was conducted to determine the extent of pollution of the Pasur River by HMs along with the ecological, and human health risks associated with the consumption of HMs contaminated fishes. For this purpose, Pb, Cd, Cr, Cu, Ni, Mn, Zn and Co in water, and Pb, Cd, Cr, Cu and Ni in sediment and fish were assessed. Mean concentration of HMs in water and sediment were in the order of Pb > Cd > Ni > Cr > Zn> Co > Cu > Mn, and Pb > Cr > Ni > Cu > Cd respectively. Except Pb and Cd in water, HMs concentrations were below the standard range of WHO. But HMs content in sediment except Cd were found higher than USEPA standard values of TRV and TEL. Pb and Cd in fishes were found in higher concentration than safe limits of FAO. In fishes, average HMs concentrations were found in the order of Pb > Ni > Cu > Cd > Cr. In fish organs, HMs deposition was estimated in the descending order of gut > gill > muscle. Ecological risk assessment revealed that sediment and water from the Pasur River suggested a moderate degree of pollution in water- based ecosystems. Bio-accumulation factor analysis indicated both Cu and Ni in fish bodies appeared higher. Higher TCR values of Cd (3.72E-04) and Ni (2.47E-04) than allowable level (TCR > 10-04) indicated that consuming these fish in big quantities over an extended period of time may be carcinogenic to humans.

Keywords: Heavy metals, fish, pasur river, bioaccumulation, human health risk

P-43. Effects of Dietary Supplementation of Ashwagandha (*Withania Somnifera*) and Flaxseed on Growth Performance, Meat Quality and Thyroid Gland Activities of Broiler Chicken

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Abstract

This study evaluated the effects of dietary supplementation of ashwagandha and flaxseed on the growth performance, meat quality, and thyroid gland activities of broiler chickens. A total of 120- day-old Cobb-500 chicks were randomly assigned to four groups, each consisting of two sub- groups of 10 chicks for replication purposes. The control group (T0) received commercial broiler feed without additional supplements. The treatment groups were given commercial feed supplemented with 0.5% ashwagandha (T1), 2% flaxseed (T2), and a combination of 0.5% ashwagandha and 2% flaxseed (T3). Statistical analyses revealed that the T3 group had the highest average body weight (2474.00 ± 2.712 g), weight gain (1748.50 ± 0.851 g), dressing percentage (78.650 ± 0.086%), and breast meat yield (35.939 ± 0.053%). The feed conversion ratio (FCR) was lowest in T1 (1.54) group, followed by T3 (1.56), T2 (1.62), and T0 (1.68) groups. Meat quality metrics in the T3 group included the highest ultimate pH (5.850 ± 0.005), water holding capacity (89.480 ± 0.135%), redness (7.270 ± 0.007), yellowness (13.260 ± 0.150), and crude protein (86.878 ± 0.008%), alongside the lowest lightness (52.724 ± 0.147) and crude fat (2.804 ± 0.009%). Furthermore, the T3 group exhibited the highest thyroid gland weight (0.365 ± 0.034), levels of T3 (0.940 ± 0.007), and T4 hormones (1.100 ± 0.049) with maximum follicular dilatation and colloid deposition. Ashwagandha and flaxseed significantly enhances growth performance, meat quality, and the thyroid gland function of broiler chickens.

Keywords: Ashwagandha, flaxseed, growth, meat quality, thyroid activity

P-44. Comprehensive One Health Assessment: Knowledge, Attitudes, and Practices (KAPs) among Livestock and Poultry Farmers about Zoonosis in Bangladesh

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Abstract

In Bangladesh, farming is a key livelihood, leading to a higher risk of zoonotic diseases due to frequent animal interactions and traditional practices. The study aimed to assess the knowledge, attitudes, and practices of livestock farmers regarding zoonotic disease outbreaks. A cross- sectional study of 658 livestock farmers from randomly selected regions in Bangladesh was conducted from April to June 2024. The participants included farmers with at least two livestock animals and at least ten birds on their farms. Among livestock farmers, 89.06% were male, mostly aged 30–45, but mainly from nonscience educational backgrounds. A survey showed significant knowledge and practice gaps regarding zoonosis, with only 11.55% having

good knowledge and 37.54% demonstrating good practices. Farmers with a science education had higher KAP scores. Most avoided consuming raw animal products, though 23% lived with animals. Logistic regression identified factors influencing KAP, including rearing systems, farming experience, pet ownership, and biosecurity training. The study found that farmers lack adequate knowledge and practices regarding zoonosis, despite having a positive attitude. The study emphasizes the need for targeted educational programs and a collaborative One Health approach to improve zoonotic disease control, particularly among less educated farmers, to boost public health and economic outcomes.

Keywords: Zoonoses, farmers, KAP, livestock

P-45. Reducing Abdominal Fat and Enrichment of Omega-3 Fatty Acid in Meat Supplemented with Flaxseed and Fresh Cabbage Leaves in Broilers

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Abstract

This study aimed to evaluate the effects of flaxseed and cabbage supplementation on reducing abdominal fat and enriching omega-3 fatty acids in broiler meat without affecting growth performance and meat quality. 210 Cobb-500 broiler chicks were divided into seven groups: a control group (CG) and six treatment groups (TGA1, TGA2, TGA3, TGB1, TGB2, TGB3) with 2%, 3.5%, and 5% flaxseed and cabbage supplementation either daily or on alternate days for 14 days. The group receiving 5% supplementation on alternate days (TGA3) showed the highest live weight (2384.20±1.685g), and carcass weight (1795.00±1.703g), along with the lowest abdominal fat percentage (1.19±0.026%) compared to the control (2.66±0.043%). Omega-3 fatty acid enrichment was highest in groups with higher flaxseed levels. The feed conversion ratio (FCR) was the lowest (1.33±0.025) in TGA1. Health benefits were also evident with reduced cholesterol and triglycerides, and improved liver enzyme activity (AST: 160 ± 2.8284 U/L, ALT: 8.2480 ± 0.11968 U/L) in the TGA3 group. Histological analysis confirmed normal liver morphology without adverse effects. These findings highlight flaxseed and cabbage supplementation as an effective strategy to enhance broiler performance, meat quality, and fat reduction, offering a sustainable approach to producing nutrient-rich poultry products.

Keywords: Flaxseed, cabbage, omega-3 fatty acids, abdominal fat, broiler performance

P-46. Determination of Heavy Metals and Its Health Risks in Processed Poultry Products Collected from Dhaka City

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Abstract

Heavy metal contamination in processed poultry products significantly threatens food safety and public health. This study aimed to determine the levels of Cd, Cr, Fe, and Pb in different processed chicken products collected from Dhaka City and assess the health risks. Sixty samples, including nuggets, burgers, sausages, and meatballs, were collected from Mirpur, Uttara, Mohammadpur, Demra, Gulshan, Lalbagh, tagged with identification numbers, and transported in thermo-cooled containers to the Zonal Laboratory, DPHE, Khulna, for analysis. Samples were minced, oven-dried at 80°C for 72 hours, powdered, and digested using nitric acid, perchloric acid, and hydrogen peroxide. Heavy metal concentrations were measured via SpectrAA-220, and health risk indices (EDI, HQ, HI, MPI) were calculated and also performed PCA. Statistical differences were assessed using DMRT with R version 4.4. 3.. The highest concentrations were observed for Iron (Fe) in nuggets (4.37 mg/kg, HQ 0.007062, EDI 0.0049439), Lead (Pb) in meatballs (0.05 mg/kg, HQ 0.043731, EDI 0.0000612), Chromium (Cr) in nuggets (0.038 mg/kg, HQ 0.014329, EDI0.000043), and Cadmium (Cd) in sausages (0.003 mg/kg, HQ 0.006790, EDI 0.000003). Nuggets showed the highest Hazard Index (HI, 0.049274) and Metal Pollution Index (MPI, 0.0409), followed by meatballs (HI 0.048178). Fe and Cr strongly correlate, Pb shows inverse correlation, while Cd has distinct variability on PC2. The findings highlight significant health risks, particularly from nuggets and meatballs, due to elevated levels of heavy metals. Strict regulatory measures and routine monitoring are recommended to minimize heavy metal contamination in processed poultry products and safeguard public health.

Keywords: Contamination, poultry products, Hazard Index (HI), component analysis

P-47. Prevalence of Diseases and Commonly Used Drugs in Poultry in Jamalpur District, Bangladesh

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Abstract

The FAO and the WOAH are launching a global effort to eradicate Peste des Petits Ruminant (PPR) causes high morbidity and mortality in small ruminants. PPR is the number one killer disease of goats in Bangladesh. The study's objectives were to determine the prevalence and risk factors associated with PPR in goats in Sharsha, Jashore from September 2023 to November 2023. Clinically infected 456 goats were examined during the period. The presumptive

diagnosis of the PPR disease was based on the owner's complaints, clinical history, clinical signs, and physical examinations of goats. Statistical analysis was done by Chi-square test and P-value was calculated by using SPSS 22 (SPSS, Inc., Chicago, IL). In this study, 97 goats (21.3%) were found to be PPR infected from 456 visited goats in Upazila Veterinary Hospital. PPR was more observed in Black Bengal goats (76.2 %) followed by 13.4% crossbreed, 8.2% Jamunapari, and 2.0% of Beetal goats. PPR was significantly more prevalent in Black Bengal goats (P<0.001%) than the other three breeds. PPR was considerably higher in female goats (62.89%) than male goats (37.11%) and more significant (P<0.001%) in non-vaccinated (76.29%) goats, and worm-infested goats (79.38%). Age and rearing system were also significant factors (P<0.001%) in the PPR of goats. 6-24 months goats (72.16%) were more susceptible than adults (8.25%) and household rearing system goats (70.10%) were more susceptible than intensive system (6.19%) to PPR. These study results may be useful in creating a control and eradication program of PPR from Sharsha, Jashore.

Keywords: Peste des Petits Ruminants, prevalence, risk factors

P-48. A Study to Investigate the Prevalence of *Corynebacterium seudotuberculosis* in Slaughtered Goats

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Abstract

Corynebacterium pseudotuberculosis, the causative agent of caseous lymphadenitis (CLA), poses a hidden threat to small ruminants, particularly goats, worldwide. This study aimed to identify *C. pseudotuberculosis* in goats at slaughter in Mymensingh and Kishoreganj districts, Bangladesh. Fifty goats from local slaughterhouses were examined between February 2024 to July 2024. Gross examination revealed key CLA- associated lesions, including multiple abscesses with greenish-cheesy material in mesenteric lymph nodes (MLNs), calcification, MLN enlargement, and spleen abscesses. Histopathological analysis using H&E and Gram staining showed caseous necrosis encased by fibrous tissue, granuloma formation, and lymphoid depletion in the MLNs and spleen. Gram-stained sections revealed gram-positive coccobacilli in a characteristic Chinese-letter arrangement within necrotic zones. Confirmatory diagnosis employed polymerase chain reaction (PCR) targeting the 16S rRNA gene, amplifying a 632 bp fragment. PCR results identified C. pseudotuberculosis infection in 14 goats. The study underscores the presence of this bacterial pathogen in slaughtered goats, highlighting its potential threat to goat farming and meat quality. As CLA is a rare zoonosis, meat handlers are at risk of infection through contact with raw or undercooked meat. The application of histopathology and PCR in this research demonstrated effective methods for CLA detection, emphasizing the importance of these diagnostic tools for broader disease monitoring and prevention. Proactive measures are essential to curb the spread of CLA and mitigate its impact on meat quality and public health.

Keywords: *Corynebacterium*, histopathology, gram staining, PCR

P-49. Knowledge, Attitude, And Practices of Large-Animal Farmers Towards Antibiotic Usages in Dairy and Beef Fattening Farms in Milk Pocket Areas of Bangladesh

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Abstract

In Bangladesh, the excessive use of antibiotics in cattle farms results in the presence of antibiotic residues in animal products that ultimately promotes the development of AMR pathogen. A total of 300 large-animal farmers were surveyed. Chi-square and logistics regression were operated to find out the significant relationship between farmers KAP regarding the antimicrobial usages and demographic variable which is analyzed by using SPSS. The analysis showed the significant relationship between farmer's knowledge, attitude, and practice at 0.05% of significant level which resembles as KAP that related to antimicrobials use and demographic variables like age, education, training, farm type with antibiotics resistance. The result also shows that young farmers who have education up to SSC and received training have better Knowledge (Odd:11.704, 95% CIs: 2.535- 54.036) and education up to HSC have better Attitude (Odd:25.278 95% CIs:3.656-174.756) and Practice (Odd: 24.813 95% CIs:4.454-138.250) in farming system. In addition, the association of farm types and KAP, the dairy farmers have lesser Knowledge (Odd:0.174 95% CIs:0.032-0.950), Attitude (Odd: 0.666 95% CIs:0.045-9.857) and Practice (Odd: 0.611 95% CIs:0.076-4.920) than the beef fattening farmers. On the other hand, mixed farming practicing farmers have better Knowledge (Odd:14.729 95% CIs:2.849-76.356), Attitude (Odd: 29.303 95%CIs:2.185-393.065) and Practice (Odd: 8.008 95). As the education, training are significant to farmers KAP in purpose of antibiotic resistance. Therefore, respective authorities of government should give focus on the education, live training programs that may build-up awareness about rational use of antimicrobials in large animal farming system in Bangladesh.

Keywords: Antimicrobial resistance, knowledge, attitude, practice

P-50. The Potential Impacts of Soursop (*Annona muricata* lin.) Leaf Extract Against Diabetes in Swiss Albino Mice Induced by High Fat Diet

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Abstract

Diabetes mellitus is a chronic metabolic disorder characterized by hyperglycemia, hyperlipidemia, and organ dysfunction. This study evaluated the antihyperglycemic, lipid-lowering, and nephroprotective effects of *Annona muricata* ethanol leaf extract in high-fat diet-induced diabetic mice. Thirty Swiss albino mice were divided into a control (n=6) and a diabetic group (n=24). After induction of diabetes, the diabetic group was divided into four groups, each group consisted of 6 mice; Model (Diabetic control), Metformin (Standard drug), A-m-L (Low dose of *A. muricata* leaf extract), A-m-H (High dose of *A. muricata* leaf extract). The A-m-L group

was treated for four weeks with *A. muricata* extract at low doses (25 mg/kg BW) and the A-m-H group was treated at high doses (50 mg/kg BW), while metformin (100 mg/kg BW) served as a reference. The results revealed a significant reduction in fasting blood glucose in the high-dose group (8.62 ± 0.72 mmol/L) compared to the model group (14.24 ± 0.83 mmol/L), approaching metformin levels (7.50 ± 1.22 mmol/L). Lipid profiles improved significantly, with reduced total cholesterol, triglycerides, and LDL levels, alongside moderate increases in HDL. Kidney function improved, as evidenced by decreased serum creatinine (1.16 ± 0.42 mg/dL) and urea (32.44 ± 1.50 mg/dL) in the high-dose group. Histopathology confirmed partial regeneration of pancreatic islets, particularly in the high-dose group. In conclusion, *Annona muricata* ethanol leaf extract demonstrated significant antihyperglycemic, lipid-lowering, and nephroprotective effects, with dose-dependent efficacy, highlighting its potential as a natural therapeutic agent for diabetes management.

Keywords: *Annona muricata*, hypoglycemic, nephroprotective

P-51. Seroprevalence and Risk Factor Assessment of Brucellosis in Cattle and Farm Workers at Mymensingh District

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Abstract

This study investigated brucellosis prevalence in cattle and farm workers in Mymensingh district, using 257 blood samples (160 cattle, 97 workers) from commercial and household farms. Data on age, sex, management practices, and reproductive disorders in cattle, and workers' demographics, were collected via questionnaire. Serum samples were tested using RBPT and i-ELISA for *Brucella abortus* antibodies. The overall brucellosis prevalence in cattle was 5.63% (RBPT) and 3.13% (i- ELISA). Prevalence in commercial and household farms was 6.67%, 2.50% (RBPT) and 1.67%, 7.50% (i-ELISA). Female cattle had higher prevalence (6.25%, RBPT; 4.17%, i-ELISA) than males (4.69%, RBPT; 1.56%, i-ELISA). Prevalence increased with age, peaking at 16.67% (RBPT) and 11.11% (i-ELISA) in cattle over 4 years. Abortion history significantly correlated with brucellosis (50%, RBPT; 25%, i-ELISA). Pregnant cattle had lower prevalence (5.56% both tests). Cattle reared with other ruminants or on earthen floors showed higher prevalence. Crossbreeds had lower prevalence (3.45%, RBPT; 2.07%, i-ELISA) than indigenous cattle. Meat-producing cattle showed higher prevalence than milk producers. Workers had 3.1% (RBPT) and 2.1% (i- ELISA) prevalence, with higher rates in males and those over 35 years. Workers with no formal education had higher prevalence than those with secondary or higher education. The study highlights brucellosis as endemic in Mymensingh, with risk factors including management practices, reproductive disorders, and worker education levels. Effective control measures are needed to reduce its impact.

Keywords: *Brucella* sp., prevalence, RBPT, i-ELISA

P-52. Knowledge, Attitude, and Practices of Large-Animal Farmers about Toxic Heavy Metals in Dairy and Beef Fattening Farms in Milk Pocket and Industrial Areas of Bangladesh

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Abstract

The study was undertaken to assess the knowledge, attitude, and practices (KAP) of cattle farmers regarding heavy metal. A survey was conducted among 360 large-animal farmers with a structured and pretested questionnaire in the milk pocket area and industrial area of Bangladesh. Analysis was done by SPSS where Chi-square and logistics regression were used to determine farmer's KAP about heavy metal. At a 0.05% significance level, the study revealed a substantial correlation between farmer's KAP with demographic factors such as age, sex, level of education, farming experience regarding Heavy Metal. The result also shows that farmers having tertiary education possesses better Knowledge (Odd:100.767, 95% CIs: 26.001-390.527), Attitude (Odd:36.967, 95% CIs:10.348-132.062) and Practice (Odd: 7.845, 95% CIs:2.830-21.748). Additionally, farmers who have ≥ 20 years of farming experience holds better Knowledge (Odd:13.184, 95% CIs:3.858-45.050), Attitude (Odd: 16.712, 95% CIs:3.953-70.655) and Practice (Odd: 7.166, 95% CIs:1.984-25.888). In case of zone of residence, the result manifests that farmers of industrial area have better knowledge (Odd: 2.456, 95% CIs:1.302-4.634) and attitude (Odd: 3.638, 95% CIs:1.914-6.918) than the farmers residing in milk pocket area. Farmers of industrial area are more knowledgeable and shows more positive attitude toward heavy metal due to more tendency of gathering information through media like TV, Newspaper, Internet. The results of this study would definitely help farmers become more aware about the detrimental effects of heavy metals, which will help them acquire more information and develop better practices and a more positive mindset regarding the public health hazards caused by heavy metals.

Keywords: Livestock industry, Heavy metals, knowledge, attitude, practice

P-53. Native Red Seaweed (*Graciallaria* sp.) could be a Dual Purpose Feed Additive to Increase Production and Reduce Methane Emission in Ruminants

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Abstract

Climate change along with loss of energy by enteric methane emission in ruminants is a fact and production systems are in need of modernization for sustainable development. Mitigating methane losses from ruminants has two important benefits. Firstly, less methane means a lower concentration of greenhouse gases (GHGs) in the atmosphere. Secondly, less methane means increased efficiency of livestock production. Macroalagae or seaweeds are rich in bioactive

compounds to increase feed conversion efficiency in ruminants and reduce enteric methane production. Our study aimed to investigate potentials native red seaweed (*Gracillaria* sp.) for these purposes. A total of fifteen Holstein Friesian dairy cows were selected and divided into three groups: group A (control, 0%/Kg dry matter), group B (seaweed @ 1%/Kg dry matter) and group C (seaweed @ 2%/Kg dry matter). The analysis of elemental compositions of red seaweed showed that it contains high level of crude protein (31.82%) and ash (40.21%) with less fiber content (3.48%). The total gross energy level was 2920 Kcal/Kg and bromoform content was 9.84 mg/g of extract. Dietary supplementation of red seaweed in dairy cows considerably enhanced milk production and milk quality in the treated groups compared to control but the best performance was reported in group B. Methane concentration in the rumen was potentially reduced in all treated groups but the best response was recorded in group B ($P < 0.05$). These results suggest that native red seaweed could be a potential source of feed additive to increase production and reduce methane emission in ruminants.

Keywords: Seaweeds, bioactive compounds, feed additive, ruminants, methane emission

P-54. Molecular Detection, Characterization, and Antibiogram of *Escherichia Coli* from Betel Leaf Samples in Mymensingh City

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Abstract

This study aimed to investigate the virulence gene profiles and antibiotic resistance patterns of *E. coli* strains isolated from piper betel leaves. A total of 100 betel leaf samples were randomly collected from various markets in Mymensingh city, Bangladesh, between January 2022 and December 2022. This included 60 fresh betel leaves and 40 ready-to-eat betel leaves. These samples were screened for the detection of *E. coli* based on cultural properties on selective media, staining, and latex agglutination test, followed by molecular characterization using genus-specific polymerase chain reaction. Antimicrobial susceptibility of the *E. coli* isolates was determined by disk diffusion method. Out of the 100 samples tested, 4% (n=4/100; 95% CI=1.57–9.84; *P*=0.1126) of the isolates were identified as O157, while 33% (n=33/100; 95% CI=24.56 – 42.69; *P*=0.4011) were non-O157 isolates. The *stx1* virulence gene was detected in 10.81% of the *E. coli* isolates, whereas *stx2*, *eae*A, and *hly*A genes were not identified. Antibiotic resistance profiling revealed that all isolates (100%, 37/37) were resistant to amoxicillin and erythromycin, with 75.68% showing resistance to tetracycline. However, all isolates were completely susceptible to ceftriaxone and ciprofloxacin. A majority (72.97%, 27/37) of isolates were sensitive to streptomycin, and 67.57% (25/37) were sensitive to gentamicin. Additionally, 86.48% of the *E. coli* isolates exhibited multidrug resistance (MDR), showing 10 resistance patterns, including 8 MDR patterns. The MAR indices for *E. coli* isolates ranged between 0.25 and 0.75. These findings highlight the significant threat posed to global public health by multidrug-resistant, shiga toxin-producing *E. coli* found on piper betel leaves in urban environments.

Keywords: *Escherichia coli*, molecular detection, virulence genes, antibiogram, betel leaves

P-55. Prevalence and Risk Factors of Bovine Q-Fever in Large Dairy Herds in Bangladesh

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Abstract

Q fever, caused by *Coxiella burnetii*, is a zoonotic disease affecting domestic and wild animals. In cattle, it primarily causes reproductive disorders like abortions, stillbirths, and infertility, resulting in significant economic losses in the dairy industry. A cross-sectional study was conducted from January 2023 to December 2024 to evaluate the prevalence of bovine Q fever and its associated risk factors in large dairy herds in Bangladesh. Using a cluster sampling technique, 334 milk samples were aseptically collected from three herds in Falcon tubes for analysis. Diagnosis of bovine Q fever was carried out using an indirect enzyme-linked immunosorbent assay (iELISA). The prevalence of bovine Q fever, along with its 95% confidence interval (CI), was calculated using the "prop.test" function in R version 4.3.1. Multiple logistic regression analysis was used to identify potential risk factors. The overall prevalence of bovine Q fever was determined to be 2.0% (95% CI: 0.9–4.4%). Farm-specific prevalence varied significantly, with 1.2% in Savar and 7.7% in Sylhet, while no positive cases were detected in the Barishal farm. This study highlights a low prevalence of bovine Q fever in large dairy herds in Bangladesh, with notable variations between farms. These findings emphasize the need for future research to include larger sample sizes and a broader geographic scope to provide a more clear understanding of the epidemiology of bovine Q fever. Identifying associated risk factors will be critical for informing effective control and prevention strategies.

Keywords: *Coxiella burnetii*, prevalence, dairy herds, risk factors

P-56. Prevalence and Antibiotic Resistance of *Escherichia coli* in Urban and Peri- urban Garden Ecosystems in Bangladesh

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Abstract

Over the past decade, foodborne outbreaks involving *Escherichia coli* have significantly increased. *E. coli*, causing foodborne illnesses and serving as a reservoir of antimicrobial

resistance, was isolated from raw vegetables, soil, and water samples collected from rooftop and surface gardens in urban (Dhaka North City Corporation; DNCC, Dhaka South City Corporation; DSCC) and peri-urban (Gazipur City Corporation; GCC) areas of Bangladesh. This study analyzed 145 samples, including vegetables (n = 88), water (n = 27), and soils (n = 30), from DNCC (n = 85), DSCC (n = 30), and GCC (n = 30), to assess *E. coli* prevalence using culture, biochemical tests, and PCR targeting the *malB* gene. *E. coli* was detected in 85 samples, indicating an overall prevalence of 58.62% (95% CI: 50.48–66.31). In urban areas, the prevalence was 44.70% in DNCC and 80.0% in DSCC, with surface gardens showing higher contamination (70.83%) than rooftop gardens (46.57%). In peri-urban GCC, the prevalence was 76.7%, with rooftop gardens more contaminated (93.33%) than surface gardens (60.0%). Antibiogram profiling of 54 randomly selected isolates revealed 100% resistance to ampicillin, with varying resistance to ciprofloxacin (25.92%), tetracycline (14.81%), cotrimoxazole (14.81%), imipenem (9.25%), and fosfomycin (1.0%). All isolates were susceptible to ceftazidime, gentamicin, chloramphenicol, nitrofurantoin, and cefotaxime. Multidrug resistance (MDR) was found in 14.81% of isolates, with the *blaTEM* and *tetA* genes detected in 81.48% and 3.70%, respectively. These findings underscore the critical need for improved safety measures and monitoring to address *E. coli* contamination in fresh vegetables and prevent the spread of antimicrobial resistance through the food chain.

Keywords: *E. coli*, vegetables, rooftop, MDR

P-57. First Report of *Brucella melitensis* in Cattle of Bangladesh

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Abstract

Brucella is a globally distributed, intracellular zoonotic bacterium of significant importance, known to cause abortion and reproductive failure in livestock as well as zoonotic illness in humans, often accompanied by severe chronic complications. *B. melitensis* causes late abortions, reduced milk production and zoonotic risks, spreading via contaminated milk, aborted fetuses, placentas, aerosols, and unsanitary practices. The aim of the current study was to determine the sero- molecular prevalence of naturally *Brucella*-infected dairy cross-bred cows. Blood samples of 290 lactating cross-bred cows from Central Cattle Breeding and Dairy Farm were collected with the history of abortion & repeat breeding. These samples underwent serological, molecular, and phylogenetic analyses. Both Brucella Ab Rapid Detection Test Kit & Rose Bengal Test (RBT) identified 18 positive samples. PCR confirmed thirteen out of eighteen kit-positive samples for *Brucella sp*. Phylogenetic analysis of PCR-positive samples confirmed the presence of the *B. melitensis*, *B. abortus* and *Brucella.* spp. The sequences have been deposited in GenBank under the accession numbers PQ683556, PQ683557, PQ683558 for *B. melitensis*, PQ812258, PQ812259, PQ824513, PQ824514, PQ824515 for *B. abortus* & PQ800781, PQ839682, PQ839683, PQ839684, PQ839685 for *Brucella* spp. This is the first time detection of *B. melitensis* in Bangladesh. It raises significant concerns for animal and public health. These findings highlight the critical need for strengthened diagnostic strategies, improved microbiological surveillance, and further research into *B. melitensis*'s epidemiology and zoonotic potential within the One

Health framework to understand better and mitigate its zoonotic risks.

Keywords: *B. melitensis, B. abortus,* Serology, molecular detection

P-58. Molecular Detection and Antibiotic Resistance Profiling of *Escherichia Coli* and *Salmonella* spp. Isolated from Apparently Healthy and Diarrheic Pets in Dhaka City, Bangladesh

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Abstract

This study aimed to isolate and identify *Escherichia coli* and *Salmonella* spp. from faecal samples of apparently healthy (AH) and diarrhoeic pets in Dhaka city, Bangladesh, and assess their antibiotic resistance patterns. Fecal samples from 30 cats and 20 dogs, each with an equal amount of AH and diarrheal pets, were used to isolate *Salmonella* spp. and *E. coli*. Based on gram staining, motility, culture, biochemistry, and molecular characteristics, the isolates were identified. The PCR detection of *Salmonella* spp. and *E. coli* was done using the 16s rRNA and InvA gene primer sets, respectively. After being identified, *Salmonella* and *E. coli* were tested for antibiotic susceptibility using the disc diffusion method. Of the 52 isolates that were found, 21 were *Salmonella* species and 31 were *E. coli*. Diarrheic dogs showed a substantially higher occurrence of *Salmonella* spp. (90% vs. 10%) ($p<0.01$) and a non-significantly higher occurrence of *E. coli* (70% vs. 30%) ($p=0.07$) than AH dogs. *E. coli* (93.33% vs. 46.67%) and *Salmonella* spp. (66.67% vs. 6.67%) were more common in cats with diarrhea than in cats with AH ($p<0.01$). Amoxicillin showed the highest resistance against *E. coli*; however, amoxicillin and ampicillin against *Salmonella* isolates. In contrast, ciprofloxacin, nalidixic acid, and gentamicin showed various degrees of sensitivity against both *Salmonella* and *E. coli* isolates. These findings provided information on the antibiotic sensitivity and resistance patterns of the *Salmonella* and *E. coli* isolates from pets, which is essential for developing effective treatment strategies and lowering the risks associated with antibiotic resistance.

Keywords: *E. coli*, *Salmonella*, pets, antibiotic resistance, diarrhea

P-59. Amelioratory Actions of Black Seed Oil on Reproductive Parameters of Cadmium Treated Male and Female Mice

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Abstract

The study was conducted to observe the effects of Black Seed Oil (BSO) on reproductive

performance in Cadmium intoxicated male and female mice. Total 60 Swiss albino mice were randomly divided into 06 groups (10 mice/group). Group A1,A2 act as vehicle control. Group B1 and B2 were treated with Cd at (4.5 mg/kg/day) and Group C1 and C2 received both Cd and BSO at (4.5 mg/kg/day and 0.5 ml/kg/day) for male and female mice respectively. The experiment was conducted for 16 weeks. Result reveled that the blood thyroxin (T4) concentration varied significantly in Cd-treated mice (group B1 and B2) compared to control mice and thyroxin (T4) is increased in Cd-treated mice supplemented with BSO (group C1,C2). At the same time the blood testosterone and estrogen levels in Cd treated mice (group B1,B2) decreased significantly ($p<0.05$) compared to the control group. In (group C1,C2) testosterone and estrogen level raised significantly ($p<0.05$) when administered Cd with BSO. Testis weight and diameter were significantly ($P \leq 0.05$) decreased in the mice treated with Cd, that was showed significantly ($P \leq 0.05$) higher in group C1 compared to the Cd-treated mice. The Cd-exposed mice showed a lower sperm concentration and motility in comparison to the control mice, which was restored after the BSO supplementation. Testes of the control group (group A1) displayed normal seminiferous tubules. Testes of the Cd treated mice (group B1) displayed degeneration of the seminiferous tubules, BSO moderately restored the histoarchitecture of testes. The ovary of female mice showed degeneration of the germinal cells along with Cystic spaces in the developing follicles in Cd treated groups. Glandular hyperplasia was noticed in uterus in Cd treated groups that was corrected by BSO. The Cd exposure produced significant tissue damages in the gonad of male and female mice which improved following BSO supplementation.

Keywords: Keywords: Black seed oil, cadmium, reproductive performance

P-60. Cholelithiasis in a Goat Associated with Chronic Fascioliosis in Bangladesh: A Case Report

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Abstract

The objective of the present study was to describe a very rare case of gallstone (cholelithiasis) in a goat associated with chronic fasciolosis. During a routine slaughterhouse-based survey, a two and half-years-old female Black Bengal Goat (BBG) found to be affected with severe chronic fascioliosis characterized by the massive damage in the liver. Thorough systemic dissection of liver, we isolated 94 adult *Fasciola* spp. and by PCR we confirmed the fluke as *Fasciola gigantica*. The gallbladder of the goat was edematous. Upon opening the gallbladder, we recovered 255 stones of variable sizes. Stones were whitish in color and friable, and some of the fragile stones. To the authors' knowledge, this is the first report of the cholelithiasis in a goat associated with *F. gigantica*.

Keywords: *Fasciola gigantica*, black bengal goats, gallstone

P-61. Surgical Management of Proptosis in a Kitten

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Abstract

Proptosis of the eye is a medical emergency characterized by the forward displacement of the eyeball due to violent trauma, often giving it a bulging appearance. This study documents the diagnosis and surgical management of proptosis in a three-month-old male kitten weighing 890g, presented to Professor's Pet Care, Mymensingh, with a history of trauma to the right eye. On clinical examination, the kitten had a normal body temperature of 101°F, but the right eyeball was severely damaged and displaced forward. Based on the history and clinical findings, the case was diagnosed as proptosis. Enucleation of the affected eyeball was deemed necessary and performed under aseptic conditions using an anaesthetic protocol comprising Atropine (0.04mg/kg BW, intramuscularly), Xylazine (1.1mg/kg BW, intramuscularly), and Ketamine HCl (10mg/kg BW, intramuscularly). The eyeball was enucleated systematically with attention to detail, ensuring minimal trauma to the surrounding tissues. Postoperative care included wound management, antibiotic therapy, and monitoring for any signs of infection or complications. The kitten showed satisfactory healing without any adverse effects or complications during recovery. This case highlights that timely surgical intervention can effectively address severe proptosis in kittens, ensuring their overall health and quality of life while preventing further complications associated with the damaged eye.

Keywords: Proptosis, cat, enucleation, damage, eyeball

P-62. Repair of an Oblique Diaphyseal Humeral Fracture in A Cat Using Intramedullary Pin

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Abstract

A fracture is a break or disruption in the continuity of a bone often caused by trauma or excessive force. The present clinical case details the successful repair of an oblique diaphyseal humerus fracture in a domestic cat using an intramedullary (IM) pinning technique. An 8-month-old male cat was presented to Professor's Pet Care, Mymensingh with severe lameness and pain in the forelimb following trauma. Radiographic evaluation revealed an oblique fracture of the humeral diaphysis with minimal displacement. Surgical stabilization was achieved using a retrograde insertion of a stainless-steel 2.2mm intramedullary pin, providing adequate alignment and stabilization of the fracture. Postoperative radiographs confirmed proper pin placement and satisfactory reduction of the fracture. The cat was managed postoperatively with restricted activity, analgesics, and antibiotic therapy. Follow-up assessments demonstrated progressive bone healing, and the cat regained full limb function by 6

weeks. This case highlights the utility of intramedullary pinning as a cost-effective, straightforward technique for repairing oblique diaphyseal fractures in feline patients. This approach can result in excellent functional outcomes with proper surgical technique and diligent postoperative care as demonstrated in this case.

Keyword: Fracture, cat, intramedullary pin, retrograde insertion

P-63. Prevalence, Virulence Profiles and Antibiotic Resistance of Biofilm-forming *Enterococcus faecalis* isolated from Raw Seafood in Bangladesh

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Abstract

Presence of *Enterococcus faecalis* in raw seafood is public health concern.This study aimed to identify antibiotic resistance patterns and virulence factors in biofilm-forming *E. faecalis* strains extracted from seafood in Bangladesh. 150 samples of raw seafood, comprising 50 shrimps, 25 crabs, and 75 fish, were collected and subjected to culturing, biochemical, and PCR assays to detect *E. faecalis*. The biofilm-forming ability of the isolates was determined by Congo Red agar (CRA) plate and Crystal Violet Micro-titer Plate (CVMP) tests. Antibiotic resistance profiles were evaluated using the disk diffusion method. Virulence genes of the isolates were detected by PCR assay. Occurrence of *E. faecalis* was 29.3% (44/150). Biofilm-forming abilities were observed in 88.64% of the isolates. All the isolates contain at least two virulent genes, including *pil* and *ace* (97.7%), *sprE* (95.5%), *gelE* (90.9%), *fsrB* (79.6%) and resistant to penicillin, followed by ampicillin and rifampin (86.4%), erythromycin (13.7%), and tetracycline, vancomycin, norfloxacin, and linezolid (2.3%). Resistant gene *blaTEM* was found in 61.4% of the isolates. *E. faecalis* strains with strong biofilm-forming capabilities had significantly higher virulence genes and antibiotic resistance ($p < 0.05$) than those with intermediate or no biofilm-forming abilities. To the best of our knowledge, this research represents the first instance in Bangladesh of assessing antibiotic resistance and identifying virulence genes in biofilm-forming *E. faecalis* isolated from seafood samples. Our study revealed that seafood carries antibiotic-resistant, virulent, and biofilm- forming *E. faecalis*, demonstrating a potential public health threat.

Keywords: *Enterococcus faecalis*, seafood, virulence profiles, resistance patterns

P-64. Knowledge, Attitude, and Practices Regarding Bovine Brucellosis Among Farmers in Mymensingh District: A Cross-Sectional Study

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Abstract

This study aimed to assess the knowledge, attitudes, and practices regarding bovine brucellosis among farmers in Mymensingh District. Data were collected from 100 farmers across various farms using KoboToolbox, and analyzed with SPSS. The results revealed that only 6% of the farmers had any knowledge of brucellosis, with those who were aware primarily learning about the disease from veterinarians and research personnel. A significant lack of hygienic practices was observed, as 87% of the farmers were unaware of aseptic procedures during parturition. None of the farmers used personal protective equipment, such as gloves or masks, while handling their livestock. Furthermore, 79% of farmers did not wash their hands after farmwork or related activities. Regarding artificial insemination (AI), 72% of the farmers relied on quacks for the procedure, and 100% of them did not inquire about the hygiene of AI instruments. Additionally, 13% of the farmers reported having experienced abortions in their cattle, but 100% of these cases were handled by quacks, and 86.41% of the farmers did not follow proper hygienic practices during abortion management. These findings reveal a serious gap in both knowledge and practices related to bovine brucellosis prevention and control. The results emphasize the urgent need for educational programs and improved training on proper hygiene, disease awareness, and veterinary practices to reduce the risk of brucellosis transmission in the farming community of Mymensingh.

Keywords: Bovine brucellosis, infectious disease, farm animals, abortion

P-65. Prevalence and Characteristics of Mobile Colistin Resistance (*Mcr*) Gene Carrying *Klebsiella Pneumoniae* Isolated from Retail Foods in Mymensingh District

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Abstract

The emergence of plasmid-mediated mobile colistin resistance (*mcr*) in bacteria under Enterobacteriaceae from foods has been reported in many parts of the world. There was few report of *mcr* carrying *Klebsiella pneumoniae* isolated from retail foods in Bangladesh. Therefore, this study was carried out to determine the prevalence of *mcr* carrying *K. pneumoniae* isolated from retail foods and their characterization for antimicrobial resistance patterns and virulence potential. A total of 200 samples (poultry n=100, fish n=50, vegetables n=50) were tested. The highest percentage of *K. pneumoniae* was found in poultry meat (50%), followed by fish (20%), and vegetables (8%). The prevalence of *mcr-1* gene carrying *K. pneumoniae* was 25 % (15/60) in poultry meat, and 20 % (2/10) in fish. No *mcr-1* gene was detected in isolates of vegetables origin.

No other tested *mcr* gene variants (*mcr*-2 to 4) were detected. The minimum inhibitory concentration (MIC) for colistin was determined to be 80% (12/15) and 100% (2/2) of the *mcr-1* gene carrying isolates from poultry meat and fish, respectively, had an MIC of 8-16 µg/ml. Most of the *mcr-1* gene carrying isolates were resistant to oxytetracycline, and ampicillin (80%–100%). Apart from multidrug resistant (MDR), extensive MDR was detected in *mcr-1* gene carrying *K. pneumoniae* irrespective of the sample's origin. Some isolates from poultry meat showed the K5 serotype by PCR whereas most of the isolates remained under untypable serotype. Overall, these data suggested that the *mcr-1* gene-carrying *K. pneumoniae* in retail foods had the potential public health risk.

Keywords: Ampicillin, oxytetracycline, multidrug resistance, poultry meat, K5 serotype

P-66. Clinico-Epidemiological Features and Complications of Lumpy Skin Disease in Cattle in Mymensingh District (2019–2024)

Chouhan CS[1*], Mamun AA [1], Foysal M[2], Razzak MA[2], Hoque MN [2],Faruk MO[2],Nirob MNJ[2], Uday TM[2], Biswas JK[2] , Barman S[2], Chakrabartty S[3], Haque Z[4]

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Abstract

Lumpy Skin Disease (LSD), a trans-boundary viral disease in cattle, is becoming a major concern due to its severe economic consequences on farms. This study aimed to evaluate the clinico-epidemiological features of LSD-affected cattle in the Mymensingh District. A total of 1860 LSD-affected cattle were surveyed for clinical signs in two phases: 2019–2021 (n=852) and 2022–2024 (n=1008).The most prevalent clinical sign was nodules, observed in 68.1% of cases during 2019–2021 and 78.4% during 2022–2024, followed by fever (66.2% to 75.4%) and edema (41.1% to 60.5%). Other signs included lameness (20% to 31.2%), nasal discharge (18.8% to 31.3%), and inappetence (26.1% to 30.4%). Notable complications of LSD included pneumonia (8.7% in 2019–2021 and 22% in 2022–2024), nasal passage occlusion (5.6% in 2019–2021 and 19.6% in 2022–2024), decreased milk production (20% in 2019–2021 and 19.4% in 2022–2024), recumbency (2.8% in 2019–2021 and 6.9% in 2022–2024), and death (5.2% in 2019–2021 and 8.9% in 2022–2024). In 2019–2021, 39.6% of LSD-affected cattle faced complications, rising to 60.2% in 2022–2024. Death was common in complicated cases, with fatal signs including pneumonia in calves, nasal passage occlusion, recumbency, and anorexia caused by mouth nodules. The study highlights the increasing clinical severity and complication rates of LSD, emphasizing the urgent need for control measures, early diagnosis, and targeted therapeutic strategies to mitigate its growing impact on livestock health and farm economics.

Key words: LSD, clinico-epidemiological features, complications, death

P-67. Prevalence and Associated Potential Risk Factors of Ill-Thrift in Calves in Selected Areas of Bangladesh

Chouhan CS[1], Haque R[2], Foysal M[2], Nirob MNJ[2], Uday TM[2], Biswas JK[2], Barman S[2], Konok KA[2], Ehsan MA[1]*

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Abstract

Ill-thrift, characterized by suboptimal growth despite sufficient nutrition, leads to productivity loss and economic impact on farming. This study, conducted from January 2023 to June 2024 in Mymensingh District, Bangladesh, aimed to determine the prevalence and risk factors of ill-thrift in calves. A cross-sectional survey was performed on 400 randomly selected calves from 105 farms using a structured questionnaire to assess prevalence and risk factors. Fecal samples were collected for parasitic investigations. Calves were considered ill-thrift based on poor body condition, with criteria such as a cavity around the tail-head, absence of fatty tissue between skin and pelvis, sharp transverse processes, and deep depression in the loin. The prevalence of ill-thrift was 21% (84/400). Multivariable logistic regression revealed significant ($p < 0.05$) risk factors, including calves aged ≤4 months, Holstein Friesian breed, previous disease history, rainy and winter seasons, poor biosecurity, early weaning (<45 days), lack of regular anthelmintic use, and internal parasitic infections. Among affected calves, 20 had Ascariasis, 12 had Ascariasis + stomach worms, 32 had stomach worms, 12 had *Fasciola* + *Paramphistomum*, and 8 had *Balantidium coli* + *Paramphistomum*. These findings highlight the importance of improved management practices, such as enhanced biosecurity, timely deworming, and targeted interventions for parasitic infections. Addressing these factors can significantly improve livestock health and productivity in Bangladesh. This study provides a foundation for developing strategies to combat ill-thrift in calves.

Keywords: Ill-thrift, calves, prevalence, risk factors, parasitic infection

P-68. Hematological Profiles of Cattle Infected with Lumpy Skin Disease in Mymensingh District

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Abstract

Lumpy skin disease (LSD) has emerged as one of the most economically significant diseases affecting cattle in Bangladesh. This study aimed to assess the hematological findings associated with clinical signs in LSD-affected cattle in Mymensingh district. Between July 2023 and June 2024, 300 blood samples were collected, including 240 from LSD-affected cattle (120 with the

nodular form, 60 with the edematous form, and 60 with complications) and 60 from healthy animals. Samples were analyzed using a Z51VET hematology analyzer for 23 parameters related to white blood cells (WBC), red blood cells (RBC), and platelets. The Mann-Whitney test was used to assess associations between healthy and LSD-affected groups, while the Kruskal-Wallis test with post hoc analysis compared the healthy group to the different clinical forms of LSD. The study revealed significant hematological changes in LSD-affected cattle compared to healthy controls, including elevated levels of WBC, neutrophils, lymphocytes, monocytes, basophils, and eosinophils ($p < 0.001$). RBC parameters such as RBC count, hemoglobin (HGB), and mean corpuscular hemoglobin concentration (MCHC) were also higher in infected cattle. Platelet indices (platelet count, mean platelet volume, and platelet distribution width) showed significant increases ($p < 0.001$), while mean corpuscular volume (MCV) and red cell distribution width-standard deviation (RDWSD) were lower in affected cattle. Hematological deviations across the clinical forms of LSD were statistically significant, with the highest mean values observed in cattle with complications. This research provides insights into LSD-related hematological changes, emphasizing the need for timely diagnosis and effective management strategies to mitigate the disease's economic impact.

Key words: LSD, hematological changes, cattle

P-69. Epidemiology and Economic Impact of Foot and Mouth Disease in Mymensingh and Jamalpur District of Bangladesh

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Abstract

Foot-and-mouth disease (FMD) is a highly contagious viral infection of cattle that severely affects livestock production and increases management costs. Bangladesh, like many other countries, has experienced significant impacts from FMD outbreaks. This study aimed to assess the attack rate, risk factors, and economic losses associated with recent FMD outbreaks in the Mymensingh and Jamalpur districts of Bangladesh. A total of 747 cattle from 170 randomly selected farms were surveyed. Diagnosis was based on clinical history, signs, and lesions observed in the interdigital space of the feet and oral mucous membranes. The overall attack rate, mortality, and case fatality rates were 21.3%, 3.10%, and 14.5%, respectively. In calves up to one month of age, the prevalence, mortality, and case fatality were 25.0%, 11.7%, and 46.7%, respectively. The prevalence of FMD was highest in adult cattle (23.0%), followed by calves (21.9%) and young cattle (17.5%). Female cattle exhibited a higher prevalence (24.9%) than males (16.1%). Crossbred cattle had a slightly higher prevalence (21.5%) than indigenous cattle (20.7%). The average economic loss per case was 9674.71 BDT, with Mymensingh district experiencing higher losses (10036.04 BDT) than Jamalpur (9360.14 BDT). Crossbred cattle incurred lower losses (9857.10 BDT) than indigenous cattle (10742.83 BDT). The study provides critical insights into the attack rate, mortality, case fatality specially in calves and economic losses associated with FMD outbreaks. These results underscore the need for targeted prevention and control measures to mitigate the spread of FMD and reduce its economic burden on the livestock industry.

Keywords: FMD, epidemiology, economic losses, case fatality in calves

P-70. Biochemical Alterations in Lumpy Skin Disease Affected Cattle of Mymensingh District

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Abstract

Lumpy Skin Disease (LSD) is a transboundary viral infection in cattle that poses a significant threat to livestock health and causes considerable economic losses. This study aimed to assess the biochemical variations in LSD-infected cattle in the Mymensingh District. Sixty blood samples, including 15 each from nodular, edematous, and complicated LSD forms, and 15 from healthy controls, were collected from LSD-affected cattle. Serum was separated, and biochemical analysis was performed using a veterinary biochemistry analyzer. The Mann-Whitney test evaluated differences between healthy and LSD-affected groups, while the Kruskal-Wallis test with post hoc analysis compared healthy controls to various LSD clinical forms. Biochemical parameters in LSD-affected cattle were significantly altered compared to healthy. Total protein (TP) levels were notably reduced, particularly in the edematous and complicated forms. Gamma-glutamyl transferase (GGT) levels were significantly elevated across all LSD forms, especially in complicated cases. The AST/ALT ratio was highest in edematous cattle, with AST and ALT levels elevated. Creatinine levels were lower in nodular cases but increased in complicated forms. Triglycerides and cholesterol levels were significantly elevated in edematous cattle. Calcium- phosphorus ratios were the lowest in complicated cases, alongside decreased albumin levels. Elevated alkaline phosphatase (ALP) levels were observed in edematous cases. Glucose levels were significantly reduced in LSD-affected cattle, especially in edematous forms. These findings offer vital insights into LSD pathogenesis and provide a foundation for guiding therapeutic strategies. By understanding these biochemical alterations, treatment outcomes can be optimized, and the economic burden on livestock farming significantly reduced.

Key words: LSD, biochemical variations, serum analysis, cattle

P-71. Prevalence and Determinants of Bovine Neosporosis in Major Dairy Herds in Bangladesh

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Abstract

The study aimed to determine the prevalence of bovine neosporosis and its determinants in major dairy herds in Bangladesh. A cross-sectional study was conducted from January 2023 to December 2024, targeting three large dairy herds in Sylhet, Savar, and Barishal, with 334 milk

samples analyzed. Diagnosis of *Neospora caninum* infection was performed using an indirect enzyme- linked immunosorbent assay (iELISA). Data were analyzed using descriptive statistics and logistic regression to identify associated risk factors. The overall prevalence was 14.9% (95% CI: 11.4– 19.4%), with farm-specific rates of 19.0% in Savar, 5.8% in Sylhet, and no positive cases in Barishal. The study observed considerable variability in prevalence across locations, potentially influenced by differences in farm management practices and the presence of definitive hosts like dogs. Despite identifying age, breed, and reproductive status as possible factors during univariable screening, no statistically significant risk factors were found in the multivariable analysis. A weak negative correlation between neosporosis and milk yield was noted, suggesting reduced productivity in infected cows. The absence of cases in Barishal highlights the potential role of biosecurity measures in disease prevention. These findings underscore the need for enhanced surveillance, targeted control strategies, and further research into the epidemiology and economic impact of bovine neosporosis in Bangladesh. Efforts should focus on improving biosecurity, raising awareness among farmers, and mitigating the economic losses associated with this disease in dairy cattle.

Keywords: Neosporosis, prevalence, dairy herds

P-72. Molecular Detection of *blaTEM-1* gene of *Salmonella* spp. Responsible for Amino-Penicillin Resistance

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Abstract

The irrational use of antibiotics has greatly favored the spread of resistant strains of *Salmonella* spp. that pose a severe risk to public health. The present study investigated the antimicrobial resistance profile and aminopenicillin-resistant genes of *Salmonella* spp. isolated from blood samples of layer birds in Dinajpur district. A total of 87 blood samples were collected from 15-layer farms and were subjected to microbiological isolation. The samples were serologically analyzed using the Rapid serum plate agglutination test (RSPAT). Molecular confirmation of *Salmonella* isolates was carried out by amplification of the *invA* gene. Of 87 blood samples, 95.4% (n=83) were serologically positive to *Salmonella* spp. For molecular confirmation, the *invA* gene of *Salmonella* spp. was confirmed (284 bp) by PCR amplification. Then antimicrobial resistance profile was made by following the protocol of Kirby-bauer disc diffusion method where the organisms were 100% resistant to Amoxycillin, Ampicillin, Tetracycline and Ciprofloxacin. Co-trimoxazole (100%), Levofloxacin (71.7%), and Ceftriaxone (64.15%) had shown better sensitivity. In this study, phenotypically resistant aminopenicillin was specified by using blaTEM- 1 primer by searching *blaTEM-1* gene confirming 643 bp. In this study, 88.67% *blaTEM-1* gene was found aminopenicillin resistant. These results indicated that a large number of *Salmonella* isolates were resistant to commonly used antimicrobials which constituted a potential risk to the consumers and concluded that the genotypic resistance pattern to antibiotics draws attention in terms of both human and animal health.

Keyword: Antimicrobial-resistance, *Salmonella*, *invA* gene, *blaTEM-1* gene, PCR

P-73. Assessing the Relationship Between Bacterial Load and Post-Consumption Gastrointestinal Symptoms Induced by Street Fruits

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Abstract

Foodborne bacterial contamination is a significant public health concern, especially in ready-to-eat foods such as street-vended fresh-cut fruits. This study aimed to examine the correlation between bacterial load (TVC) and gastrointestinal symptoms after consuming fresh-cut street fruits. A total of 150 fruit samples (guava, n=50; pineapple, n=50; watermelon, n=50) were collected from 50 sellers. Each sample was mixed with 100 ml peptone water and homogenized, followed by serial dilution with PBS. A 0.1 ml sample from relevant dilution was spread on Plate Count Agar and incubated at 37°C overnight to count CFU. Consumer data were recorded using a questionnaire to record all the symptoms, and data analysis was performed using Python 3.14. Results indicated the average logarithmic TVC for guava, pineapple, and watermelon were 13.50, 13.31, and 13.32, respectively. Post-consumption symptoms were reported as follows: nausea (13.33%), vomiting (6.67%), abdominal cramps (8.67%), weakness (10.67%), fever (6%), diarrhea (4.67%), bloody diarrhea (1.33%), changes in stool consistency and frequency (8%), and heartburn (8.67%). The Pearson, Spearman, and Kendall correlations showed positive associations between TVC and diarrhea (0.604, 0.222, 0.182), weakness (0.419, 0.393, 0.322), and changes in stool consistency (0.443, 0.266, 0.218), respectively. Chi-square tests revealed significant associations with abdominal cramps (ACP, p = 0.0037) and weakness (p = 0.0036), while no significant relationship was found for bloody diarrhea (p = 1.0000). The analysis shows significant links between bacterial load (TVC) and symptoms like diarrhea, weakness, and abdominal cramps, emphasizing the health impact of bacterial contamination.

Keywords: Foodborne infection, fresh cut fruits, gastrointestinal symptoms, TVC

P-74. Composition and Bacteriome Diversity of Rooftop and Surface Gardens Soil in Urban and Peri-urban areas of Bangladesh

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Abstract

Soil microbiome science, rapidly evolving, predominantly focuses on field crop soils. Understanding garden soil microbiomes is essential for enhancing food production sustainability in garden environments. This study aimed to unveil the bacteriome diversity and

composition in rooftop garden soils (RGS) and surface garden soils (SGS) across urban (Dhaka North and Dhaka South City Corporations) and peri-urban (Gazipur City Corporation) areas of Dhaka Division, Bangladesh. We analyzed 11 samples, including six RGS and five SGS samples from 11 individual gardens, using 16S rRNA (V3–V4 region) gene-based amplicon sequencing. A total of 977 operational taxonomic units (OTUs), including 270 and 707 in RGS and SGS samples, respectively, were identified. Despite substantial taxonomic variability between sample categories, there was also a considerable presence of shared bacterial taxa. At the phylum level, Bacilliota (61.14%), Pseudomonadota (23.42%), Actinobacteria (6.33%), and Bacteroidota (3.32%) were the predominant bacterial phyla (comprising>94.0% of the total abundances) in both types of garden soil samples. Of the identifed genera, *Bacillus* (69.73%) and *Brevibacillus* (18.81%) in RGS and Bacillus (19.22%), *Methylophaga* (19.21%), *Acinetobacter* (6.27%), in SGS were the significant bacterial genera. Importantly, we detected that 52.90% of genera were shared between RGS and SGS soil samples. Our data reveal unique and shared bacteriomes with probiotic potential in soil samples from rooftop and surface gardens. Further studies should explore the functional roles of shared bacterial taxa in garden soils and how urban environmental factors affect microbiome composition to optimize soil health and sustainable food production.

Keywords: Soil, bacteriome, 16S rRNA amplicon sequencing

P-75. Protective Effects of Tris (Hydroxymethyl) Aminomethane and Egg Yolk on the Cryopreservation of Goat Sperm

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Abstract

The protective effects of varying concentrations of tris (hydroxymethyl) aminomethane (tris) and egg yolk in extenders on the quality of cryopreserved goat sperm were examined. Semen samples were pooled, washed, and diluted into five extenders: extender I (0% tris, 0% egg yolk), extender II (1.41% tris, 4% egg yolk), extender III (2.41% tris, 8% egg yolk), extender IV (3.41% tris, 16% egg yolk), and extender V (4.41% tris, 24% egg yolk). After equilibration at 4 °C for 2 hours, the semen straws (0.25 ml) were frozen by exposure to liquid nitrogen (LN2) vapor for 12 minutes and then stored in LN2. Following cryopreservation, the straws were thawed at 37 °C for 30 seconds, and sperm parameters were evaluated. Extenders II-V resulted in significantly higher progressive motility and total motility percentages than extender I after equilibration ($p < 0.05$). Post-thaw, extender IV exhibited superior progressive motility, total motility, viability, and plasma membrane integrity compared to extender I, II, and III ($p < 0.05$). However, extender V did not further improve these parameters and showed reduced plasma membrane integrity. These findings suggest that following washing adding tris 3.41% + egg yolk 16% to the freezing extender can improve the quality of buck semen after freezing and thawing.

Keywords: Tris, egg yolk, goat, sperm, cryopreservation

P-76. Resident Wild Birds: A Potential Source for Fluoroquinolone-resistant *Escherichia coli*

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Abstract

Antibiotic resistance, commonly known as antimicrobial resistance, is a primary global health concern. In Bangladesh, resident wild birds such as the house crow, common myna, and house sparrow can be found near human settlements all year. As a result, these birds could carry fluoroquinolone-resistant *Escherichia coli*. We collected 134 freshly dropped fecal samples for this study. *E. coli* was confirmed using morphological characteristics from culture plates and PCR. The Antibiogram of the target isolates was determined by a disk diffusion method, and PCR determined the presence of any resistant genes in the isolates. About 83% of the common wild birds were found positive for *E. coli* in their fecal samples. In the antibiogram study, about 16 to 40% of isolates were resistant to fluoroquinolones. Forty-five percent of isolates were found to carry the fluoroquinolone-resistant gene *qnrA*, whereas the *qnrS* gene was absent in all the isolates. All isolates examined were found to be resistant to ampicillin and ceftazidime. There are no published data on fluoroquinolone-resistant *E. coli* isolated from common resident wild birds in Bangladesh. From the public health point of view, the presence of fluoroquinolone-resistant *E. coli* in resident wild birds is alarming as these could be a potential source for the spread of fluoroquinolone-resistant *E. coli* to the ecosystem, which will, in turn, affect humans. We recommend monitoring these birds for pathogen and resistance patterns so that an effective strategy can be adopted to reduce the impact of AMR on one health component

Keywords: *E. coli*, resident wild birds, quinolone resistance, colibacillosis, *qnrA*

P-77. Knowledge, Attitudes, and Practices of Dairy Farmers of Smallholder Farms in Nepal

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Abstract

Milk production is an important livelihood source for smallholder dairy farmers in low-to-middle-income countries such as Nepal. The objective of this study was to investigate level of the Knowledge, Attitudes and Practices (KAPs) regarding dairy farming management by smallholder farmers in Nepal. Three Focus Group Discussions (FGDs), consisting 5 farmers in each group were held to produce a questionnaire set for this study. A cross-sectional data was collected by using pre-structured questionnaire through face to face interview among the 165 dairy units in Lumbini, Bagmati, and Madhesh Province of Nepal. Out of 165, 28% were female and remaining 72% were male farmers, between age group of 40-50 years. Among 1288 cattle, 703 were lactating which produce av. 10- liter /day/cow. 93% and 64% of total farm owner were unaware of AMR regulation and zoonotic diseases, respectively. Farmers having no education (10%) but had knowledge about zoonoses (e.g. TB and Brucellsis) compared to farmers having primary (40%) and secondary (40%) level education. 53% of farmer had no knowledge about biosecurity. Most of the farmers (94%) practices manual milking. Almost all

the farmers washed their hands prior milking but it was socking to know that only 12% practice pre-dipping of the teats prior to milking. Straw (76%) was majorly used bedding material and 88% household farmers used the manure as fertilizer. Among farmers, 33.94% of farmers shout on their animals where as 0.61% farmer even beat the animal. 85.71% and 47.17% trained and untrained farmers deworm their cattle, respectively. Overall, farmers had poor knowledge regarding dairy farming management system. Awareness campaigns and effective training programs for smallholder dairy farmers could be arranged to improve the milk quantity and quality in Nepal.

Keywords: KAPs, dairy farming, farmers practices, dairy welfare

P-78. Prevalence and Determinants of Bovine Paratuberculosis in Large Dairy Herds Across Bangladesh

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Abstract

Bovine Paratuberculosis (Johne's disease) is a chronic, infectious ruminant disease caused by *Mycobacterium avium* subspecies *paratuberculosis*, leading to diarrhea, weight loss, reduced productivity, and significant economic losses in livestock. A cross-sectional study conducted from January 2023 to December 2024 assessed the prevalence of bovine paratuberculosis (BPTB) and its determinants in large dairy herds in Bangladesh. Using cluster sampling, 334 milk samples were aseptically collected from three herds for analysis. BPTB was diagnosed using an indirect enzyme-linked immunosorbent assay (iElisa), and prevalence with 95% confidence intervals (CI) was estimated using the "prop.test" function in R version 4.3.1. Multiple logistic regression identified associated factors. The overall BPTB prevalence was 15.6% (95% CI: 11.9–20.0%), with farm-specific prevalence ranging from 0% to 21.1%. Cows producing ≤5.2 kg of milk daily had nine times higher odds of BPTB positivity compared to those producing >9 kg. Similarly, cows yielding >5.2–6.9 kg and >6.9–9 kg of milk had 3.8 and 6.4 times higher odds, respectively, of being BPTB-positive. Infected cows produced a median of 1 liter less milk per day than uninfected counterparts. One herd exhibited a moderately high prevalence, highlighting the economic and productivity impacts of BPTB. The study underscores the need for surveillance, particularly in low-yielding cows, and calls for further research to explore factors influencing BPTB occurrence. These findings can guide the development of protective strategies and risk mitigation measures to control and prevent BPTB, ultimately improving dairy herd health and productivity.

Keywords: Bovine paratuberculosis, Johne's disease, dairy herds, prevalence study

P-79. Epidemiology of Ectoparasites in Livestock, and Pet Animals in Bangladesh: A Systematic Review and Meta-Analysis

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Abstract

We conducted a systematic review and meta-analysis to estimate the pooled prevalence of ectoparasites in different livestock and pet animals in Bangladesh, which had not been done before. We searched publications in PubMed, Scopus, Web of Science, Embase, CAB Abstracts, Google Scholar, ResearchGate, and the library of the Bangladesh Agricultural University and selected articles having prevalence of different ectoparasites of different animals in Bangladesh. We used the statistical software R for estimating the pooled prevalence across host and parasite taxa. We identified 90/692 published articles (1968-2023) for this study. The random effect model for pooled prevalence was 36% (95% CI: 30–43) with high heterogeneity (I^2, 99%). Pooled prevalence was highest in poultry (76%), followed by ruminants (33%) and pets (28%). Among the ectoparasite taxa, lice infestation was higher (33%) followed by fleas (21%), ticks (16%), mites (15%), and flies (11%). The highest frequency of reported ectoparasites was *Rhipicephalus microplus* (23%), followed by *Haemaphysalis bispinosa* (9%) and *Rhipicephalus sanguineus* (18%). Among the reported ectoparasites, 36% were vectors of different zoonotic diseases. Research on ectoparasite fauna in Bangladesh is limited to cross-sectional studies with limited sample size, species, and geographical range, resulting in a knowledge gap about the overall ectoparasitic burden in animal hosts during different seasons in different areas. Systematic studies, including a broader range of animals and geographic range, are necessary to understand better the epidemiology of ectoparasites in Bangladesh, which will positively affect animal productivity and public health.

Keywords: Prevalence, tick, lice, flea, fly

P-80. Prevalence and Risk Factors Associated with Bovine Viral Diarrhea in Large Dairy Herds of Bangladesh

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Abstract

Bovine Viral Diarrhea (BVD) is a significant infectious cattle disease, causing economic losses through reproductive failures, immunosuppression, and persistent infections. A cross-sectional study conducted between January 2023 and December 2024 assessed the prevalence of Bovine Viral Diarrhea (BVD) and its associated risk factors in large dairy herds in Bangladesh. Using a

cluster sampling technique, 600 milk samples were aseptically collected in falcon tubes for analysis, and BVD diagnosis was performed using an indirect enzyme-linked immunosorbent assay (ELISA). Prevalence and 95% confidence intervals (CI) were estimated using the "prop.test" function in R version 4.3.1, while multiple logistic regression analysis identified associated risk factors. The overall BVD prevalence was alarmingly high at 86.7% (95% CI: 86.6–89.2%), with farm-specific prevalence ranging from 73.9% to 98.1%. Indigenous cows were significantly more likely to be BVD-positive than crossbred cows, with an odds ratio (OR) of 2.01 (95% CI: 1.13–3.58). These findings indicate a critical health challenge for dairy herds in Bangladesh, with indigenous cattle being at greater risk of infection. The high prevalence underscores the urgent need for targeted interventions to manage and mitigate the disease. Identifying key drivers of BVD spread is essential for controlling its impact on dairy production. Future studies should prioritize determining herd-level prevalence and exploring specific risk factors, such as management practices and environmental conditions, to inform effective prevention and control strategies. This approach will be vital in reducing BVD prevalence, improving herd health, and safeguarding the productivity and sustainability of dairy farming in Bangladesh.

Keywords: BVD, prevalence, risk factors, dairy herds

P-81. Necropsy Investigation of Ducks, Chickens and Pigeons Revealed Infectivity Due to Infectious and Emerging Diseases

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Abstract

Necropsy findings of 10 different slots of necropsy on layers (n=3), ducks (n=06), and pigeons (n=01) from Gazipur, Mymensingh, Trishal, Fulpur, and Tarakanda Upazilas were constitute the study materials and designated as Farm A to J. The total number of sick/ dead birds in Farm A, B, C, D, E, F, G, H and I were 150/120, 120/45, 800/400, 89/20, 300/175, 400/100, 25/15, 60/30, 120/50 and 5/3 respectively. The morbidity and mortality rate of the tested birds were ranged from 7 to 30%. Clinical history of investigated birds were collected, and birds were thoroughly examined at necropsy. Grossly, predominant lesions observed at necropsy were diphtheritic membrane on esophagus in ducks, fibrinous covering on lungs and liver, nodular lesions in lungs, liver, and intestine, hemorrhages and necrosis in liver, mild hemorrhages in trachea, mucous deposition in esophagus and trachea, congested and ruptured ova, congested and consolidated lungs, pox lesion on head, beak, feet and visceral organs. In together, the disease diagnosed in all ten investigations were salmonellosis, colibacillosis, avian influenza, duck plague, duck viral hepatitis, mycoplasmosis, aspergillosis and pigeon pox. This study clearly demonstrated higher level of infectivity and mortality in ducks, chickens and pigeons due to various infectious diseases including notifiable AI viruses. However, further investigation such as histopathology or molecular detection by PCR to identifying the causal agents is needed for confirmatory diagnosis (study is in progress). It needs routine afford to diagnose poultry diseases at early onset to design future preventive and control strategies.

Key words: Necropsy, infections, diseases, poultry

P-82. Biometrical Study of Female Reproductive System in Sheep at Barind Area of Bangladesh

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Abstract

The study was conducted at slaughterhouse under Rajshahi City Corporation from July 2023 to December 2023. The research focused on assessing various biometrical parameters including morphometric measurements of reproductive organs. The average length of vagina, cervix, body of uterus, left and right horn of uterus, left and right fallopian tube, left and right ovary were 67.68 mm; 13.69 mm; 48.67 mm; 68.31 mm; and 65.07 mm; 159.83 mm and 158.28 mm; 11.12 mm and 10.51 mm, respectively. The biometry of vagina and cervix according to age of ewe were highly significant ($p<0.05$) except length of cervix, it was non significant ($p>0.05$). The length and width of uterus, horn and fallopian tube was also highly significant ($p<0.05$), but width of left and right fallopian tube were in significant in relation to age of ewe. When compare with age of ewe the length, width and weight of ovary of ewe were highly significant ($p<0.05$). The mean length, width and weight of ovary at <7 months were 8.62 mm, 6.51 mm and 0.23 gms in left and 8.47 mm, 6.71 mm and 0.24gms in right, respectively. Likewise, mean length, width and weight of ovary at >7 months were 12.43 mm, 9.13 mm and 0.45gm left and 11.56 mm, 9.23 mm and 0.40 gm in right respectively. When compare with breed the biometry of vagina, cervix and body of the uterus all were statistically insignificant but width of vagina and length of cervix were significant ($p>0.05$). Understanding the biometrical aspects of the female reproductive system in Barind sheep holds valuable implications for livestock management, breeding programs, and reproductive health monitoring.

Keywords: Biometry, reproductive tract, ewe

P-83. Microbiological Quality Assessment of Broiler Meat and Raw Milk in Nikli Haor

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Abstract

A microbiological analysis of broiler meat and raw milk from Nikli Haor was carried out to identify risks associated with contamination, determine their microbial quality, and educate the local population about *Campylobacter* transmission. A questionnaire survey was conducted

among people to understand their hygiene practices and potential risk factors. The study analyzed Total Viable Count (TVC) and Total *Campylobacter* Count (TCC) in broiler meat (n=10) and raw milk (n=10) samples. The results revealed that both broiler meat and raw milk samples exhibited comparable levels of microbial contamination. The TVC values for milk and meat were 9.41 ± 0.02 and 9.36 ± 0.04 log CFU/ml, respectively, with no significant difference observed (P = 0.099). Similarly, the TCC values were 3.77 ± 0.04 and 3.69 ± 0.04 log CFU/ml, respectively, showing no significant difference (P = 0.116). The coefficient of variation for TVC and TCC was 1.13 and 3.31, respectively, indicating relatively low variability in both microbial counts. These findings suggest comparable microbial loads in raw milk and broiler meat samples, though the variability in TCC (coefficient of variation = 3.31) was higher than in TVC (coefficient of variation = 1.13). The TVC levels in both raw milk and broiler meat surpass national safety standards, raw milk is more deteriorated compared to broiler meat. A training and awareness program was conducted for farmers, vendors, and consumers on consumers about the risks associated with improper handling of broiler meat and raw milk. This study underscores the need for concerted efforts to address the microbiological quality of broiler meat and raw milk in Nikli haor.

Keywords: Broiler meat, raw milk, TVC, TCC, Nikli haor

P-84. Seasonal Dynamics of *Eustrongylides* spp. (Nematoda: Dioctophymatoidae) Infestation in Spotted Snakehead, *Channa punctata* Collected from Jamalpur District

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Abstract

Zoonotic parasite *Eustrongylides* spp. (Nematoda: Dioctophymatoidae) may reduce growth rate of fish and fish-eating birds, delay sexual maturation and, transmit infections. The present study was aimed to determine the morphological features and seasonal dynamics of *Eustrongylides* spp. isolated from *Channa punctata*. A total of 390 *C. punctata* were collected from three different fish markets located in Jamalpur district from June, 2023 to May, 2024. Larval *Eustrongylides* spp. were isolated from abdominal cavity, air bladder and ovaries of 106 sampled fish, washed with 0.85% sterile physiological saline and examined under light microscope using lactophenol. Data analysis was conducted using SPSS. Prevalence was recorded as 27.2%, with a notable mean intensity of 3.64 ± 0.45 and an abundance of 0.99. The prevalence of *Eustrongylides* spp. in *C. punctata* was the highest in autumn (38.5%) and the lowest in winter (19.8%). The environmental factors including water temperature, humidity, and rainfall probably had effects on increasing the prevalence of *Eustrongylides* spp. infestation in *C. punctata.* The condition factor of non-infested fish was higher (1.15) than that of the infested fish (1.03). Higher prevalence (33.9%) was observed in medium length (12-16 cm) fish. Considering the weight, medium weighted (31-45 g) fish exhibited higher prevalence (35.5%). In conclusion, length, weight and seasonal variations had a significant effect on the prevalence of *Eustrongylides* spp. in *C. punctata*. The findings of this study provided insights into the dynamics of *Eustrongylides* spp. infestations in spotted snakehead which might contribute to develop effective management strategies to control the infestation.

Key words: *Eustrongylides* spp., *C. punctata*, infestation, prevalence, seasonal dynamics

P-85. Prevalence and Pathological Study of Newcastle Disease in Commercial Poultry Farms at Bogura District of Bangladesh

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Abstract

Newcastle disease (ND) now seems endemic in commercial poultry industry of Bangladesh with continuous significant high prevalence and regular outbreaks. High morbidity, up to 100% mortality rate makes it major constraints of poultry industries. We find out the prevalence of ND in dead, sick and apparently healthy poultry at Bogura district. From July 2020 to June 2021, we observed 500 birds including 31 sick and dead birds randomly from 10 commercial poultry farms. The prevalence was assessed through clinical observations and history of individual birds. Samples from 31 sick and deceased birds were collected for detailed gross and histopathological changes. Wide ranges of clinical signs are observed in affected birds and it can be diagnosed based on clinical signs and pathological studies. ND prevalence was 14.2% in apparently healthy birds and 26.6% in sick and dead birds. ND prevalence increased in summer (56%) and decreased in rainy season (11.5%) and highest at the age group of (5-36) weeks of age. Grossly, numerous infected birds had lesions such as pin-point hemorrhage on proventricular gland, hemorrhage in the trachea, congested and consolidated lungs, button-like ulcers in the caeca, and hemorrhagic cecal tonsils. Microscopically, there was hemorrhage in the lamina propria associated with lymphatic nodules of cecal tonsil, sloughing of glandular epithelial cells and infiltration of inflammatory cells in the lumen of the proventricular gland and congestion around the lobule of the proventriculus. This research revealed ND remains endemic in Bangladesh's poultry industry, causing high prevalence and seasonal outbreaks.

Keywords: Newcastle disease, prevalence, pathological studies, chickens

P-86. Decoding Anticestodal Arsenal: A Chemoinformatics, Molecular Docking, and Dynamics Exploration of Phytochemicals Against EgTGR of *Echinococcus*

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Abstract

Current benzimidazole-based therapies are frequently parasitostatic rather than parasiticidal, have limited efficacy, and induce adverse side effects, necessitating novel therapeutic strategies. This study focuses on *Echinococcus granulosus* Thioredoxin Glutathione Reductase (EgTGR), a promising therapeutic target and an essential enzyme in parasite redox homeostasis. The unique structure of EgTGR, as well as its critical role in oxidative stress defense, make it ideal for

selective inhibition with minimal host impact. Using molecular docking, 3837 phytochemicals from 15 medicinal plants were screened and identified six compounds; IMPHY181851, IMPHY21723241, IMPHY65084, IMPHY72276, IMPHY014854, and IMPHY014908 with exceptional docking scores (<-8.7 kcal/mol). In addition, Diosbulbin D and Gallocatechin, with docking scores exceeding -9.0 kcal/mol disrupted enzymatic function by forming stable interactions with the active site of EgTGR through hydrophobic contacts, π-π stacking, and hydrogen bonds. ADMET predictions using SwissADME and pkCSM demonstrated high oral bioavailability, minimal blood-brain barrier permeability, and low toxicity profiles for the lead compounds, ensuring safety and therapeutic viability. Toxicity assessments confirmed the low mutagenicity, carcinogenicity, immunotoxicity, and hepatotoxicity risks etc. Molecular dynamics simulations further revealed the stability and interaction dynamics of EgTGR-ligand complexes. The IMPHY181851, IMPHY21723241, and IMPHY65084 exhibited significant residue flexibility, compactness, and solvent accessibility profiles over a 200 ns simulation. Principal component analysis revealed conformational distinctions, while Gibbs free energy analysis demonstrated greater stability for the EgTGR-complexes. This research establishes EgTGR as a compelling target and highlights phytochemicals as cost-effective, sustainable solutions for echinococcosis treatment. Further, in vivo validation needs to be implemented to validate these findings and advance therapeutic prospects against echinococcosis.

Keywords: Echinococcosis, drug design, molecular dynamics, computational biology

P-87. Surgical Management of Femur Fracture Using Intramedullary Pin and Wire Suture in a Persian Cat

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Abstract

The most frequent orthopedic condition that prevents animals from moving is long-bone fracture. The diagnosis and surgical treatment of open femur fracture in adult cats are always crucial. A Persian cat of 8 months old weighing 2.6 kg with the complaint of femur losing its function, pain on the whole limb including the fracture site, aberrant motion in the affected leg, and blood flowing from the fracture site was brought to Professor's Pet Care (PPC). Radiographs indicated a complete femur (open type) fracture of Salter-Harris fracture (Type 3) of the left hind limb. The cat was anaesthetized with xylazine HCL and Ketamine HCL@1.0mg/kg and 15mg/kg intramuscularly respectively. The operation site was surgically prepared, a longitudinal incision was made over the fracture site, the fractured parts were exposed and elevated. 1.8mm sized Steinmann pin was introduced in a retrograde manner using low speed hand drill. The growth plate of femur was united with stainless steel wire. Finally, the muscle and skin were sutured with Vicryl© and silk respectively. Postoperative antibiotic and supportive medicine was routinely administered at PPC. The patient was routinely checked physically and radiographically. The pin was removed after 28 days. A successful clinical outcome was obtained after intramedullary pinning and suture with stainless steel wire without any issues. Open fractures necessitate swift, aggressive debridement, stability of the

fracture, and early soft tissue restoration. The only practical method for managing fractures may be early surgical treatment and post-operative care.

Keywords: Fracture, surgical treatment, Persian cat, intramedullary pin

P-88. Topical Application of Extra Virgin Olive Oil Intermingled Turmeric Paste for Healing of Purulent Wound in Cat

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Abstract

Turmeric (*Curcuma longa*) and extra virgin olive oil have long been studied in laboratory animals for tissue regeneration and they were found to enhance wound healing. The objective of this study was to determine the efficacy of topical application of extra virgin olive oil mixed turmeric paste for purulent wound healing in a cat. A 13-month-old female cat weighing 2.9kg with the complaint of a swollen area at the chin was brought to Professor's Pet Care (PPC). On needle exploration, pus was revealed. The cat was anaesthetized with atropine sulphate, xylzine HCl and ketamine HCl at 0.04 mg/kg, 1.0 mg/kg and 10 mg/kg intramuscularly respectively. The surgical site was aseptically prepared with 70% ethanol and povidone iodine. The abscess was incised and pus was evacuated. After cleaning the abscess cavity, freshly prepared turmeric paste was mixed with 2 ml of extra virgin olive and applied into the abscess cavity. The procedure was followed routinely twice a week. Injections of all sorts of antibiotics and anti-inflammatory agents were avoided to mitigate the effect of turmeric. Wound contraction, exudation, abscess cavity filling up were monitored daily. There was dramatic improvement in the decrease of exudation, acceleration in granulation tissue formation leading to cavity filling up and contraction of incised wound was recorded. Thus, it is concluded that the topical application of turmeric paste with extra virgin olive oil enhanced granulation tissue formation, tissue remodeling and wound contraction.

Keywords: Purulent wound, turmeric, olive oil, wounds, topical application

P-89. Ecology and Molecular Characterization of Molluscan Intermediate Hosts of Zoonotic Human Liver Flukes in Bangladesh

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Abstract

Human liver fluke infections (hLF), caused by opisthorchid flukes such as *Opisthorchis viverrini*, *O. felineus*, *C. sinensis* and *Metorchis* spp. are considered as neglected tropical diseases (NTD).*C.*

sinensis and *O. viverrini* causes cholangiocarcinoma , and have recently been classified as group I biocarcinogen by the International Agency for Research on Cancer (IARC). Human liver flukes have a complex life cycle, requires three different species of hosts and have a series of developmental stages occurring in gastropod snails, the first intermediate host. Operculate snails, particularly bithynid and thiarid snails act as the first intermediate host of hLF infection globally. However, the snail intermediate hosts playing crucial roles in the transmission cycle of the hLF have not yet been confirmed in Bangladesh. Here, we confirmed the species of snails along with the pleurolophocercous cercariae (PC) of hLF using morphometrical and molecular tools. Morphometrically, out of four species of operculate snails, three species were infected with hLF infections, only *Viviparus* was free from infection. We observed that *Brotia* (5.0%), *Bithynia* (0.5%) and *Thiara* (3.0%) were infected with the PC of hLF. After morphological identification, we extracted genomic DNA (gDNA) from the food pad region and PC of each snail. Sequencing followed by the bio-informatic analysis of the PCR product is underway that will unambiguously proof the species of the snails. In conclusion, our study will help to understand the lifecycle of the flukes which plays critical role in the transmission cycle of the pathogens in Bangladesh.

Keywords: Human liver fluke, operculate snail, pleurolophocercous cercariae

P-90. Screening of Multi-Drug Resistant and Virulent Genes of *Escherichia Coli* Responsible for Calf Diarrhea in The Northern Part of Bangladesh

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Abstract

Antimicrobial resistance (AMR) becomes a severe threat to dairy industry due to the treatment failure of the most significant disease, Calf diarrhea in young calves. This study aimed to identify *Escherichia coli* responsible for calf diarrhea and assess the presence of antimicrobial-resistant genes within it. A total of 100 fecal samples were collected and analyzed to detect *E. coli*. Polymerase chain reaction (PCR) were employed to screen the presence of virulence and AMR genes, such *blaTEM*, *blaSHV*, *blaCMY*, *tetA*, *gyrA*, *sul1* and *aadA1* after performing Kirby-Bauer disc diffusion method. The results revealed a high prevalence of bacterial pathogens (91%) where the prevalence of *E. coli* was 82.4%. Isolates of *E. coli* showed high resistance to tetracycline (100%), erythromycin (100%), amoxicillin (90.70%) and streptomycin (84%). The serogroup of *E. coli* O157:H7 was identified by using rfbO157 primers representing 5 positive isolates (50%). The PCR test confirmed the existence of virulence gene *fimH* (80%), *eaeA* (30%), *papC* (70%) and the following gene cassettes in the resistant strains, *blaTEM* (50%) and *blaSHV* (40%) for β-lactams, *tetA* (60%) for tetracycline, *gyrA* (75%) for fluoroquinolones. Though the *E. coli* isolates were phenotypically resistant to cephalosporin, sulfonamides and aminoglycosides but the resistant genes were not found on PCR. Finally, calf diarrhea not only impacts animal health and productivity but also contributes to the emergence and spread of antimicrobial resistance genes, posing significant public health risks. Addressing this issue requires a holistic, One Health approach, integrating best practices in animal husbandry, judicious antimicrobial use, and stringent food safety measures.

Keywords: Calf diarrhea, *Escherichia coli*, drug resistance, virulent gene, PCR

P-91. Current Scenarios of Reproductive Diseases of the Female Pet Animals at Local Pet Clinic's Perspectives

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Abstract

Reproductive disease may have different consequences, ranging from the absence of clinical signs to the impairment of fertility. The present study was to evaluate the existing scenarios of reproductive diseases in female dogs, cats and other pets admitted to Rajshahi Pet Care, a well-known Veterinary Hospital located at Rajshahi City Corporation, Rajshahi, Bangladesh. For local perspectives into consideration a cross-sectional study was carried out on a total of 583 pets admitted to the Rajshahi Pet Care over one year period from November 2021 to December 2022 and to identify the most frequently occurring diseases. Information relative to the species, age and breed were obtained for animals. Of these pets, dogs were 132, cats were 302 and pet rabbit were 149 in number. Out of 132 dogs, 88 were bitches in which Canine Transmissible venereal tumor had the highest prevalent (19.3%) alterations to the reproductive system in the study area followed by dystocia (10.2%), pyometra (8%). In pet cats, dystocia was the highest prevalent (26.9%) disease followed by pyometra (14.1%), abortion (5.1%) and vaginal prolapse (2.6%). In rabbits, out of 16 hospitalized females (14.9%) affected with dystocia. Cross-bred dogs and cats were the most affected with alterations to the reproductive system, representing 47.7% of all the female dogs and cats diagnosed with any pathologic alteration. Amidst limitations we carried out our study, our findings are striking and provides valuable insight into the current scenarios of reproductive diseases of the female small animals being reared in and around the Rajshahi Metropolitan area, however, further studies are needed in order to go more in- depth into it.

Key words: Female pet animal, reproductive diseases, pet clinic, Rajshahi city

P-92. Black Cumin (*Nigella sativa*) Seed Oil Protects against Cadmium-Induced Neurotoxicity in Mice

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Abstract

Cadmium, a heavy metal with no physiological function in the human body, is considered a bio- hazard. It is also considered to be a potent neurotoxin. The primary sources of cadmium exposure are diet and cigarette smoke. It has been postulated that nutritional deficiencies can increase the risk of cadmium toxicity. Black cumin seed oil provides essential nutrients which are necessary for the maintenance of brain health in humans. The present study was designed

to investigate the possible protective effects of black cumin seed oil supplementation on cadmium-induced neurotoxicity in Mice. Cadmium was orally administered at a dose of 50 mg/kg bwt with or without the supplementation of Black cumin seed oil in mice. Intensities of depression and anxiety-related behaviors were assessed by the forced swim test, open field test, light/dark transition test, respectively. Memory function was also evaluated by the elevated plus maze. Histology of brain sample was performed to identify any structural changes. After four weeks of treatment it was observed that cadmium administration significantly induced depress genic and anxiogenic behaviors. Memory function was also impaired by cadmium administration. Cadmium-treated mice exhibited reduced hematological profile, whereas the levels of lipid profile were significantly increased. Histology of brain showed neuronal degeneration and deposition of inflammatory cells in Cd treated mice. The dietary supplementation of Black cumin seed oil at a dose of 400 mg/kg/day significantly attenuated cadmium-induced depression, anxiety, memory impairments and histological changes. Hematobiochemical aberrations also normalized following supplementation with this oil in mice. The present study demonstrates that supplementation of black cumin seed oil provides essential nutrients which may overcome nutritional deficiencies and thereby reduce heavy-metal intoxication.

Keywords: Cadmium, black cumin seed oil, neurotoxicity, hematobiochemistry

P-93. Microbiological Assessment of Water and Raw Fish of Nikli Haor

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Abstract

The microbiological assessment of water and raw fish from Nikli Haor was conducted to identify risk factors associated with contamination, evaluate their microbial quality, and raise awareness among the local population about foodborne *Campylobacter* transmission. A questionnaire survey was conducted among people to understand hygiene practices and potential risk factors. In this study, a total of 20 samples (water, n=10 and raw fish, n=10) were collected from different markets of Nikli Haor area and these samples were subjected to determination of total viable count (TVC), and total *Campylobacter* count (TCC) using Plate Count Agar and Skirrow Blood Agar. The study highlighted potential contamination risks due to inadequate sanitation, poor water management, and improper handling of fish. These factors emphasize the need for community interventions. Training sessions were conducted to educate the local population about the risks of foodborne illnesses and preventive measures, including hygienic fish handling and safe water practices. TVC results indicated values of 9.38 ± 0.02 log CFU/mL for water and 9.39 ± 0.02 log CFU/g for fish, showing no statistically significant difference (P = 0.05, F = 0.61). Similarly, TCC values were 3.54 ± 0.10 log CFU/mL for water and 3.74 ± 0.04 log CFU/g for fish, with no significant variation (P = 0.22, F = 3.61). These findings suggest comparable microbial loads in water and fish samples, though the variability in TCC (coefficient of variation = 6.40) was higher than in TVC (coefficient of variation = 0.58). The TVC level in both raw fish and water, exceeding national safety standards. This research provides

valuable insights into the microbial quality of water and raw fish in Nikli Haor, underlining the importance of effective microbial risk management.

Keywords: Water, raw fish, TVC, TCC, Nikli haor

P-94. Production of Hyperimmune Serum against Foot-and-Mouth Disease, Lumpy Skin Disease and *Peste Des Petits Ruminants* Viruses in Goat and Their Validation

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Abstract

Passive immunization with hyperimmune sera generated against a microorganism or antigen is one of the important means to control animal diseases. This study aimed to prepare hyperimmune serum in goats with validation against Foot-and-Mouth Disease, Lumpy Skin Disease, and *Peste des Petits Ruminants* viruses. A total of 10 male goats were divided into our groups: Group A (FMD vaccine, n=3), Group B (LSD live attenuated vaccine, n=3), Group C (PPR live attenuated vaccine, n=3), and Group D (control, n=1).) The goats in the test groups were vaccinated with the respective vaccines at two weeks intervals upto four times, while the control group received no vaccine. Pre- and post-vaccinated sera from the vaccinated goat collected up to 56 days, and antibody responses were evaluated using Enzyme-Linked Immunosorbent Assay (ELISA). ELISA results showed a progressive increase in antibody titers, represented by S/P% and S/N% values, across successive immunizations. ELISA quantitatively measured antibody titers, revealing significant immune responses to all three viruses, with peak antibody levels achieved by Day 56. Statistical analysis ($p>0.05$) was observed in each group (A, B, C) that suggest that vaccines with consistent immune responses recorded among the individual of each group. These findings demonstrated that the hyperimmune serum prepared in goats exhibited high potency and reliability, making it suitable for diagnostic and therapeutic applications.

Keywords: Hyperimmune serum, FMD, LSD, PPR, ELISA, immunization

P-95. Conception Rate on the Event of Post-Estrus Hemorrhage at Tangail Region of Bangladesh

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Abstract

The study was conducted to investigate the conception rate on the event of post estrus

hemorrhage in dairy cows during the period from July 2022 to December 2022. All the data was collected from the farmers were analyzed and a table was prepared on the basis of the objective of the study. In this study, heifers were less affected by post-estrus hemorrhage than older age cows. The overall post-estrus hemorrhage affected cows was 22.18% in the study. High milk yielding cows affected more than less milk yielding cows. In the study, post-estrus hemorrhage affected Holstein Friesian cows were 69.49%, Sahiwal Cows were 18.64% and Indigenous cows were 11.86%. Poor body conditioned cows were more affected by post-estrus hemorrhage and good body conditioned cows affected less by post-estrus hemorrhage. In the study, post-estrus hemorrhage affected good body conditioned cows were 17%, medium body conditioned cows were 36% and poor body conditioned cows were 47%. The conception rate on the event of post-estrus hemorrhage was increased with the decrease of milk production of cows. The conception rates of cows in the normal condition at AI in Bangladesh was 54.9%. Whereas conception rate in the event of post-estrus hemorrhage, it was 34.71% respectively. The conception rate on the event of post-estrus hemorrhage is more in which are younger and in good body condition. The conception rate on the event of post-estrus hemorrhage is more in natural services than AI (Artificial Insemination). The conception rate in natural services on the event of post-estrus hemorrhage is 43.48% where is 32.65% in AI. Some clinical managements can improve the conception rate of dairy cows. The conception rate of cows can be increased by treated with Aminocaproic Acid, Hyoscine Butyl Bromide and Methyl Ergometrine Maleate. After treatment the conception rate on the event of post-estrus hemorrhage in increased at 47.83%.

Keyword: Artificial insemination, conception rate, post estrus hemorrhage

P-96. Prevalence of Sheep Diseases and Develop the Technologies to Reduce Sheep Mortality at Barind Area of Bangladesh

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Abstract

A total of 1169 sheep (2021 to 2022) was used from two Upazila Godagari and Poba Upazila under Rajshahi district. The highest prevalence of sheep diseases was diarrheoa and dysentery (26.62%), malnutrition (24.68%), worm (14.93%), pneumonia (10.06%) and dog biting (4.22%). The age had a significant effect ($P<0.05$) on sheep mortality. More young sheep 179 (58.11) died compared to adult 30 (9.75). More female sheep 170 (55.20%) died compared to male 138 (44.80%). The mortality of local and crossbred was 15.48% and 10.86%, respectively ($P>0.05$). Significantly highest mortality rate was recorded in poor (50.00%) than the good quality feed (16.99%). On the basis of farm size as a factor of mortality, 45 (14.61%) sheep < 05 group died compared to 158 (51.29%) sheep at >15 groups of sheep and the difference was significant ($P<0.05$). The effect of farming experience on sheep mortality rate in barind area of Bangladesh is more in non-experience sheep farmers 220 (71.14%) died compared to experienced sheep farmers 88 (28.58%) and there was as significance difference between experience and non-experience sheep farmers. The highest sheep mortality was observed intensive rearing system (38.96%) and lowest in semi-intensive rearing system (28.24%) which had a significant effect ($P<0.05$). Among the 4 technologies to reduce the sheep mortality at study area, the sheep has recorded the lowest mortality rate of sheep at the Technology-III (Concentrate and grass supply

to Sheep and control breeding) only 5.33% from 26.52%. The sheep mortality was moderately reducing in the Technology-I (Improve management practices of sheep) and Technology-II (Health management of sheep) 10.66% and 8.00% respectively whereas Technology-IV (Control): No treatment was 24.00%. The sheep mortality was recorded 8.00% after using different strategies to reduce sheep mortality from 26.52%. The outcome of the study showed that the knowledge of when and how mortality occurs could be helpful and to reduce mortality, the management of sheep particularly at early age is imperative.

Key word: Artificial insemination, conception rate, post estrus hemorrhage

P-97. Semen Parameters of Breeding Bulls Reared at the Rural Development Academy, Bogura, Bangladesh

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Abstract

The objective of this study was to evaluate the quality of semen produced by Cattle Research and Development Center (CRDC), Rural Development Academy (RDA), Bogura, Bangladesh. Six routinely used 87.5% Holstein-Friesian crossbred (HF X) and four 87.5% Sahiwal crossbred (Sl X) bulls were selected and HF X bulls were classified into two groups on the basis of age (young and old). Microscopic evaluation of semen was done by Computer Aided Semen Analyzer (CASA) and, freezing and storage of semen was done following standard procedure at RDA. The fresh semen volume, motility and concentration in HF X bulls varied from 5.3 ± 0.7 to 8.6 ± 2.5 ml, 79.2 ± 7.5 to 87.3 ± 5.3% and 1904.3 ± 660.5 to 2590.9 ± 679.5 10^6/ml, respectively. The post-freezing motility in HF X bulls varied from 64.5 ± 11.6 to 57.1 ± 7.2%. Only the volume of fresh semen varied significantly among HF X bulls ($p<0.05$). The fresh semen volume, motility and concentration in Sl X bulls varied from 6.1 ± 1.1 to 6.7 ± 1.3 ml, 78.1 ± 9.7 to 92.1 ± 5.7% and 1965.5 ± 429.2 to 2717.3 ± 650.4 (10^6/ml), respectively. The post-freezing motility in Sl X bulls varied from 59.1 ± 7.8 to 68.8 ± 8.6%. Only the motility of fresh semen varied significantly among Sl X bulls ($p<0.05$). The mean volume (6.6 ± 1.9 ml), motility (81.8 ± 10.7%) and concentration (2004.1 ± 601.2 x10^6/ml) of fresh semen of young HF X bulls were numerically lower than that of old counterpart (7.6 ± 1.8 ml, 85.84 ± 10.6% and 2430.9 ± 682.3 x10^6/ml, respectively). The post-freezing motility was significantly ($p<0.05$) higher (62.8 ± 11.1%) in young compared to old HF X counterpart (58.8 ± 6.5%). This study indicates that the quality of bull semen (with respect to volume, motility and concentration of fresh semen, and post-freezing motility) produced by CRDC, RDA is within normal limit and satisfactory.

Keywords: Breeding bulls, holstein-friesian, sahiwal, semen quality

P-98. Trehalose-Based Diluent for PPR Vaccine (PPR VAC): Efficacy Comparison with Conventional Diluent

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Abstract

Peste des Petits Ruminants (PPR) is a highly devastating viral disease affecting sheep and goats, causing significant economic losses in Bangladesh. The PPR vaccine's efficacy is compromised by its heat sensitivity, limiting its usability to 1 to 2½ hours after reconstitution in hot climate specially in Bangladesh. This study investigates the use of trehalose as a stabilizing agent in vaccine diluents to enhance stability and efficacy under environmental temperature. LRI produced PPR vaccines (Nigeria 75/1, $\log10^{3.5}$ TCID50) were reconstituted using conventional phosphate (PBS)-based diluents and trehalose-based diluents. The stability of the vaccine was assessed both in vitro and in vivo. Sero-negative goats were vaccinated, and Vero cells were infected with the reconstituted vaccines. Assessments were conducted at intervals from 3 to 24 (3, 6, 9, 12, 15, 18, 21 and 24) hours post-dilution. Presence of the virus in Vero cell was confirmed by standard RT- PCR targeting Fusion (F) gene. The sera were subjected to cELISA for the detection of PPR virus antibody. Results showed higher antibody production in goats vaccinated with trehalose-based vaccine formulations (18–21 hours) compared to PBS-based formulations (6–9 hours). Infected Vero cells exhibited 70–80% cytopathic effect (CPE) five days post-infection. The trehalose-based diluent maintained infectivity titer longer, producing a $\log10^{2.5}$ TCID50 after 24 hours, whereas no infectivity was observed for the PBS-based diluent at the same time point. Further analysis of the generated data is underway. The result suggests that trehalose-based diluents significantly improve vaccine stability and immunogenicity for PPR diseases in challenging climates.

Key words: PPR vaccine, trehalose, PBS, cELISA

P-99. Duck Plague Vaccine Production: A Comparative Study of Duck Plague Virus Inoculation in Embryonated Chicken Eggs

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Abstract

The present study was performed to select beneficial route of inoculation for duck plague vaccine production. Distribution of live attenuated duck plague virus was evaluated in embryonated chicken eggs through Chorioallantoic membrane (CAM) route of inoculation and Allantoic Cavity (A/C) route of inoculation in the period of April, 2024 to June, 2024 for high virus concentration and voluminous fluid for Duck Plague vaccine production. Ten-day-old embryonated chicken eggs were divided into Six groups (E1, E2, E3, E4, E5 & E6) and each group was divided into two catagories, Category-1 was CAM route of inoculation and

Category-2 was A/C route of inoculation. Chicken Fertile Eggs were collected from government poultry farm, Mirpur and Savar. Duck Plague virus had a titer of $10^{4.5}$chicken embryo lethal doses 50 (ELD50) per ml used for virus inoculation. Presence of virus was detected by Polymerase Chain Reaction (PCR) and virus concentration was measured by virus titration. The Mean value of harvested fluid for Category-1 and Category-2 were 129.17ml and 199.17ml, respectively. The mean value of virus concentration of harvested fluid in CAM route of inoculation and in A/C route of inoculation were $10^{5.68}$/.1ml (ELD50) and $10^{4.695}$/.1ml (ELD50), respectively. Additionally, significant difference was observed between two categories. The result of virus concentration of harvested fluid indicated that fluid of CAM route of inoculation revealed ten times higher virus concentration that could be beneficial for duck plague vaccine production.

Keywords: Duck plague, chorioallantoic membrane, allantoic cavity, harvested fluid

P-100. Country-Wide Scenario of Parasitic Burden in Domestic Birds of Bangladesh

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Abstract

Parasitism inflicts heavy economic losses to poultry industry particularly of free-range poultry in Bangladesh. The main objectives of this study are to show the temporal-spatial trend, the avian parasite population diversity, their nationwide distribution, host preference and their impacts- control measures from vetero-medical perspectives. Meta-analysis of the existing data on domestic bird parasites in Bangladesh revealed that *Ascaridia galli, Heterakis gallinarum, Metorchis orientalis, Amphimerus anatis, Tracheophilus cymbius, Echinostoma revolutum, Raillietina tetragona, Plasmodium, Haemoproteus, Leucocytozoon, Eimeria, Trichomonas gallinae, Lipeurus squalides, Goniocotes hologaster, Menacanthus stramineus, Dermanyssus gallinae, Knemidocoptes mutans* and so many other parasites are affecting hosts like chicken, duck, pigeon, quail etc. It was also found that the trend of publication on parasites is increasing since 2000 and highest during the period of 2011 to 2020. Around 23 districts of Bangladesh were explored for avian parasitoses. This study also detected serious lackings of data on important avian species in many parts of the country. Experimental trial for routine control of avian parasitoses are negligible in number. Finally, this study provides the spatio-temporal distribution trend regarding the domestic bird parasites and suggests significant concern for their effective control.

Key words: Parasitism, birds, domestic, meta-analysis

Poster Session –II
Date and Time: 1 February, 2025; 12.40-14.00
Venue: Corridor, 2nd floor FVS, BAU

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P-102	Constraints in buffalo rearing and disease investigation for livelihood improvement in haor and border areas of Sylhet, Bangladesh **Siddiqui MSI**, Rahman MA, Mahtab JNH, Begum S, Mamun MAA, Islam MN, Islam S
P-103	Molecular characteristics and multidrug resistance patterns of ESBL producing *Escherichia coli* isolated from respiratory tract of buffaloes Hossain MM , **Ghosh PK,** Tuha MM, Uddin MB, Rahman MM
P-104	Bacteriological assessment of tilapia fish cultured in conventional and model setting ponds in Mymensingh **Akhter S,** Nazir KHMNH, Yeva IJ, Rahman MS, Khan MA
P-105	Effect of laying stage, storage condition and housing system on egg quality parameters of commercial Chicken (ISA Brown) **Islam S**, Hasan R, IslamS, Rafi MKA, Rahman S, Miah MY
P-106	Biometrical and haemato-biochemical effects of methotrexate and silymarin on liver in rabbit **Talukder S,** Islam S, Islam S, Siddiqui MSI, Adhikary G
P-107	Prevalence and risk factors of lumpy skin disease in cattle in Golapganj upazila, Sylhet, Bangladesh **Choudhury P,** Uddin MM, Asif AM, Banik B, Banik S, Pranto PS, Siddiqa A
P-108	Supplemental *Bacillus subtilis* attenuates *Salmonella* infection and enhance growth performance in broiler chickens **Rownak OB**, Uddin MB
P-109	Epidemiological investigation of different viral diseases in broiler at Katiadi upazila of Kishoreganj district **Siddiqa A**, Banik B, Banik S, Pranto PS, Choudhury P, Noor M
P-110	The effect of heat stress on egg production of laying hens at Katiadi Upazila of Kishoreganj district **Siddiqa A**, Banik B, Banik S, Pranto PS, Choudhury P, Momu JM
P-111	Tackling the heat stress of broiler chickens with betaine and vitamin-C supplementation **Simon AA**, Hakim MJ, Alam MR, Pasha MR
P-112	Biometrical and hemato-biochemical effects of methotrexate and silymarin on kidney in rabbit **Talukder S**, Islam S, Islam S, Akanda MR, Siddiqui MSI, Adhikary G
P-113	Extent of interferon-stimulated genes (ISGs) in different regions of the female reproductive on day 15 pregnancy in cattle **Talukder AK**, Browne JA, Rizos D, Lonergan P
P-114	Molecular detection and characterization of foot and mouth disease virus from cattle in Bera upazila under Pabna district of Bangladesh **Halder DK**, Rahman MA, Zereen F, Sikder C, Islam MR, Hossain MG, Saha S
P-115	Gelatin methacryloyl (GelMA)-chitosan hydrogel: a bioadhesive for cartilage repair **Paul S**, Schrobback K, Tran PA, Meinert C, Weekes A, Davern JW, Klein TJ

P-116	Antibiogram analysis of bovine milk at Khulna division in Bangladesh **Matubber B**, Salauddin M, Rahman N, Sohidullah M, Hossain MJ, Alam MA, Hossain SMI, Das AK, Hasan MI
P-117	Isolation, molecular detection and antibiogram of biofilm producing *Staphylococcus aureus* from pneumonic sheep **Sharna SA**, Islam MR, Rahman L, Kallol MA, Siddique MP, Rahman M
P-118	Pathological and molecular investigation of Marek's disease in naturally infected chickens **Unjuman R**, Rahman HB, Etu TA, Ahmed MS, Khan AHNA, Pervin M
P-119	Consumers' misconceptions and factors associated with consumption of broiler meat in some selected areas of Bangladesh **Rahman SM**, Rahman MW, Islam P, Parvin R, Chowdhury EH
P-120	Patterns of multidrug resistance in *Pseudomonas* spp. from captive wild and migratory birds Hossain MM, **Roy M**, Hossain H, Islam MR, Rahman MM, Uddin MB
P-121	Thin layer column chromatography analysis of *Terminalia arjuna* (Arjun) bark extract for drug development and discovery **Hasan MT**, Hossain CF, Islam MS
P-122	Assessment of tilapia (*Oreochromis niloticus*) seed quality in pond and recirculatory aquaculture system in relation to climatic and water quality parameters **Nova SN**
P-123	Waste management and economic sustainability through BSF (Black Soldier Fly) production **Koly JS**, Hasan MA, Dipa RA
P-124	Coprological investigation of helminths parasitic infestations of buffalo at haor and hilly bordered areas of Sylhet district in Bangladesh Siddiqui MSI, Mahtab JNH, Ahmed R, Mamun MAA, **Islam S**, Hasan R, Talukder S, Islam MN, Begum S, Amin SMN
P-125	Comparative clinico-hematological alterations of lumpy skin disease affected cattle at different ages and periods of disease in Bangladesh Siddiqui MSI, **Rahman MA**, Islam S, Talukder S, Islam K, Begum S, Rahman MM
P-126	Sparganum infections in wild frogs in Sylhet, Bangladesh **Prity ZS**, Nath TC
P-127	Geospatial distribution of HIV seroprevalence among blood donors in south asian countries: a systematic review, meta-analysis, and choropleth mapping **Raquib R**, Raquib A
P-128	Prevalence of diseases and commonly used drugs in poultry in Jamalpur district, Bangladesh **Dhar SAK**, Sultana S, Marma AY, Marium
P-129	Prevalence and risk factors associated with umbilical hernia in calf at selected upazillas of Bangladesh **Pandit P**, Alam MM, Runa RA
P-130	Successful recovery of mange mite infestations in ruminants treated with daylight photodynamic therapy **Prova NJ**, Sarker RR , Rahman MS, Tsunoi Y, Nishidate I
P-131	Electrical stimulation on open wound healing in rabbit **Mia MH**, Rahman MM, Alam MR, Haq MM, Samaddar K, Rahman M, Kundu P, Khan MAHNA
P-132	Effects of chia seed *(Salvia hispanica l.)* extract on the alloxan induced diabetic mice **John AS**, Sojol SM, Sultana N, Islam MR

P-133	Molecular detection of multi-drug resistant *Klebsiella aerogenes* from milk from Sylhet region **Prome AA**, Rana S, Hossain FMA, Zinnah KMA, Rahman MT
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P-161	Repeat breeding syndrome in cows and accompanying farm practices in potia upazila, chittagong, during the winter season Sarkar U, **Haque A**, Nath CD, Juyena NS, Bhattacharjee J

P-101. Prevalence, Production Effects, and Economic Consequences of Bovine Subclinical Mastitis in Hill Tract Areas of the Chattogram Division, Bangladesh

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Abstract

This study aimed to investigate the prevalence of SCM, its impact on milk production and constituents, and the resultant economic losses among dairy farms in Chattogram (n=56) and Cox's Bazar (n=105) districts in Bangladesh. A cross-sectional study evaluated 161 farms, collecting 4,048 quarter milk samples from 1,012 cows to conduct a primary screening for SCM using the California Mastitis Test (CMT). Additional surveys were conducted on SCM-positive farms and animals to explore production and economic impacts. A total of 116 SCM-positive farms and farm owners were interviewed. The prevalence of SCM at the farm level was 76.8% (43/56) in Chattogram and 69.5% (73/105) in Cox's Bazar. At the quarter level, the prevalence of SCM was found to be 32.29% (1307/4048; 95% CI: 30.9-33.8), while at the animal level, it was 41.3% (418/1012; 95% CI: 38.3 - 44.4). Crossbred cows exhibited a higher susceptibility to SCM at 47.2%, compared to indigenous breeds, which had a prevalence of 31.2%. SCM significantly ($p<0.05$) alters milk's physicochemical properties, reducing fat, protein, and mineral content and negatively affecting milk quality and market value. The economic losses due to SCM are substantial, primarily driven by decreased milk production and increased treatment costs. Crossbred and Holstein Friesian cows suffer the most significant financial losses for their higher milk production and treatment expenses. This study provided valuable insights for policymakers, veterinarians, and farmers, to adopt effective SCM control measures to improve the productivity of the dairy industry in Bangladesh.

Keywords: Subclinical mastitis, economic consequence, cattle, Bangladesh

P-102. Constraints in Buffalo Rearing and Disease Investigation for Livelihood Improvement in Haor and Border Areas of Sylhet, Bangladesh

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Abstract

Haor and border areas are very suitable for buffalo rearing zoogeographically, therefore, this study was conducted to know the status of buffalo rearing and production, identification of different constraints, motivational approach for farmers to increase buffalo rearing and production at Haor and bordered hilly areas. Five haor and bordered Upazila of Sylhet district were selected as study areas. A survey was conducted using a pretested questionnaire to collect all sorts of data. Retrospective hospital prevalence data (4 years) were collected from the registered book of Upazila Veterinary Hospital and livestock office and disease occurrence was investigated from 300 randomly selected study buffalo during the study period by clinical examination and close observation. Blood test for protozoan diseases and fecal laboratory test for parasitic identification were performed. Marginal farmers were motivated by conducting group discussions and training. Descriptive statistics (percentage) were performed. The study found that 47.5% of landless farmers were involved in buffalo rearing, with 87% of buffalos raised in free-range systems and primarily fed on green grass (87.3%). Commercial feed and artificial insemination were absent. Consumers (65–85%) held positive attitudes toward buffalo milk and meat. Parasitic diseases, particularly fascioliasis (20.5%), were more prevalent than infectious ones, with an overall parasitic prevalence of 84.5%. Trematode infections (45%) were more common than nematode infections (23%). It is concluded that buffalo rearing and production can be increased by ensuring veterinary services, farmers' motivation, and controlled breeding programs of buffalo such as artificial insemination

Keywords: Constraints, buffalo production, haor and bordered areas, livelihood improvement

P-103. Molecular Characteristics and Multidrug Resistance Patterns of ESBL producing *Escherichia coli* Isolated from Respiratory Tract of Buffaloes

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Abstract
The aim of this study was to characterize the phenotypic and genotypic AMR of *E. coli* isolated from respiratory tract of buffaloes. For this purpose, a simple random sampling was carried out in Bangladesh obtaining 246 swab samples from respiratory tract of buffaloes. These samples were processed using traditional bacteriology and molecular techniques to isolate and identify *E. coli*. Furthermore, we assessed phenotypic AMR of 13 antibiotics by disc diffusion test and conducted a search of several antimicrobial resistance genes in the isolated *E. coli*. Forty-seven E. coli were recovered, and 95.74% (n= 45) showed resistance to at least one drug and only 4.25% (n= 2) were susceptible to analyzed antimicrobials. Most of the *E. coli* were resistance to Sulphamethoxazole - Trimethoprime (78.72%, n= 37) followed by ampicillin and cefixime (66%, n= 31). As for the AMR genes, the most detected was gentamycin resistance genes (70.21%, n= 33) followed by tetracycline (40.42%, n= 19), streptomycin (30%, n= 14) and sulfonamide (21.27%, n= 10). According to our findings, *E. coli* isolated from buffaloes show resistance to a number of pertinent drugs as well as genes linked to antimicrobial resistance that are important for human health. Antimicrobial resistance in the buffalo population can be prevented and controlled by using the study's findings as a starting point. When formulating resistance surveillance programs, this background should be considered in which buffaloes must be included.

Keywords: Buffalo, *E. coli*, antimicrobial resistance, genotypic, phenotypic

P-104. Bacteriological Assessment of Tilapia Fish Cultured in Conventional and Model Setting Ponds in Mymensingh

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Abstract
To evaluate microbial assessment between traditionally and controlled

environmentally cultivated Tilapia (*Oreochromis niloticus*) for safe fish production. For this, model pond was setting accordingly to produce collect (n=25) the fishes. The traditional fishes (n=25) were collected from local market. The Flesh, Gills, and Intestine from each fish were collected aseptically and subjected to assess TVC, TSC and TCC, TStC. The *E. coli*, *Salmonella* spp., *Aeromonas* spp., *Pseudomonas* spp., *Edwardsiella tarda*, and *Staphylococcus aureus* were isolated and identified through conventional PCR. Antibiogram of the confirmed isolates were performed by PCR detection of antibiotic resistance gene. The mean values and standard deviations of TVC, TCC, TSC and TStC in fishes collected from model pond were 4.60±0.22, 3.9610±0.179, 0.6450±1.361, 3.5460±0.215 log CFU/g while 6.08±0.18, 5.1275±0.146, 1.3945±2.115, and 4.56763±0.345 were from conventionally cultured market fishes respectively. Among the 75 sampled from model pond fishes, 21.33%, 10.67%, 21.33%, 14.66%, and 6.66% were positive for *E. coli*, *Salmonella*, *Aeromonas* spp., *Pseudomonas* spp. *E. tarda* while form traditional fishes, 45.33%, 21.33%, 37.33%, 24%, 13.33%, and 41.33% were positive for same bacteria respectively. Whereas 28% *Staphylococcus aureus* was positive only from traditional fishes. The antibiogram result revealed the highest resistant 61.11% was for *Pseudomonas* spp. and the lowest 6.25% for *E. coli* to blaTEM gene. Additionally, tetA showed the highest resistant 50% for *E. tarda* and lowest 23.52% for *E. coli*. As compared to that of conventional ponds Model-setting Pond produces safer fish.

Keywords: Model-setting, TVC, TSC, antibiogram, pathogenic bacteria

P-105. Effect of Laying Stage, Storage Condition and Housing System on Egg Quality Parameters of Commercial Chicken (ISA Brown)

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Abstract

This study evaluates the influence of laying stage, storage conditions, and housing systems on the internal and external quality parameters of commercial chicken (ISA Brown) eggs. A total of 120 eggs were analysed, with results revealing significant variations in quality due to age, storage, and housing conditions. All data were subjected to One-way ANOVA, Linear regression, Duncan multiple range test, SD, and Mean values. The values of $P<0.001$ were considered significant at a 99.99% confidence interval. Age significantly

impacted egg characteristics. Egg weight increased with age (21 weeks: 54.97 ± 2.25 g, 45 weeks: 58.07 ± 4.96 g, 84 weeks: 61.34 ± 6.90 g, P<0.0001), while Haugh unit (HU) decreased (82.25 ± 4.51, 76.24 ± 3.54, and 72.52 ± 5.24, respectively, P<0.0001). Shell thickness declined with age, ranging from 0.39 ± 0.02 mm at 21 weeks to 0.37 ± 0.03 mm at 84 weeks (P<0.005). Storage at 4°C for 14 days reduced yolk index (21 weeks: 0.41 ± 0.03, 45 weeks: 0.41 ± 0.04, 84 weeks: 0.43 ± 0.02, P<0.005) and yolk colour (7.60 ± 0.63 at 21 weeks to 7.07 ± 0.79 at 45 weeks, P<0.05). Housing conditions influenced several parameters. Eggs from open sheds exhibited higher yolk colour (7.43 ± 0.72) and shell thickness (0.35 ± 0.015 mm) compared to control sheds (7.00 ± 0.84 and 0.369 ± 0.016 mm, respectively; P<0.05 and P<0.05). However, the Haugh unit was higher in control sheds (75.71 ± 5.43) than in open sheds (70.40 ± 3.38, P<0.002). This study highlights the need to optimize age, storage conditions, and housing systems to ensure superior egg quality, providing practical recommendations for poultry management and consumer awareness.

Keywords: Chicken, egg quality, parameters, age, haugh unit

P-106. Biometrical and Haemato-biochemical Effects of Methotrexate and Silymarin on Liver in Rabbit

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Abstract

The aim of this experiment is to investigate the effects of methotrexate (MTX) and silymarin (SMN) on the tissue structure, hematology of rabbit liver. In a randomized control trial, a total of 20 rabbits were allocated into 4 different groups of five. The first group (Control) were received orally normal saline equivalent to the amount daily for 14 days. The second (MTX) group was received IP 20 mg/kg of Methotrexate for two dose (day 1 and day 7). The third group (MTX + SMN) was received orally 100 mg/kg of Silymarin daily. The fourth group (SMN) was received Methotrexate (20 mg/kg body weight (BW), Intraperitonially for two doses at the day 1 and 7) with silymarin (100 mg/kg bw, Orally for 14 days). The liver and kidney were collected and examined after sacrificing rabbits and histomorphometric analysis and blood and serum samples were collected and performed hematobiochemical test. The MTX showed significantly higher weight gain of the liver. Histomorphometric analyses of liver revealed disorganization of hepatic cord, bile duct hyperplasia

and proliferation, sinusoidal dilation and portal chorionic inflammatory cells in MTX treated group and highly organized hepatic cord structure, normal sinusoidal spaces in SMN treated group. Methotrexate treated group showed significant ($p<0.05$) decreased of total RBC, hemoglobin and significant ($p<0.05$) increased of bilirubin and SGOT levels. In conclusion, Methotrexate had adverse impact and silymarin had beneficial effect on liver gross and histomorphometry, hematobiochemically in rabbits so fur silymarin can use parallely with Methotrexate to reduce its adverse effect.

Keywords: Rabbit, methotrexate, silymarin, biometry, hematology, serum biochemistry

P-107. Prevalence and Risk Factors of Lumpy Skin Disease in Cattle in Golapganj Upazila, Sylhet, Bangladesh

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Abstract

A cross-sectional study was conducted to determine the prevalence and risk factors of LSD in cattle. Data from a total of 1,338 cattle from January to December 2022 were collected from the record book of the Golapganj Upazila Veterinary Hospital, Sylhet, Bangladesh. The data were categorized into different age groups (<1 year, 1 to <2.5 years, 2.5 to <5 years, and ≤5 years of age), herd size (small:1-5, medium:6-10, large:11-15), and seasons (winter, summer, rainy). The prevalence was calculated as the proportion of the LSD positive compared to the total recorded cattle population. Multivariate logistic regression was performed with variables having a P-value ≤0.2 in the univariate logistic regression model. The interaction and confounding effects were tested. The overall prevalence of LSD was 19.88%. Multivariate logistic regression showed significantly (P <0.001) higher odds of LSD positivity in cattle aged 1 to <2.5 years (AOR: 2.85) compared to ≤5 years of age, small herds (AOR: 1.59) compared to medium herd, and during the rainy season (AOR: 3.35) compared to the winter season. The LSD prevalence in this area was higher than reported in previous studies. Small herd owners are often poor and less educated and likely less aware of the preventive practices of LSD. Targeted awareness and training to the owners, along with routine monitoring with special attention to the young cattle, during the rainy season should be emphasized to mitigate the LSD burden in the study area.

Keywords: LSD, determinants, monitoring, epidemiology, transboundary

P-108. Supplemental *Bacillus subtilis* Attenuates *Salmonella* Infection and Enhance Growth Performance in Broiler Chickens

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Abstract

This study investigates the effectiveness of the probiotic *Bacillus subtilis* DSM 32315 as a supplement for managing *Salmonella* infections in broiler chickens, offering potential alternative to traditional antibiotics.Performing trials (RCT), 150-day-old Cobb 500® broiler chicks were divided into three groups: control group (CG) with no treatment, antibiotic-treated group (AG), and a probiotic-treated group (PG), which received *Bacillus subtilis* in dose of 2 x 10^9 CFU/g at 500 mg/kg of their diet for 30 days. *Salmonella* presence was monitored on days 1, 14, and 28 using microbiological culture and PCR detection of the invA gene in cloacal swabs and fecal samples. PCR results revealed a significant reduction in *Salmonella* in both the AG and PG groups compared to the CG group. Notably, mortality due to *Salmonella* occurred only in the control group, with no deaths reported in the antibiotic or probiotic groups, showing that both treatments effectively reduced *Salmonella* levels. The PG group also demonstrated significantly higher serum IgG antibody levels on days 14 and 28, indicating a stronger immune response than the CG and AG groups. Additionally, broilers in the PG group achieved significantly higher body weight and average daily gain ($p < 0.05$) by day 28 compared to the AG and CG groups. These results suggest that *Bacillus subtilis* reduces *Salmonella* colonization and improves growth performance. The study concludes that *Bacillus subtilis* is a viable and safe alternative to antibiotics in poultry production, effectively lowering *Salmonella* infections and promoting growth and immune function without the risk of antimicrobial resistance.

Keywords: Probiotic, *Bacillus subtilis*, *Salmonella*, broiler

P-109. Epidemiological Investigation of Different Viral Diseases in Broiler at Katiadi Upazila of Kishoreganj District

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Abstract

A cross-sectional study design was conducted to estimate the prevalence of viral diseases in broilers under field conditions from April 2023 to March 2024. A total of 1036 dead or sick chickens were collected from the register book of Upazila Veterinary Hospital. Different disease conditions were diagnosed based on the history, age of birds, clinical signs, and post-mortem lesions, with 610 cases diagnosed as viral cases. The broilers were categorized into four age groups: 0–7 days, 8–20 days, 21–35 days, and 36 days to above. The study also divided the year into summer, rainy, and winter seasons. Data were analyzed using MS Excel program. Among all viral diseases, the prevalence of Infectious Bursal Disease (IBD) at 41.81% was higher followed by Newcastle Disease (ND) at 29.34%, Infectious Bronchitis (IB) at 16.39%, and Inclusion Body Hepatitis (IBH) at 6.89% respectively. The prevalence of viral diseases was highest in broilers aged 21-35 days (52.13%), followed by 8-20 days (29.99%), 36+ days (16.24%), and 0-7 days (1.64%) respectively. According to the season, summer showed the prevalence of IBD (16.83%), ND (10.98%), IB (3.44%), and IBH (3.61%), whereas in the rainy season IBD (9.67%), IB (6.89%), ND (6.07%), IBH (3.11%), and in the winter season ND (16.23%), IBD (15.25%), IB (7.70%), IBH (0.16%) was prevalent respectively. This study observed a marked influence of different seasons and bird ages on the prevalence of various viral diseases in broilers. The findings may assist researchers or poultry consultants in designing and implementing priority-based research on specific diseases and taking efficient control strategies.

Keywords: Viral diseases, prevalence, broiler

P-110. The Effect of Heat Stress on Egg Production of Laying Hens at Katiadi Upazila of Kishoreganj District

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Abstract

This study aimed to know the effects of heat stress on egg production in laying hens. The study was conducted in 22 commercial layer farms at Katiadi Upazila from April 2023 to July 2023. A structured questionnaire was designed to meet the study's goals. Data were analyzed using MS Excel program. The study found that the average, minimum, and maximum outdoor temperatures were 38.6°C, 36.2°C, and 41.12°C respectively, while indoor temperatures were 33.29°C, 32.42°C, and 34.11°C respectively during the study period. Heat stress reduces feed intake, egg production, and the quality of eggs, including size, weight, and shell quality compared to before heat stress exposure. Hens under heat stress drank an average of 37.38 ml more water daily than normal laying hens. Hens took more weeks to lay eggs than the hens which were not exposed to heat stress. Before heat stress, the minimum and maximum age of egg production was 17 weeks and 22 weeks. Hens under heat stress started their production at the minimum age of 20 weeks and the maximum production age was 24 weeks. Egg production dropped an average of 11% during heat stress. This study highlights the negative impact of heat stress on egg production in laying hens. It emphasizes the need for proactive measures such as proper ventilation, cooling systems, and nutritional modifications to counteract the detrimental effects of heat stress. Ensuring sustained and optimal egg production is essential for sustaining a consistent and profitable egg production industry.

Keywords: Heat stress, laying hens, egg production

P-111. Tackling the Heat Stress of Broiler Chickens with Betaine and Vitamin-C Supplementation

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Abstract

Broiler chickens are susceptible to sudden climate changes that may induce heat stress. Heat stress may impact both broiler health and production. To alleviate the impact of heat stress, chemical supplementation could be used as a solution; however, extensive research in this domain in Bangladesh is limited. In that connection, this study was conducted where a total of forty 20-day-old broiler chickens were randomly divided into four treatment groups (n=10): (Tr-I) control, (Tr-II) Vitamin C, (Tr-III) Betaine, and (Tr-IV) Betaine and Vitamin C. All the supplements were administered in water at the dosage of one gram per liter. The chickens were subsequently raised for 10 days (up to 30 days old). The mean temperature of the experimental shed was 31.6°C during the study period. Initial and final weights were taken on the 20th and 30th days. Hematological, selective biochemical and hormonal (cortisol) parameters were analyzed from the collected blood sample on the 30th day (n=40). The study revealed that the final weight and the average daily weight gain were the highest in the Tr-IV (betaine and vitamin C combined) group. The blood cortisol level was also significantly lower in the Tr-IV group than in the other three groups ($p<0.05$). Hematobiochemical tests indicated that the hemoglobin percentage was markedly elevated in the control group ($p< 0.05$), whereas serum globulin decreased significantly ($p< 0.05$) in the Tr-IV group (betaine and vitamin C combined). The study indicated that chemical supplementation may effectively mitigate heat stress in broiler chickens without impacting their production.

Keywords: Broiler chickens, betaine, cortisol, heat stress, vitamin C

P-112. Biometrical and Hemato-biochemical Effects of Methotrexate and Silymarin on Kidney in Rabbit

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Abstract

The experiment aimed to investigate the effects of methotrexate and silymarin in

rabbits. In a randomized control trial, a total of 20 rabbits were allocated into 4 different groups each containing 5 rabbits. The first group (Control) were received orally normal saline equivalent to the amount daily for 14 days. The second group (MTX) were received IP 20 mg/kg of Methotrexate for two dose (day 1 and day 7). The third group (MTX + SMN) were received orally 100 mg/kg of Silymarin daily for 14 days. The fourth group (SMN) will be received Methotrexate (20 mg/kg bw, I.P. for two doses at the day 1 and day 7) with silymarin (100 mg/kg bw, p.o for 14 days). After sacrificing rabbit, gross and histomorphometric analysis and hematobiochemical test were performed test. SMN treated group showed significantly ($p<0.001$) higher body weight gain after the experimental trial. The MTX treated group showed significantly higher weight gain of the kidney. Histomorphometric analyses of kidney revealed degenerate cortical tubules characteristics, glomerular shrinkage and perivascular aggregation of lymphocyte in MTX treated (MTX) group and highly arrangement of glomerular structure and normal tubule in SMN treated group. MTX treated group showed significant ($p<0.05$) decreased of total red blood cell (RBC), hemoglobin and significant increased of serum urea and creartinine compared with control group. In conclusion, Methotrexate had adverse impact and silymarin had beneficial effect on kidney gross and histomorphometry, hematobiochemical parameters in rabbits so fur silymarin can use parallely with Methotrexate to reduce its adverse effect.

Keywords: Hematology, complete blood count, methotrexate, silymarin, histoarchitecture, kidney, rabbit

P-113. Extent of Interferon-Stimulated Genes (ISGs) in Different Regions of the Female Reproductive on Day 15 Pregnancy in Cattle

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Abstract

Interferon tau (IFNT) secreted from developing blastocyst and conceptus induces interferon-stimulated genes (ISGs) in the endometrium leading to the maternal recognition of pregnancy (MRP) on Day 15-16 in cattle. We aimed to investigate the expression of ISGs in different regions of the female reproductive tract, such as the endometrium, cervix and vagina on Day 15 of pregnancy in cattle. Day 15

Pregnant (n = 8) and non-pregnant cyclic (control, n = 8) reproductive tracts of crossbred beef heifers were used in the study. Explants from the endometrium (the middle two-thirds of the uterine horn ipsilateral to CL), cervix (within the first cervical ring) and vagina (fornix vagina) from each tract were retrieved and snap-frozen in liquid nitrogen for analysis of gene expression by real-time PCR. The results showed that classical ISGs (ISG15, MX1 and MX2) were significantly ($P < 0.05$) upregulated in the endometrium, cervix and vagina compared to respective controls. The extent of classical ISGs expression was significantly ($P<0.05$) higher in the endometrium than in the cervix and vagina in pregnant heifers. However, other candidate ISGs (CMPK2, IFI35 and TRIM38) were upregulated only in the endometrium in pregnant heifers. These results have implications for our understanding of embryo-maternal communication and for early pregnancy diagnosis in cattle.

Keywords: Interferon-stimulated genes (ISGs), cervix, vagina, pregnancy, cattle

P-114. Molecular Detection and Characterization of Foot and Mouth Disease Virus from Cattle in Bera Upazila under Pabna District of Bangladesh

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Abstract

Foot-and-mouth disease (FMD) is a highly contagious, hyper-endemic and economically most dangerous viral disease of both domestic and wild cloven-hoofed animals, caused by Foot and Mouth disease virus (FMDV). This research was mainly focused on molecular detection and characterization of FMDV directly from the recent outbreaks of FMD in cattle in Bera upazila under Pabna districts in Bangladesh from April 2024 to September 2024. A total of 49 samples (saliva and tongue epithelium) were collected from FMD-suspected cattle and further works were done at the Virology Laboratory, Department of Microbiology and Hygiene, Bangladesh Agricultural University, Mymensingh, Bangladesh. The samples were then processed and subjected to RNA extraction followed by Reverse Transcription Polymerase Chain Reaction (RT-PCR) using universal and serotype (O, A, Asia 1) specific primers. For confirmation, partial sequencing of vp1 gene of the FMDV serotype O positive isolate was conducted. After that phylogenetic tree was constructed and analyzed. 27 (55%) out of 49 field samples were positive for FMDV. Among 27 FMDV-positive samples, 11 (41%) were positive for serotype O and no positive results were found for serotype A or Asia 1 in the remaining samples. Partial sequencing, and

phylogenetic tree analysis demonstrated that the sequenced isolate SS-BAU375 was Pan-Asia strains of FMDV serotype O and that was closely related (95-96%) to the isolate of Pakistan and Saudi Arab. Based on RT-PCR result, partial sequencing, and phylogenetic analysis, it can be concluded that FMDV serotype O was circulating in the cattle of Bera upazila under Pabna district in Bangladesh.

Keywords: FMD, RT-PCR, serotype O, VP1 gene, pan-Asia strain

P-115. Gelatin Methacryloyl (GelMA)-Chitosan Hydrogel: a Bioadhesive for Cartilage Repair

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Abstract

Bioadhesive hydrogels have received interest for cartilage tissue engineering; nevertheless, their practical application has frequently been hampered by low mechanical strength and adherence. The aim of this study was to develop a structurally durable, highly sticky, and user-friendly natural polymer-based hydrogel containing gelatin methacryloyl (GelMA) and chitosan, cross-linked using a visible light photoinitiator system. The study investigated the mechanical and adhesive properties of GelMA-chitosan hydrogels cross-linked using three photoinitiator systems - 1-[4-(2-hydroxyethoxy)-phenyl]-2-hydroxy-2-methyl-1-propanone (Irgacure 2959), lithium acylphosphinate (LAP) and [tris (2, 2'-bipyridyl) dichlororuthenium (II) hexahydrate ([RuII (bpy)3]2+ and sodium persulfate (Ru/SPS). The adhesive properties were evaluated using an innovative tensile adhesion testing method employing bovine osteochondral cores. Results showed that incorporating chitosan into GelMA and utilization of Ru/SPS cross-linking, significantly improved compressive stiffness and adhesion to cartilage. Ex vivo study of bovine cartilage defects revealed that the hydrogel preserved structural integrity and established effective bonding with the surrounding cartilage, maintaining integration under joint manipulation, thereby highlighting its functional potential. Rheological studies further confirmed the injectability of this hydrogel system, critical for easy application. These findings highlight the potential of the Ru/SPS cross-linked GelMA-chitosan hydrogel as a

bioadhesive for cartilage defect repair, warranting further in vitro and in vivo investigations.

Keywords: Bioadheisve hydrogel, GelMA, chitosan, cartilage

P-116. Antibiogram Analysis of Bovine Milk at Khulna Division in Bangladesh

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Abstract

As we enter the twenty-first century, antibiotic resistance is one of the most critical issues facing the world. Given this circumstance, we carried out a study to identify the isolates' patterns of antibiotic resistance and the existence of remnants of antibiotics in cow's milk in Bangladesh's southern regions especially in Khulna division. To detect antibiotic remnants and to recognize trends in antibiotic resistance in cow's milk from the Khulna division in southern Bangladesh. Aseptic collection and analysis of 210 cattle milk samples, 70 from Khulna, 70 from Satkhira, and 70 from Bagerhat were conducted with the intent to detect antibiotic residues via a method called thin-layer chromatography. An antibiogram screening has been done on the isolates collected from these samples against eleven commonly utilized antibiotics in Bangladesh. *Staphylococcus* spp., *Escherichia coli*, and *Salmonella* spp. were the isolates identified in this study; their corresponding prevalence proportions were 61.43% (n=129), 29.05% (n=61), and 24.76% (n=52). The isolates in the current research displayed a variety of sensitivity to antibiotics. It was shown that erythromycin, ceftriaxone, penicillin, amoxicillin, and oxytetracycline were mostly ineffectual against the bacterial isolates. 7.62% of the milk samples (n=16) had antibiotic residues. The results of the investigation will undoubtedly help dairy farmers in adopting the most appropriate antibiotics with the goal of enhancing milk production and mitigating our population's daily milk intake deficit.

Keywords: Antibiotic, antibiogram, bovine milk, prevalence, antibiotic residues

P-117. Isolation, Molecular Detection and Antibiogram of Biofilm Producing *Staphylococcus aureus* from Pneumonic Sheep

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Abstract

Staphylococcus aureus is a common pathogen responsible for biofilm formation on biotic and abiotic surfaces, often found in the skin and nose of animals. The current study was undertaken to investigate biofilm-forming ability of *S. aureus* isolated from pneumonic sheep, assess antibiotic resistance profile and the relationship between biofilm production and antibiotic resistance. A total of 130 nasal swab samples by sterile cotton bud, enrichment in nutrient broth followed by isolation and identification of S aureus based on cultural, morphological, and molecular characteristics. Biofilm production was assessed by culture on Congo Red Agar (CRA) and microtiter plate assays stained with 1% crystal violet. Biofilm-associated (ica ABCD) and PVL encoding toxin genes were detected by PCR. Out of 130 samples 17 (13%) were confirmed as S. aureus and phenotypically 23.54% (4/17), 29.41% (5/17) and 47.02% (8/17) isolates were detected as Strong, moderate and weak biofilm producers. The OD values of strong biofilm producers were 1.6801, 1.6674, 1.6572 and 1.6453. Three isolates (17.65%) carried the PVL gene, but no correlation was found between biofilm formation and toxigenic gene. Antibiotic susceptibility testing revealed that most isolates were multidrug-resistant (MDR), with MAR indices between 0.2 and 0.8. Strong biofilm producers exhibited a higher MAR index (0.8) compared to moderate and weak producers. The study found a significant correlation between biofilm production and antibiotic resistance, suggesting that biofilm formation contributes to the multidrug resistance properties of *S. aureus*, reinforcing its status as a superbug.

Keywords: *S. aureus*, toxin genes, biofilm, superbug, multidrug resistance

P-118. Pathological and Molecular Investigation of Marek's Disease in Naturally Infected Chickens

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Abstract

Marek's disease (MD) is an economically important disease which has a great impact on the poultry industry worldwide. This study focuses on the investigation of natural outbreak of MD in chickens based on pathological lesions and molecular techniques. A total of 10 MD suspected chickens from two different layer farms of Gazipur and Munshiganj were investigated on the basis of clinical signs and history. Grossly, three form of MD were observed at necropsy. Among them, the most common form was the visceral form (7/10) followed by nervous (2/7) and ocular (1/10) form. Grossly, enlargement and multiple white nodular masses were mostly observed in the spleen followed by liver, lungs, proventriculus and ovary in visceral form. In nervous form, enlarged and thickened sciatic nerves were found. In ocular form, gray iris in eye was seen. Histopathologically, there was extensive proliferation of heterogeneous population of lymphocytes in the visceral organs, eye and nerve in H&E staining. Interestingly, the pleomorphic lymphocytic populations and perivascular cuffing were seen in brain suggestive for highly virulent MD virus infection. In PCR, 7 out of 10 clinical samples showed positive reaction and successfully amplified the expected 583 base pair (bp) fragment of the meq gene of MD virus serotype 1 using MRS and MRAS primer. Therefore, the pathological and molecular results presented here confirmed the meq gene in chickens infected with MD virus serotype 1 from natural outbreaks of Bangladesh, which will be useful for the diagnosis at field level for routine monitoring and screening the disease

Keywords: Marek's disease, histopathology, PCR, chickens

P-119. Consumers' Misconceptions and Factors Associated with Consumption of Broiler Meat in Some Selected Areas of Bangladesh

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Abstract

This study examines consumer misconceptions about broiler meat and the factors influencing their preferences in selected areas of Bangladesh. A survey was conducted to collect data from meat consumers across Dhaka and Mymensingh administrative divisions. The sample included 369 respondents representing diverse groups such as farmers, businesspeople, service holders and others. Descriptive statistics and econometric analyses were employed to interpret the findings. Consumer perceptions of broiler meat were assessed using a five-point Likert scale. A hierarchical ranking of predefined perception points revealed that the most common reason for rejecting broiler meat was the belief that it undergoes unhygienic pre-consumption processing (index value: 4.43). This was followed by concerns over zoonotic diseases (4.31) and antibiotic residues (4.31), the use of unsafe chemicals during production (4.29), use of hormones in production (4.20), lower nutrient content compared to native chicken varieties (4.06) and heavy metal contamination (3.97), etc. Alarmingly, a substantial portion of consumers believed that broiler meat consumption could lead to cancer and disable childbirth. To identify factors associated with broiler meat consumption, a binary logistic regression was performed, which revealed that residence, age, and income significantly influenced broiler meat consumption. Semi-urban residents were more likely to prefer broiler meat compared to urban and rural residents, possibly due to its affordability. Additionally, both higher and lower income levels and age were negatively associated with broiler meat consumption due to some misconceptions. The findings underscore the need for evidence-based research and awareness campaigns to address consumer misconceptions and restore confidence in broiler meat.

Keywords: Broiler, logistic-regression, hormones, antibiotic residue

P-120. Patterns of Multidrug Resistance in *Pseudomonas* spp. from Captive Wild and Migratory Birds

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Abstract

This study investigated the prevalence and resistance profiles of *Pseudomonas* spp. isolated from fecal samples of captive wild and migratory birds in Sylhet region of Bangladesh. The current research was carried out in Sylhet division of Bangladesh. A total of 219 feces samples were collected from migratory and captive wild birds. The 16s-rDNA-based primers were used to identify the Pseudomonas spp. and Pseudomonas aeruginosa. The AMR genes were also detected by PCR using the designed primers. Of the 219 samples tested, Pseudomonas spp. was estimated at 18.72% (95% CI:13.78-24.53), with a higher prevalence in migratory birds (19.64%; 22/112) compared to wild birds (17.76%; 19/107) as detected through cultural and molecular (PCR) testing. The prevalence of *Pseudomonas aeruginosa* was 10.05% (22/219), significantly ($P<0.001$) higher in migratory birds (11.67%) compared to captive wild birds (8.41%). Phenotypically, all isolates shown 100% susceptible to levofloxacin, ciprofloxacin, tetracycline, colistin sulphate, meropenem and gentamicin, while 73% exhibited resistance to ampicillin. Multiple antibiotic resistance (MAR) was found in 77.27% of isolates, while MDR was observed in 63.64%. Genotypically, the resistance gene blaTEM was detected highest (90.90%), whereas blaOXA and blaSHV were detected in lowest percentage (11.24%). Sulfonamide (Sul1) resistance gene was the most prevalent at 22.73% (5/22) for *Pseudomonas aeruginosa*. These findings underscore the potential role of wild and migratory birds as reservoirs and disseminators of AMR genes, highlighting risks to environmental and public health. The study emphasizes the need for integrated surveillance programs under the One Health framework.

Keywords: Migratory birds, captive wild birds, MDR, *Pseudomonas* spp., one health

P-121. Thin Layer Column Chromatography Analysis of *Terminalia arjuna* (Arjun) Bark Extract for Drug Development and Discovery

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Abstract

Thin layer chromatography analysis of Soxhlet based ethyl acetate extraction of Terminalia arjuna bark demonstrated pentacylic triterpenoids compounds. These pentacylic triterpenoids compounds further analyzed by Burchard reagent technique and identified two major and two minor components of arjun extract. Retention factor (Rf) analysis indicated the factoe of 0.78, 0.88, 0.37, 0.44 respectively. From this analysis major components of Rf were 0.78 & 0.37 and minor components were 0.88 & 0.44 respectively. Arjun bark, derived from the Terminalia arjuna tree, is a widely recognized medicinal plant with potent therapeutic properties. Findings from our research could be a valuable source for further research and drug development.

Keywords: Arjun, TLC, Column chromatography, burchard reagent

P-122. Assessment of Tilapia (*Oreochromis niloticus*) Seed Quality in Pond and Recirculatory Aquaculture System in relation to Climatic and Water Quality Parameters

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Abstract

The impact of climate change is increasing on global ecosystems, with rising temperatures and extreme weather events altering water quality in aquatic habitats. This study intended to assess tilapia (*Oreochromis niloticus*) seed quality and to evaluate the impact of climatic factors and water quality parameters on the seed quality. The research was performed in pond and recirculatory aquaculture system (RAS) by assessing growth metrics using growth comparison, length-based approach, morphometric study, etc., evaluating water quality impacts, and analyzing Growth Hormone-Releasing

Hormone (GHRH) gene expression in both treatments across three batches. Larvae in the RAS showed a higher % length gain (2.94 ± 0.658 in Batch 2) compared to the pond system (1.191 ± 0.207). Specific growth rate (SGR) was also higher in RAS, peaking at 0.23 ± 0.032 %/day, while the pond system had 0.199 ± 0.025 %/day. Fulton's Condition Factor (K) was better in RAS (1.65) than in ponds (1.45). Morphometric analysis revealed significantly greater Standard Length (SL) and Caudal Length (CL) in RAS larvae ($p < 0.001$). PCA showed growth traits and water quality explained 66.96% variation in ponds and 63.09% in RAS but with different emphasis. Higher GHRH expression in RAS correlated with superior larval growth, highlighting its potential for enhanced growth. This study shows that seeds performed better in RAS than traditional methods where they are exposed to climate factors. As climate is changing, sustainable practices like RAS can be a solution for ensuring resilient fish production in Bangladesh and beyond.

Keywords: Larvae, growth, seed quality, RAS, climate

P-123. Waste Management and Economic Sustainability Through BSF (Black Soldier Fly) Production

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Abstract

For completing the life cycle of black soldier fly a total of 60 days was needed. Three types of growth medium were used for the cultivation of Black Soldier Fly; kitchen wastage, sheep and goat manure, poultry manure. After preparing the growth medium, egg of BSF was inserted and then larvae were collected and measuring the weight of larvae and substrate. Then BSFL based formulated ration was formulated and provided as a source of protein in market and analysis the all collected data. Highest Dry Matter (DM) was (86.43a ± 5.26) found in T2PF (poultry faeces) Other than T1SGN (80.98a ± 5.26) and T3KW (84a ± 5.26) also highest production (86.29%) was found in same growth medium. In case of Moisture% highest percentage was found in, T1SGM (19.01a ± 5.03). Among 3 treatment group Better CP% was found in T2PF (36.30a ± 3.90) other than two treatments group T1SGN (20.60b ± 3.9) and T3KW (34.26a ± 3.9). Waste reduction rate was highest in T2PW (31.70%) and Bio conversion rate was highest in T3KW (58.4%). Black Soldier fly would be novel way to manage the

farm (Sheep and goat manure; Poultry faeces) and kitchen wastage in an environment's friendly ways.

Keywords: Sustainable agriculture, eco-friendly source of waste medium, organic waste

P-124. Coprological Investigation of Helminths Parasitic Infestations of Buffalo at Haor and Hilly Bordered Areas of Sylhet District in Bangladesh

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Abstract

Based on zoo-geography of different haor and hilly areas belongs to five Upazilla of Sylhet district were selected as study areas. A survey was conducted using pretested questionnaire to assemble all sorts of data. A total 200 (40 samples from each Upazilla) fecal samples were collected randomly and tested using direct smear method, floatation and McMaster egg counting techniques. Results: Fascioliasis was the most prevalent (20.5%) parasitic infestation, with an overall prevalence of 84.5%. The level of parasite infestation varied throughout the five haor and adjacent areas of Sylhet; Jaintapur had the highest level (85%) and Zakiganj the lowest (65%). Out of the three helminth categories, Guwainghat had the highest prevalence of treamtaode (31.25%) and cestode (28.12%), while Kanaighat had the highest (51.72%) prevalence of nematode infestation. Fascioliasis was most prevalent (46%) in adult buffaloes, while toxocariasis was highest in buffalo calves. Comparatively higher parasitic infection was seen in wet season (80.82%), followed by 61.25% in dry season. Conclusion: It is concluded that, prevalence of helminthes parasite are much higher in buffaloes in the haor and bordered hilly areas in Sylhet due to zoo-geographical facts, which to be seriously considered by the related authority and would formulate a specific helminthes control strategic plan for haor areas.

Keywords: Helminthes, buffalo, haor and bordered area, impact of parasitism

P-125. Comparative Clinico-Hematological Alterations of Lumpy Skin Disease Affected Cattle at Different Ages and Periods of Disease in Bangladesh

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Abstract

This study was conducted to investigate the clinico-hematological alterations of Lumpy skin disease affected cattle at different ages and periods of the disease. LSD affected and 8 healthy (control) cattle belongs to four age groups (Group - A= under 1 year; Group B = 1 to 2 years; Group C= 2 to 3 years and Group D= from 4 years up to 10 years) and three disease periods (Prodromal period, period of illness and period of decline) were considered, examined and used for blood profiling. Results: Clinical examination of affected cattle showed, 100% cattle (skin nodule of various sizes), 55.55% (lymph node enlargement), 75% (high fever), 13.88% (brisket edema), 19.44% (limb edema), 8.33% (ventral abdomen edema), 5.55% (facial edema), 19.44% (lameness), 22.22 (respiratory distress), 2.77 (corneal opacity) and 27.78% (salivation and nasal discharge) as clinical signs. Almost all affected cattle showed multiple lesions at last two disease periods. Comparatively, the nodular lesion is much higher in the limb (33.1%), followed by the head and neck region (23.24%). Hematological analysis reveals a significant decrease in RBC, Hb, PCV, MCHC, TLC and thrombocytes. At the illness and decline periods macrocytic hypochromic anemia, lymphocytopenia, and thrombocytopenia appeared, indicative to fluid therapy such as blood transfusion. Age group A is more vulnerable to LSD fatality as lower levels of TLC. Conclusion: It is concluded that, clinico-hematological alterations varied significantly based on ages and periods of the disease which are indicative to formulate an effective pharmacotherapeutic strategy.

Keywords: LSD, disease stage, age category, hematology, investigation

P-126. Sparganum Infections in Wild Frogs in Sylhet, Bangladesh

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Abstract

Sparganosis, a serious foodborne parasitic disease in Asia, is primarily transmitted through contact with infected frog flesh or ingesting contaminated water. Despite the presence of 37 amphibian species in Bangladesh, the occurrence of spargana in wild frogs remains unexplored. This study investigates the prevalence and distribution of spargana in *Hoplobatrachus tigerinus* frogs from Sylhet, a metropolitan area in northeastern Bangladesh. In May 2023, 29 wild frogs were collected from farmlands, rivers, and rural ponds. After weighing and marking the frogs, spargana were examined, isolated, and their locations and infection numbers recorded. Statistical analyses were conducted to identify correlation between infection parameters and host characteristics. Sparganum infection was detected in 62.0% (18/29) of frogs, with 159 spargana isolated, yielding an average infection rate of 5.48 spargana per frog. A single frog harbored up to 33 spargana. Most parasites were localized in the muscle, with few found in the body cavity. No significant correlation was observed between infection load and the frogs' species or weight. This study reveals a high prevalence of sparganum infections in wild frogs in Sylhet, highlighting a significant zoonotic threat to public health. Measures to mitigate sparganosis should focus on raising public awareness, improving hygiene practices, and implementing effective control strategies. Further research is warranted to understand the epidemiology and lifecycle of spargana in this region.

Keywords: Sparganosis, wild frogs, zoonotic parasite, public health, Sylhet

P-127. Geospatial Distribution of HIV Seroprevalence among Blood Donors in South Asian Countries: a Systematic Review, Meta-Analysis, and Choropleth Mapping

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Abstract

The reliance on replacement blood donors in developing countries has led to an increased prevalence of transfusion-transmitted infections (TTIs), including HIV.

This systematic review and meta-analysis aimed to assess the seroprevalence of HIV among blood donors in South-Asian countries and decipated the findings in chloropteth maps. The authors conducted an online literature search of articles published between January 2000 to August 2022. A total of 120 studies were included in the final analysis. The extracted data were analyzed using RStudio version 4.1.0. The Der Simonian-Laird effect model was applied owing to the high heterogeneity of the data. This systematic review and meta-analysis included 138 studies with a total of 9,437,559 participants. The pooled seroprevalence of HIV among blood donors in South Asian countries was found to be 0.13% (I2=99%), with the highest prevalence of 0.19% in India (I2=98.5%) and the lowest prevalence of 0.02% in Bangladesh (I2=88.2%) and Bhutan. Female blood donors had a higher seroprevalence than their male counterparts (0.24%, I2=98.2% vs. 0.17%, I2=99.4%). In contrast to voluntary blood donors with an HIV seroprevalence of 0.13% (I2=98.3%), replacement blood donors have a higher HIV prevalence of 0.26% (I2=97.9%). Higher HIV seroprevalence is observed in replacement blood donors, predominantly in female donors in South Asian countries. This can be countered by promoting screening methods, encouraging voluntary blood donations, and increasing knowledge about donor health and TTIs.

Keywords: HIV, seroprevalence, blood donors, transfusion-transmitted infections

P-128. Prevalence of Diseases and Commonly Used Drugs in Poultry in Jamalpur District, Bangladesh

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Abstract

The study aimed to assess the prevalence of diseases, method of diagnosis, and commonly used drugs in poultry farms in Jamalpur, Bangladesh. A total of 233 poultry cases were examined from October to November 2023 at the District Veterinary Hospital and the diagnoses were established based on a combination of owner's interviews through a well-designed questionnaire, clinical history, signs, and necropsy findings. Among the poultry species, the prevalence of diseases was highest in broiler (36.4%) followed by layer (28.8%), sonali (12.9%), deshi (9.6%), duck (6.9%), pigeon (4.1%) and Turkey (1.3%). Among broiler birds, the disease prevalence highest in viral diseases (37.20%) were due to infectious bursal disease (18.60%), inclusion body hepatitis (10.46%), newcastle disease (6%) and lymphoproliferative diseases (2.32%) followed by bacterial diseases

such as colibacillosis (13%) followed by salmonellosis (8.13%), other diseases were coccidiosis (11.62%), visceral gout (16.27%) and mixed infection (14%). Among the layer birds, bacterial causes were most prevalent (36.4%) followed by Viral (22%), coccidiosis (18%) and stress (15%). The most prevalent disease of Sonali Chicken was ND (30%), Coccidiosis in Desi Chicken (36.36%), Duck Cholera in Duck (43.75%), and Salmonellosis in Pegion (40%). Young chicks (0-14 days) were more susceptible (51%) than adult (above 22 days) broiler birds (22%). The adult layer (18-52 weeks) was more susceptible (45.5%%) than the young (0-18 weeks) 24%. Antibiotics especially ciprofloxacin (23%) were extensively used than antiviral or anticoccidial drugs. IBD and ND were the most prevalent diseases in broiler and layer, respectively. Required strict biosecurity and proper vaccination practice.

Keywords: Prevalence, necropsy, common drugs, poultry

P-129. Prevalence and Risk Factors Associated with Umbilical Hernia in Calf at Selected Upazillas of Bangladesh

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Abstract

An umbilical hernia is a very common congenital disease in calves. Retrospective data were collected from the Livestock Office and Veterinary Hospital of selected upazillas namely Veterinary Teaching Hospital, Mymensingh; Gouripur; Moheshkhali, Cox's Bazar and Rangabali from April 2022 to August 2023. A total number of 239 animals were examined during the study period where diagnosis was based on the clinical history, exploratory puncture of the navel swelling demonstration of intestinal contents, and detection of hernial ring. Then the animals were subdivided into some risk factors such as age, sex, breed, and season which may lead to umbilical hernia. Umbilical hernia mostly occurs at Gouripur Upazilla Livestock Office and Veterinary Hospital, Mymensingh (59.4%) compared to the other 3 upazilas. Maximum occurrence of the disease was in the age group of 1-3 months (55.0%) followed by <1 month age group (48.1%) and least occurred in 3-6 months of age group (39.0%). It was observed that male calves (43.8%) were at more risk than female calves (43.1%). The occurrence of umbilical hernia was higher in crossbred calves (44.2%) than that of indigenous. Umbilical hernia mostly occurs in summer (50.4%) followed by the winter season (43.1%) and the rainy season (31.3%). This study reported that geographical area, age, and season had a significant effect (P<0.05) on the occurrence of umbilical hernia in calves.

Keywords: Umbilical hernia, calf, age, sex, breed, season

P-130. Successful Recovery of Mange Mite Infestations in Ruminants Treated with Daylight Photodynamic Therapy

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Abstract

This study evaluated the effect of daylight photodynamic therapy (dPDT) against mange mite infestations, a cause of significant loss of health and productivity in ruminants. The ruminant animals having active skin lesions such as intense pruritus, hair loss, and dry scale or crusts formation were suspected of mange. Mange was confirmed by microscopic examinations of mites from skin scrapings samples using potassium hydroxide (KOH) solution. After diagnosis, 1 mM (0.03%) methylene blue (MB) solution was sprayed on the affected skin. The animals were exposed to sunlight for 2 hours after keeping them in dark shed for 10 min. This treatment procedure was repeated every day until recovery. The effect of dPDT was evaluated by recording the time of recovery from clinical signs and skin lesions. Out of 9 animals treated with dPDT, all animals were completely recovered from mange. Recovery time was variable according to the severity of the disease. Signs of pruritis and other skin lesions started to reduce after 1 week to 3 weeks of starting treatment. Complete hair growth was observed after 4 to 8 weeks of starting treatment. There was no recurrence of the disease after recovery except for 1 case, which showed lesions in other parts of the body after 1 month. The side effects were not observed in all animals including 2 pregnant cattle. The MB mediated dPDT would be a convenient, less costly and an effective method with less side effects to treat mange in ruminants

Keywords: Mange, daylight photodynamic therapy (dPDT), methylene blue

P-131. Electrical Stimulation on Open Wound Healing in Rabbit

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Abstract

This study investigated the effects of micro-amperage electrical stimulation (MES) on skin wound healing in rabbits. Thirty adult New Zealand White rabbits were divided into six groups, with three experimental groups receiving MES treatment at 1000 µA for 30 minutes twice daily for 4, 7, or 15 days. The remaining groups served as controls. Full-thickness skin incisions were made, and various parameters, such as swelling area, suture line elevation, sutured area width, and contraction length, were monitored to assess healing. Wound complications like swelling, edema, dehiscence, abscesses, infection, and exudation were observed. Histopathological examination of wound samples was performed after therapy. Results showed that swelling areas of experimental groups were significantly smaller than those of the controls, and suture line elevation was higher. The healing time was shorter for the experimental groups, with average healing times of 30, 28, and 26 days for the 4-day, 7-day, and 15-day treatment groups, respectively, compared to controls. Furthermore, the experimental groups exhibited significantly higher numbers of fibroblasts and blood vessels. These findings suggest that MES accelerates wound healing by promoting tissue regeneration and improving vascularity in rabbits, supporting its potential therapeutic applications in wound management.

keywords: Electrical stimulation, wound, healing, rabbits

P-132. Effects of Chia Seed (*Salvia hispanica* l.) Extract on the Alloxan Induced Diabetic Mice

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Abstract

Diabetes is a major concern and is considered one of the major diseases in Bangladesh. The treatment of the issues related to diabetes causes significant economic expenses. Chia seed is an excellent source of nutritional and

therapeutic value offering a great future potential ingredient for feed, food, pharmaceutical and nutraceutical sectors. This study investigated the biochemical and histopathological changes to analyze the effect of the daily intake of chia seed extract in alloxan induced diabetic mice. The 20 experimental male mice were divided into 4 groups consisting 5 mice each; Control (A), Diabetic control (B), Low dose chia seed extract (C) (2.5 ml/1000 gm) and High dose chia seed extract group (D) (5 ml/1000 gm). After sacrificing, blood and organs were collected for the experiment to track biochemical changes with a chemistry analyzer and histological alterations in the mice's organs. The study found that daily intake of chia seed extract led to decrease in glucose, cholesterol and LDL level. The study revealed that ALT, AST, Creatinine kinase and BUN levels were increased in diabetic control groups whereas decreased in chia seed extract treatment groups. The study revealed damage to liver, kidney and testis in alloxan induced diabetic mice, including lymphocytic Infiltration, cytoplasmic degeneration, enlargement of central veins and sinusoids of liver, widened urinary space, acute disruption of renal architecture with inflammatory cells, congested glomerular tuft in kidney and congestion of seminiferous tubules in testes. The study recommends that chia seed extract has a beneficial impact on alloxan induced diabetic mice.

Keywords: Diabetes, chia seed, aspartate aminotransferase (AST), glucose,

P-133. Molecular Detection of Multi-Drug Resistant *Klebsiella Aerogenes* from Milk from Sylhet Region

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Abstract

The emergence of multidrug-resistant pathogens poses a significant threat to public health, particularly when present in food sources such as raw milk. *Klebsiella aerogenes*, a common environmental bacterium, has been increasingly implicated in healthcare-associated infections and is known for its ability to acquire resistance to multiple antibiotics. In this study, we aimed to isolate, identify, and molecularly detect multidrug-resistant strains of *K. aerogenes* from raw milk samples. Milk samples were collected from dairy farms and market. Isolation of *K. aerogenes* was performed using selective culture media and biochemical tests. Antimicrobial susceptibility testing was conducted to assess

the resistance profile of the isolated strains against a panel of commonly used antibiotics. Molecular detection of resistance determinants was carried out using polymerase chain reaction (PCR) targeting specific resistance genes. Findings revealed the presence of multidrug-resistant *K. aerogenes* strains in milk samples, with resistance observed against multiple classes of antibiotics, including Tetracycline (TE), Amikacin (Ak), Streptomycin (S), Gentamicin (GEN), Meroprnem (MEM), Azithromycin (AZM) and resistant against Cefoxitin (CX), Ceftazidime (CAZ), Oxocilin (Ox), Cefotaxime (CTX), Cefuroxime (CXM). No study was found regarding the prevalence of this organism in dairy food. This study underscores the importance of monitoring antibiotic resistance in dairy products and emphasizes the need for stringent control measures to prevent the dissemination of multidrug-resistant bacteria. Understanding the prevalence and mechanisms of antibiotic resistance in *K. aerogenes* from raw milk can inform strategies for mitigating the spread of antimicrobial resistance and safeguarding public health.

Keywords: Molecular detection, drug resistant, *Klebsiella* sp., milk

P-134. Prevalence of Methicillin-Resistant (MRSA) *Staphylococcus aureus* in Dressed Chicken Carcass at Live Bird Market in Mymensingh City

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Abstract

This study investigated the prevalence, antimicrobial resistance patterns, and epidemiological factors associated with multidrug-resistant methicillin-resistant *Staphylococcus aureus* (MRSA) isolated from chicken carcasses and chicken sellers' hand swabs. A total of 215 samples were collected, including 118 chicken carcass swabs and 97 hand swabs from personnel in various local markets in the Mymensingh district. Epidemiological data were gathered using a questionnaire in KoboToolbox, and data analysis was conducted using SPSS and Python. All samples were screened for *S. aureus* through cultural, staining, biochemical, and molecular techniques for precise isolation and identification. Molecular detection was confirmed by amplifying the *nuc* gene for *S. aureus* and the *mec*A gene for MRSA using PCR. Antimicrobial susceptibility testing of MRSA isolates was performed with 13 antibiotics across 7 antimicrobial classes. *S. aureus* was confirmed in 84 samples (39.07% prevalence): 43.22% in chicken carcass swabs and 34.02% in workers' hand swabs. All MRSA isolates showed resistance to β-lactam antibiotics (penicillin and oxacillin), with high resistance to azithromycin (77.27%) and clindamycin (68.18%) and the highest susceptibility to vancomycin

(86.36%) and tetracycline (68.18%). Additionally, all isolates exhibited multidrug resistance (100%). Hygiene data showed that 93.8% of sellers did not wash their hands after meat processing, 96.9% did not use gloves during slaughtering and processing, 89.7% did not wash their hands before handling chicken meat, and 92.8% lacked knowledge of proper hygienic practices. The study highlights the high prevalence of multidrug-resistant MRSA in chicken carcasses and sellers, underscoring the urgent need for improved hygiene practices and stringent antimicrobial stewardship.

Keywords: MRSA, prevalence, chicken carcass, live bird markets, PCR

P-135. Role of Veterinarian in Animal Welfare Issues: a Global Concept

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Abstract

Veterinarians play a key role in animal welfare by ensuring the health and well-being of animals and the public. They work in improving animal welfare by assessing animals' needs and making recommendations to improve their care. They use their expertise to help animals' live lives that are free from pain, fear, and discomfort. Veterinarians play a key role in animal welfare by diagnosing and treating disease, providing advice, and conducting research. They also help ensure animals are comfortable, safe, and have access to proper nutrition. Today's veterinarians are the only doctors educated to protect the health of both animals and peoples. They work hard to address the health and welfare needs of every species of animal. *Enhancing, protecting and securing the health and welfare of animals* is the fundamental purpose of the veterinary profession. They work hard to address the health and welfare needs of every species of animal. Veterinarians also play critical roles in environmental protection, research, food safety, and public health. Animal welfare is a core mandate of the veterinary community generally and veterinarians individually. This concept is articulated by many veterinary organizations in their Code of Practice, Veterinary Oath or other statements of commitment. Such statements centre on the common theme "a veterinarian should be dedicated to the benefit of society, the conservation of animal resources and the relief of suffering of animals and to promote animal wellbeing". Will Rogers once said, "The best doctor in the world is a veterinarian. He can't ask his patients what is the matter–

he's got to just know." In conclusion, *animal welfare is a core mandate of the veterinary community* generally and veterinarians individually in global mood.

Keywords: Veterinarians, animal welfare, Bangladesh

P-136. Mango Peel Extract Administration Attenuates High Sugar Diet-Induced Hyperglycemia and Hyperlipidemia in Mice

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Abstract

Consuming sugar in excess can have negative health effects, including obesity, diabetes, hyperlipidaemia, insulin resistance, and so on. As synthetic drugs, commonly used to treat metabolic diseases, have considerable side effects on health, plant-based drugs could be the potential alternative to treat various metabolic diseases. The peel of the mango, which is usually considered inedible, contains large amounts of flavonoids, polyphenols, and carotenoids, which are known to have antioxidant properties. Therefore, the present study investigated the potential role of mango peel extract (MPE) in mitigating the harmful effects of high-sugar-induced metabolic disorders in mice. Mice were divided into 4 groups: normal diet (ND), ND with MPE (ND + MPE), high-sugar diet (HSD), and HSD with MPE (HSD + MPE) and were assigned for the feeding trial for 8 weeks. The results showed that mango peel extract (200 mg/kg BW) reduced food intake and body weight, as well as decreased liver and white adipose tissue (WAT) weights in the HSD+MPE treated group compared to the HSD-fed control group. There was a remarkable increase in the change in body weight in HSD group, when compared with the ND group, and this increase was significantly reduced by MPE administration. Improved glucose tolerance was also observed in mice on a high-sugar diet when treated with MPE. Although it was not statistically significant, mango peel extract reduced total cholesterol, triglyceride levels, and LDL and slightly improved the HDL level. Supplementation of MPE reduced both the number and size of fat deposits in the liver tissues of HSD-fed mice, as observed by the liver histology. Taken together, mango peel could be used as a dietary supplement to ameliorate the effects of metabolic diseases brought on by high sugar-rich food consumption.

Keywords: Mango peel, high sugar diet, hyperglycemia, hyperlipidemia

P-137. Isolation, Identification and Characterization of *Arcobacter butzleri* from Human Diarrhoeal Samples

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Abstract

This study aimed to isolate, identify, and characterize the antimicrobial resistance profiles of *Arcobacter butzleri* from diarrheal samples collected from patients at SK (Surya Kanta) Hospital, Mymensingh Medical College, Mymensingh, between October 2023 and September 2024. A total of 100 diarrheal samples were processed using microbiological, biochemical, and molecular techniques for the isolation and identification of *A. butzleri*. The species was confirmed through species-specific PCR targeting the 16S rRNA gene, with amplification of expected amplicon sizes for *A. butzleri*. Following isolation, antimicrobial susceptibility testing was performed using the disk diffusion method against ten commonly used antibiotics. Out of 100 samples, 11 (11%) tested positive for *A. butzleri*, with 5 isolates (7.94%) from male patients and 6 isolates (16.22%) from female patients. The prevalence was observed to be slightly higher in females, though no statistically significant difference was found (p= 0.20). The isolates were also analyzed across different age groups, with the highest prevalence in the 31-60 years group (13.79%), suggesting age-related susceptibility. Antimicrobial resistance testing revealed that most *A. butzleri* isolates exhibited resistance to tetracycline (81.82%) and amoxicillin (72.73%), with moderate resistance to erythromycin (45.45%) and ciprofloxacin (27.27%). Furthermore, multidrug-resistant (MDR) patterns were observed in 36.36% of the isolates, indicating significant concerns regarding the treatment of *A. butzleri* infections. The study highlights the increasing antibiotic resistance in *A. butzleri* and underscores the need for continued surveillance, stricter control measures, and effective antimicrobial stewardship to combat the public health threat posed by this pathogen.

Keywords: *Arcobacter butzleri*, isolation, identification, multidrug resistance

P-138. Microbial Assessment of Broiler Meat with Special Focus on Detection and Antibiogram of *Arcobacter butzleri*

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Abstract

This study aims to explore microbiological assessment of broiler with special focus on isolation, identification of *Arcobacter butzleri* followed by antibiogram. In this study, 100 broiler samples were collected from 5 upazillas under Mymensingh district. Microbiological assessment of the samples were performed by determination of Total Viable Count (TVC), Total Staphylococcal Count (TSC), and Total Arcobacter Count (TAC). Isolation and identification of *A. butzleri* was done using cultural characteristics, gram's staining, biochemical tests, and PCR. Antimicrobial susceptibility of the isolates was performed using disk diffusion method. A total of 25 samples were analyzed for microbial contamination, revealing the highest mean TVC was 9.46 (log CFU/gm) in Mymensingh sadar and lowest mean was 9.41 (log CFU/gm) in Valuka. Highest mean value of TSC was 6.21 (log CFU/gm) in Mymensingh sadar and Muktagacha and lowest value was 6.16 (log CFU/gm) in Trishal. By amplifying the 16S rRNA gene, it was confirmed that 23% samples contained *Arcobacter butzleri*. Antimicrobial susceptibility testing revealed that isolates were susceptible to cefotaxime (91.30), ceftriaxone, Imipenem (78.26) and often resistant to amoxicillin and tetracycline (78.26%). MDR was found for 8 isolates (34.69%). MAR value was significant (0.2-0.8) for all 23 isolates. The results showed that broiler meat had a high level of microbial contamination, which poses a public health concern.

Keywords: Broiler meat, TVC, TSC, TAC, *Arcobacter butzleri*

P-139. Detection of Biofilm Forming Staphylococcus aureus in Drinking Water Systems of Layer Farms

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Abstract

Biofilms in layer farms significantly contribute to the contamination of drinking water with Staphylococcus aureus and facilitate the genetic exchange of antibiotic-resistant bacteria. The objective of the study was to detect biofilm-forming S. aureus in drinking water systems of layer farms, identify the methicillin resistance gene (mecA), and determine antimicrobial resistance. A total of 195 samples were collected from 39 sheds of 28 layer farms in Sherpur Sadar, Trishal, and Hossainpur upazilas from July to November 2024. Water samples (n=117) were collected from three points in water pipes, and swab samples (n=78) from the middle and end points of pipelines. S. aureus was isolated using selective media, Gram's staining, biochemical tests, and PCR assay. Biofilm-forming ability was evaluated using the Crystal Violet Microtiter Plate test. Methicillin-resistant S. aureus (MRSA) was identified by cefoxitin disk diffusion and mecA gene detection. Antimicrobial susceptibility testing was performed with 15 antimicrobials from 11 classes. Out of 195 samples, 131 (67.2%) were positive for S. aureus. All isolates (100%) were biofilm-formers, with 40.5% strong, 40.5% moderate, and 19% weak producers. Among these, 78.6% (103/131) were MRSA, and the mecA gene was detected in 48.1% (63/131) isolates. All biofilm-forming isolates were multidrug-resistant, with 53.4% of isolates resistant to 10–11 antimicrobial classes. Complete resistance was observed to penicillin, erythromycin, clindamycin, and linezolid, while resistance was highest to azithromycin (98.5%), trimethoprim-sulfamethoxazole (97.7%), and lowest for norfloxacin (43.5%), amikacin (45%). These findings underscore the risks of biofilm-associated multidrug-resistant S. aureus in poultry systems and public health.

Keywords: Biofilm, MRSA, antimicrobial resistance, layer farms, drinking water

P-140. Mite Infestations in Non-descriptive Indigenous Chickens in Bangladesh: Present Status and Pathology

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Abstract

Non-descriptive, indigenous chickens (NDICs) in Bangladesh are commonly reared in scavenging system. NDICs are prone to many ectoparasites, of which mite infestation is widespread. We found that 47.4% of NDICs (185 out of 390) were infested with mites. Three species of mites such as *Trombicula* spp. (53.1%), *Knemidocoptes mutans* (scaly leg mites/SLM, 15.1%) and *Dermanyssus gallinae* (red mites of poultry/PRM, 2.8%) were isolated and identified, and mixed infestations were also detected. We found that the sex and age of the chickens, as well as the seasons of the year, significantly influenced the prevalence of mite infestations. Trombiculid mites produced more specific lesions characterized by circumscribed disc-shaped notches with attached bright red colored mites which were commonly found in the skin of breast, fluff and thigh. In trombiculid mite infestations, destruction of the epidermis, proliferation of fibrous connective tissues along with massive infiltration of heterophils and lymphocytes were predominant. The sagittal section of mites filled with RBC were found attached to the lesions. Thick, rough and ragged appearances with encrustation of the skin of leg were found grossly in *K. mutans* infestations. Histologically, hyperkeratosis, acanthosis, massive infiltrations of reactive cells and cross-sections of parasites were detected in SLM infections. *D. gallinae* induced petechial hemorrhages, papules, development of pustules, necrosis, rupture of the feather follicles and scab formations. Hyperkeratosis and huge infiltration of mononuclear cells and eosinophils were evident. Taken together, mite infestation is a big challenge in profitable NDICs rearing in Bangladesh and warrants immediate attention for their control.

Keywords: Epidemiology, *Dermanyssus gallinae, Knemidocoptes mutans*, trombiculid mites

P-141. Investigation on Prevalence and Differential Diagnosis of Avian Leukosis in Layer Chickens by ELISA and Histopathology in the Barind Tract of Rajshahi

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Abstract

Avian leukosis (AL) is a neoplastic disease (B-cell lymphoma) of chickens caused by Avian leukosis virus (ALV) under the family retroviridae. The disease is transmitted by both horizontally and vertically. There is no published report on vertical (egg) transmission of AL in chickens in Bangladesh. Therefore, this study aimed to investigate the prevalence of AL by ELISA and differential diagnosis AL with other proliferative diseases by histopathology in chickens. Four hundred and sixty egg samples collected from different types of chickens such as layer, broiler breeder and indigenous were analyzed by direct ELISA (Cat# CK422B, BioChek, UK) and liver tissues by histopathology. Out of the 460 samples tested 12 samples showed positivity (S/P ratio > 0.200) for AL with an overall prevalence of 2.61%. No samples out of the 184 commercial layer chickens (Novogen brown, Isa white, Hy-line) samples were positive. On the other hand, out of the 92 broiler breeder (Indian river and Ross) samples, only 1 sample showed positivity for AL with prevalence of 1.09%. Interestingly, out of the 184 samples of indigenous chickens (native chickens) tested 11 samples were positive resulting in prevalence of 5.98%. Histopathologically, AL displayed expansile pattern of growth while Marek's disease showed invasive pattern of growth in liver of chickens. Native chickens are more prone to AL and further study are warranted for molecular genetic characterization of the virus.

Keywords: Avian leukosis, ELISA, histopathology, chicken, prevalence

P-142. Gizzard Worm Infection in Indigenous Chickens in Bangladesh: Epidemiology, Pathology and Anthelmintic Efficacy

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Abstract

Helminth infection is highly prevalent in indigenous chickens reared in semi-scavenging/scavenging systems in Bangladesh. Here, we estimated the prevalence of gizzard worm (GW) infection in indigenous chickens, the detection of GW-induced pathologies, the development of *ex vivo* cultural protocol, and anthelmintic efficacy. We randomly collected and examined 390 chickens and isolated worms from the gizzard and proventriculus. The isolated worms were identified as *Cheiluspirura hamulosa*. The overall prevalence of *C. hamulosa* was 33.1% (129 out of 390). Prevalence of GW was slightly ($p>0.05$) higher in males (34.2%, 67 out of 196) but significantly ($p<0.05$) higher in adult chickens (44.3%, 91 out of 205). Prevalence of the infection was significantly ($P<0.05$) higher in the summer season (47.1%, 65 out of 138). In heavy infections, *C. hamulosa* destroys the muscular layer of the gizzard. The presence of brown necrotic tissues and curd-like caseous materials was detected. In severe cases, the horny lining of the gizzard was inflamed, necrotized, and marked by multiple holes and brick-red colored spots. Liquefied, fetid materials oozed out from the muscular layer in extensive cases. Histopathological examination showed marked infiltrations of eosinophils. In serum-supplemented M199 and DMEM, GM survived and reproduced. Levamisole (LEV) and ivermectin (IVM) efficiently killed the worm. However, albendazole (ABZ), mebendazole (MBZ), and piperazine (PPZ) did not kill the worms. Our results suggest that GW is highly prevalent in semi-scavenging chickens in Bangladesh. LEV and IVM can be used to treat and control GW infection in chickens, but not ABZ, MBZ, and PPZ.

Keywords: *Cheiluspirura hamulosa,* anthelmintic efficacy, anthelmintic resistance, inflammation, eosinophil

P-143. Effects of Probiotic as an Antibiotic Alternative on Intestinal Morphology in Broiler Chickens

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Abstract

The abuse of antibiotics may cause antibiotic-resistant microbes and antibiotic residue in animal and poultry products. Probiotics have been used for several decades for their beneficial effects on poultry growth and immunity. The effects of probiotic on growth performance and intestinal morphology of broiler chickens were studied. A total of 72 day-old chicks (45.04 ± 0.92 g) of broiler (Cobb 500) were randomly divided into two groups, with three replicates (n=12) in each group. The dietary treatments contained an antibiotic group (T1, basal diet + 1g/L water chlortetracycline (Eska-CTC®); twice daily, and a probiotic group (T2, basal diet + probiotic (1g/3L water daily (Avigut®)). T1 broilers had improved feed conversion ratio (FCR, 1.47 ± 0.057) and average body weight gain (1.95 ± 0.052 kg) than T2 broilers, 1.56 ± 0.049 and 1.82 ± 0.067 kg, respectively, at day 32. The measured intestinal growth of T2 broilers in terms of length of small intestine, large intestine (colorectum) and cecum was close to T1 broilers, though T1 broilers had increased ($p < 0.05$) large intestinal length. Histologically, T2 broilers villus height (duodenum) was close to that of T1 broilers, but T1 broilers had comparatively increased ($p < 0.05$) villus height of cecum, and crypt depth in duodenum and cecum. Dietary supplementation of probiotic could improve the growth performance as well as intestinal morphology of broiler chickens indicating probiotics could be used as antibiotics alternatives to produce health hazards free safe meat for human consumption.

Keywords: Probiotic, broiler, growth performance, intestinal morphology, buck.

P-144. Maternal Exposure to Phthalate Mixture Alters the Seminal Traits, Reproductive Organs Biometry and Histo-Morphology of Testis in F_1 Black Bengal Bucks

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Abstract

Phthalates are ubiquitous within our environment. Animals are constantly exposed to phthalates which can pass through the placenta during pregnancy and could have impact on developing fetus. The present research investigated that maternal exposure to phthalates (PHA) alters the seminal traits, reproductive organ biometry and histopathology of testis in F_1 offspring bucks. A total of 20 clinically healthy 1-2 months pregnant, aged 6 to 8 months with body weight 10-12 kg BBG were selected and randomly divided into two (n=10) experimental groups. The treatment group (n=10) was provided standard goat ration with PHA and the control group (n=10) was provided same ration without any PHA during pregnancy. Sperm parameters, organ biometry and histopathology were done as per standard methods. The results revealed that semen volume, density, mass activity, sperm motility, sperm concentration, live spermatozoa, normal spermatozoa and semen morphology were found significantly lowered ($P<0.05$) in F_1 bucks born from PHA exposed mother. The biometry of testis, epididymis, vas deference, penis, scrotum and AGD values were also lowered significantly ($P<0.05$) in F_1 bucks of phthalates exposed BB goats than control. The testis in PHA exposed bucks showed the disorganization of the architectural structure of the seminiferous tubules (STs), a decrease in thickness of germ cell layer, widening of the central STs lumen, prominent germ cell population necrosis and leakage of blood into interstitial spaces than those of F_1 control. The study concluded that maternal exposure to a phthalate mixture during pregnancy alters the semen traits, reproductive biometry with histopathology gonads in F_1 BB bucks.

Keywords: Phthalate, semen traits, reproductive biometry, testis, black Bengal bucks

P-145. Detrimental Effects of Maternally Exposed Perfluorooctanoic Acid on Reproductive Performances and Immune Cells in Offspring Mice

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Abstract

Perfluorooctanoic acid (PFOA), a perfluorinated compound commonly used in the plastic industry, has been found to have detrimental effects on human and animal health. The study investigated the effects of maternally exposed two different doses of PFOA on body weight, reproductive parameters, and immune cells in F1 offspring mice. The mice were divided into three groups: A, B, and C, each consisting of six female and four male mice and reared in mice cages at 26-30°C until pups were born. Blood, sera, and tissues were collected from the mice, and testes were processed for semen evaluation and histo-pathological study. Results showed that F1 offspring mice born from PFOA treated mice had a significant decrease in body weight in a dose-dependent and time-dependent manner. There was a significant decrease in testosterone and increase in T4 level in PFOA treated offspring male mice, with a reduction in sperm count and sperm motility without major altering of estradiol concentration in F1 offspring. Testis size and weight were reduced in PFOA treated F1 male mice and delivery of the number of pups was reduced in PFOA treated mice. Histo-pathological analysis of testis revealed degenerative and necrotic changes in seminiferous tubules and sertoli cells with irregular morphology. TLC and DLC were minimal, and neutrophil numbers were slightly increased in mice born from PFOA treated group. It can be concluded that PFOA has detrimental effects on reproductive health in parental mice which can be passed on vertically and affect the offspring mice.

Keywords: Perfluorooctanoic acid, testosterone, sperm count, testis, offspring mice

P-146. Effects of Chia Seed (*Salvia Hispanica* L.) on Lead Induced Intoxicated Mice

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Abstract

Chia seeds are used as supplemental food all over the world because of its beneficial health effects. The present study was designed to investigate the effects of chia seeds against lead (Pb) toxicity in mice. The 20 experimental swiss albino male mice were divided into 4 groups consisting 5 mice each; Control (A), Positive control (B), Chia seed extract oil (C) (3.75 ml/1000 gm) and chia seed cake group (D) (150mg/1000 gm). After completion 60 days of the experiment blood samples and organs (liver, kidney and testis) were collected to assays the levels of cholesterol, alanine transaminase (ALT), aspartate transaminase (AST), low-density lipoprotein (LDL), high-density lipoprotein (HDL), creatinine kinase (CK), blood urea nitrogen (BUN) and also histopathological changes of targeted organ's tissue. Treatment with chia seed extract and cake showed a significant improvement in serum levels of cholesterol, ALT, AST, HDL, LDL, CK, BUN compared to lead toxicity group. In this study, lead acetate was found to cause congestion in central vein, degenerated hepatocytes and enlarged sinusoidal space in liver, glomerular degeneration, enlarged bowman's capsule space and desquamation of bowman's capsule in kidney and irregular arrangement of spermatogenic cells, increased interstitial cells space, non-uniform arrangement of primary spermatocytes from spermatogonia in testis. This study revealed that lead has detrimental effects on the liver, kidney and testis of mice Treatment with chia seed oil was found more effective in lead intoxicated mice and found normal architecture of targeted organs. The study recommends that chia seed extract has a beneficial impact on lead induced intoxicated mice.

Keywords: Lead, chia seed, cholesterol, AST, creatinine kinase, mice

P-147. Effects of Monosodium Glutamate on Hemato-Biochemical and Reproductive Parameters in Male Swiss Albino Mice

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Abstract

Monosodium glutamate (MSG) is used in the food industry to enhance flavor and acceptability. Due to widespread use, it leads to the buildup of glutamic acid levels in the bloodstream, making it hazardous to humans and animals. This research investigates the effects of MSG on growth, hemato-biochemical, and reproductive performance in Swiss Albino mice. 24 Swiss Albino male mice (*Mus musculus*) aged 25-28 days were used and randomly divided into 4 equal groups (n=6). Group A served as vehicle control. Group B, C and D were fed on the basal diets and received MSG @ 50 mg, 75 mg and 150 mg per liter drinking water daily for 8 weeks. Body weight, organ weight, blood and sera were processed for hemato-biochemical and reproductive parameters study with standard methods. The results revealed that MSG supplementation led to a progressive increase in body weight and obesity in mice. The MSG-treated group showed higher liver weights with the most significant increase observed in the MSG-75 group. The kidney and spleen weights were reduced in the treatment group compared to the non-treated control group. There was a slight increase in total white cell count. AST, ALT and ALP showed a substantial increase ($P<0.05$) in MSG treated mice. The lipid profile (triglycerides, total cholesterol, high-density lipoprotein cholesterol and low-density lipoprotein cholesterol) was increased ($p <0.05$) in MSG group. Sperm count and sperm motility, as well as a decrease in testis weight, was found in male mice treated with MSG ($p<0.05$). It may conclude that it is crucial to reduce the amount of exposure to MSG in order to uphold good reproductive health.

Keywords: Monosodium glutamate, obesity, lipid profile, reproduction

P-148. Validation of Species of Vector Snails of Fascioliasis and Schistosomiasis

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Abstract

Freshwater snails are important intermediate hosts for several parasitic diseases, including *Fascioliasis* and *Schistosomiasis*. Here, we identified and validated the species of freshwater snails, which act as intermediate hosts of important parasitic diseases. Through morphological and morphometrical studies, we identified nine species of snails: *Lymnaea auricularia*, *L. luteola*, *Indoplanorbis exustus*, *Physa acuta*, *Viviparus bengalensis*, *Brotia* spp., *Thiara* spp., *Bithynia* spp., and *Pila globosa*. Cercarial shedding tests revealed that *L. auricularia* (0.72%, 7 out of 977) and *L. luteola* (0.36%, 8 out of 2240) shed *Fasciola* cercariae, while *I. exustus* (5.43% 19 out 350), *L. auricularia* (9.42%, 92 out of 977), *L. luteola* 10.09% (226 out of 2240), *P. acuta* (2.4%, 11 out of 450), and *V. bengalensis* (0.14%, 7 out of 500) shed *Schistosoma* cercariae. Molecular identification through PCR and sequencing of the mitochondrial *cox1* gene confirmed the species of the intermediate hosts. The sequences of *L. auricularia*, *L. luteola*, *I. exustus*, *P. acuta*, and *V. bengalensis* were highly identical (99-99.7%) to previously reported sequences of these species. The findings provide essential insights into the ecology of *Fasciola* and *Schistosoma* transmission in Bangladesh and demonstrate the application of molecular tools for accurate species identification of vector snails. The results of this study highlight the importance of molecular tools in confirming snail species and it will shed light on the distribution and genetic diversity of these snail species across Bangladesh and the broader region, as well as the snail-host interactions and parasite transmission.

Keywords: Snail, vector, trematodes, cercariae

P-149. Surgical Correction of Polymelia in the Perineal Region of a Bovine Calf: a Case Report

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Abstract

Polymelia is a rare congenital abnormality in bovine calves characterized by the presence of one or more auxiliary limbs, also known as supernumerary limbs, in distinct body regions. Pygomelia is one of these abnormalities, where the extra limb is connected to the pelvis in the perineal region. Such a case is discussed in this study along with the surgical treatment. A male bovine calf weighing 39.5 kg BW at the age of one month was found to have an extra, non-functioning fifth limb near the perineal area and was presented to the Veterinary Teaching Hospital, Bangladesh Agricultural University. The fifth ectopic limb was in a flexible hanging position and was smaller than four normal limbs. Clinical evaluations of the aberrant limb in extension and flexion showed no deep bone connection to or articulation with the pelvic girdle or the caudal spine. Deep sedation, regional anesthesia, and local anesthesia were used during the electrosurgical procedure, which revealed that the limb was partially located in the right lateroventral extremity of the perineum without any direct involvement in the bony pelvis. The superfluous limb was amputated surgically, and the incision was thereafter regularly stitched up. The animal was given supportive drugs following surgery to promote quick healing. After two weeks of the operation, the calf made an entirely trouble-free recovery. Pygomelia is one of the uncommon congenital malformations that can occur in conjunction with other developmental abnormalities. However, with the right surgical techniques and postoperative care, this deformity can be successfully corrected.

Keywords Pygomelia, electrosurgery, calf

P-150. Surveillance and preventive remedy of zoonotic pathogen (*Brucella* species) of cattle in Bangladesh: Use of Ivermectin

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Abstract

Globally, brucellosis affects animal production economically and poses a public health risk. A total two hundred and thirty four (234) blood sera samples were collected randomly from cattle population at different areas of Bangladesh namely Rajshahi (45), Sirajganj (35), Dhaka (106), Bandarban (48) and tested by Rose Bengal plate (RBPT) test and cELISA kit (ID.Vet, France) to assess the antibody titer. The twenty-three (23) samples (tissues, milk, blood) were collected, DNA extraction and subjected to Polymerase Chain Reaction (PCR). According to WHO-1986 recommendation, proper combined antibiotics (Dihydrostreptomycin Sulfate, Procaine Penicillin G and Benzathine Penicillin G; and Amikacin sulfate and Methyl Parahydroxybenzoate) were used for the treatment of separated animals and strictly maintained personal safety measure with farm biosecurity. In this study, the overall sero prevalence of cattle was 12.82% (n=30) in RBPT test, 10.68% (n=25) in c-ELISA test. Four (4) out of twenty-three (23) suspected clinical samples were molecularly detected as the expected band in 905bp in the cattle. After using a deworming plan (Ivermectin+Clorsulon) and proper combined antibiotics (Dihydrostreptomycin Sulfate + Procaine Penicillin G + Benzathine Penicillin G and Amikacin sulfate + Methyl Parahydroxybenzoate) and maintaining strict farm biosecurity, we found a satisfactory result for controlling brucellosis in the farm animals (Cattle). Their prophylaxis with the combined antibiotic response (recovery) was more in the treatment group (n=160 serum samples) compared to the non-treatment group (considered as the control group, n=74 serum samples). The overall antibody response against Brucella sp before treatment was 10.81% which remarkably increased to 56.25% after treatment. In case of breed, the immune response before treatment was detected (10.52% and 11.76% in local breed cattle and Crossbreed respectively). Whereas after three months of treatment, the desirable level of antibody measured by the result interpretation system provided by the manufacturer's kit (S/P% ≥120%) and which was detected (56.4% and 55.00% in local breed cattle and crossbred respectively). Response of ivermectin in animals, the antibody level (PI) against *Brucella sp*p. after use of ivermectin at 3 months

and 6-month intervals. Finally, this research plan could contribute for controlling bovine brucellosis in Bangladesh in the future.

P-151. Movement Patterns of Mobile Poultry Vendors and the Risk of Spreading the Avian Influenza Virus

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Abstract

Our objective was to explore the movement patterns of mobile poultry vendors on a spatial scale, which is not known, in different areas of Bangladesh. The study was conducted between July 2015 to June 2016 in Dhaka, Narayangonj, Netrokona, Tangail, and Manikgonj districts. After getting written consent, we provided a GPS data logger (igot-U® GT-600) to 68 vendors who carried those in a lanyard around their necks during the period of poultry collection and selling. The GPS tracker recorded their location every two minutes continuously for 1-5 days. After retrieving the data loggers, we downloaded the data in a computer and analyzed those in R. The highest median daily distance was recorded in Manikganj, at 28.77 km (13.37- 80.02) km, while the lowest was in Narayanganj, at 17.14 (8.81- 31.63) km. Our study results revealed two vendors who carried avian influenza-positive poultry, and the areas covered by them were 0.76 km^2 and 0.51 km^2, respectively, and both vendors are from the Dhaka district. Mobile poultry vendors, who have no permanent shop, collect different types of poultry from village households, village markets, and wholesale markets and go either to the community or door-to-door to sell those. Practices of mobile poultry vendors may facilitate the spillover of avian influenza virus to people who otherwise would not be exposed to the virus and any control strategy will not be successful without the involvement of this group.

Keywords: Avian influenza, mobile poultry vendors, spread of disease, vector-borne, zoonotic, GPS data logger

P-152. Surgical Management of Transverse Metaphyseal Femoral Fracture Using Intramedullary Pinning in a Cat: a Case Report

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Abstract

Long bone fractures are the most common orthopedic ailment that stops animals from moving. This case report describes the successful surgical management of a transverse metaphyseal femoral fracture in a domestic cat using intramedullary pinning. A cat presented with acute non-weight-bearing lameness, pain in the femur, and having blood pocket surrounding the fracture site following a traumatic fall to the Veterinary Teaching Hospital, Bangladesh Agricultural University. A radiographic examination confirmed a complete transverse fracture at the metaphyseal region of the femur. The surgical intervention involved closed reduction and stabilization with a smooth stainless steel intramedullary pin. Postoperative radiographs confirmed proper alignment and stabilization of the fracture fragments. The patient demonstrated satisfactory functional recovery with progressive weight-bearing and full return to normal activity within six weeks. Follow-up radiographs showed complete fracture healing without complications. This case highlights the effectiveness of intramedullary pinning for metaphyseal femoral fractures in feline patients, emphasizing the importance of proper pin placement and postoperative care in achieving favorable outcomes.

Keywords: Fracture, surgical treatment, cat, intramedullary pinning

P-153. Outbreak Investigation on Animal Bite Cases in Humans and Animals in Dohar Upazila of Dhaka, Bangladesh

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Abstract

On December 12, 2024, the Daily Jugantor newspaper published that dogs bit 105 individuals within 15 days in various locations at Dohar upazila (sub-district) of Dhaka, Bangladesh. Therefore, an outbreak investigation was conducted on 17 December 2024 at Dohar upazila, after verification by respective upazila livestock officer to explore bite cases and incidence of rabies in animals and humans. We developed a line list of recorded animal bite cases in humans and animals by visiting Upazila Health Complex, and Veterinary Hospital. Data on exposure was collected by direct interviews of affected patients and livestock owners with a semi-structured questionnaire. A total of 426 human and 19 animal bite cases by dogs and cats were reported from October to December 2024. Two active dog bite cases and one human rabies case (deceased) were observed during the investigation. Animal cases (19) included 1 (5%) calf, 7 (37%) cats, and 11 (58%) goats while human cases (426) included 226 (53%) male and 200 (47%) female where dog bite was 57% and cat scratches were 43%. One pregnant woman (30 years) bitten by a dog at knee joint in late August 2024 developed rabies on November 16 confirmed by Infectious Disease Hospital, Mohakhali died on November 18, 2024. She denied taking vaccines following bite due to pregnancy. Our investigation reveals dog bites remain a significant rabies threat in the locality. One Health approach is highly recommended for enhancing mass dog vaccination, surveillance, and community engagement to ensure timely post-exposure prophylaxis in humans and animals.

Keywords: Dog bite, outbreak investigation, one health, rabies

P-154. Outbreak Investigation of Foot-And-Mouth Disease in Cattle in North-South Region of Bangladesh

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Abstract

Foot-and-Mouth Disease (FMD) poses a significant threat to the cattle industries in Bangladesh, impacting economic stability and food security owing to its high transmissibility and the difficulties of controlling outbreaks in rural areas with large populations. Variable mortalities in cattle were reported with consistent FMD signs at Adamdighi upazila of Bogura district and Muktagacha upazila of Mymensingh district. Outbreak investigations were conducted in these two upazilas to identify the causative agent and describe the extent of outbreaks during July 2024 to October 2024. The investigation also focused on the source of infection and the mode of transmission of the disease. Demographic and line listing data were collected from 24 affected farms to analyze the spatio-temporal distribution of FMD. The FMDV and its circulating serotypes were confirmed by quantitative RT-PCR. The epidemic curve showed that the virus was continuously circulating among the susceptible population, and both outbreaks were propagated in nature. The causative agent was FMDV serotype O. The overall attack risk of FMD was 65.8%. The attack risk in calves, young, and adults was 58.3%, 87.5%, and 51.7%, respectively. The overall case fatality was 33.3%. The case fatality in calves, young, and adults was 71.5%, 30.8%, and 20%, respectively. Case fatality was higher in crossbreed cattle (55%) than in indigenous cattle (17.9%). The introduction of newly purchased cattle to the herd was the source of infection in both outbreaks, suggesting that farmers should follow quarantine, and particular attention should be paid to the crossbred cattle as they experienced higher mortality.

Keywords: FMD; outbreak, cattle, north-south region, Bangladesh

P-155. A Fatal Outbreak of Nitrate Poisoning in a Beef Fattening Farm at Purbodhola, Netrokona of Bangladesh in June 2024: a One Health Investigation

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Abstract

A One Health outbreak investigation was conducted in June 2024 following the sudden deaths of 23 cattle on a cattle farm at Purbadhala, Netrokona in Bangladesh to identify the source, implement control measures, and prevent future occurrences. One Health Secretariat Bangladesh coordinated to form a multidisciplinary investigation team. Epidemiological, laboratory, and environmental assessments were conducted according to DLS National Animal Disease Outbreak Investigation and Response Manual. Between June 5 and 7, 2024, 30 out of 76 cattle developed clinical signs, including salivation (100%), muscle tremor (77%), weakness (73%), recumbency (70%), difficulty respiration (40%), cyanotic mucous membrane (37%), anorexia (13%), fever (13%), difficulty in getting up (7%), and rumen impaction (3%). The overall attack risk (morbidity), mortality, and case fatality were 40%, 32%, and 80%, respectively. Epidemiological investigation suggested a point-source outbreak of acute nitrate poisoning following ingestion of freshly cut 20-day-old Napier Pakchong-01 grass on 5th and 6th June 2023 collected after heavy rainfall for 12 hours. High nitrate content was confirmed with the Diphenylamine Qualitative test on the grass and soil from the fodder plot. Around 90% of the affected cattle exhibited clinical signs within 12 hours and 35% of the death occurred. Sixty-one percent mortality was observed in cattle treated with 0.1% methylene blue compared to 88% among untreated indicating poor response. All 12 exposed farm personnel were unaffected. Freshly collected green grass should be avoided when fed to cattle following heavy rainfall without sun drying or mixing with straw or hay.

Keywords: nitrate toxicity, outbreak, cattle, one-health

P-156. Effects of Aspartame on Body Weight, Selected Organ Weights and Hemato-Biochemical Parameters in Mice

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Abstract

Aspartame (ASP), an artificial sweetener, is widely used worldwide in processed food and beverage products. Long-term administration has been reported to have detrimental effects on humans and animals. The study investigated the effects of ASP on body weight and selected organ weight, hemato-biochemical parameters, and liver and kidney function tests in female Swiss albino mice. 18 mice (*Mus musculus*) aged 55-60 days with an average body weight of 31.83 ± 1.72g were used and randomly divided into 3 equal groups. Group A was considered vehicle control fed on mice pellets and normal drinking water. At the same time, group B was provided ASP at 80 mg/liter in drinking water, and group C received ASP at 160 mg/liter in drinking water. Body weights were monitored, and blood and serum were collected for the hemato-biochemical study. The results revealed that ASP supplementation in drinking water induced rapid growth in mice. The ASP-treated group exhibited greater liver and kidney weights ($P<0.05$) than the control group. The relative spleen weights were gradually reduced in the treatment group with increasing concentrations of ASP compared to the non-treated control group. ($P<0.05$). No significant difference was found in hematological parameters between the non-treated control and ASP-treated mice. There was a significant increase ($p <0.05$) in lipid profiles, specifically in TG, TC, and LDL-c values, while HDL-c levels remained unchanged in ASP-treated mice. AST and ALP values were significantly increased ($P<0.05$) in ASP treated mice. The creatinine values remained consistent across the group. Further investigation into ASP is necessary to determine its precise mechanism.

Keywords: Aspartame, hemato-biochemical parameters, liver function test, mice

P-157. Surgical Management of Umbilical Hernia with Hernioplasty in a Bovine Calf: a Case Report

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Abstract

A hernia is the protrusion of the contents of a body cavity through a normal or abnormal opening in the wall of that cavity either to lie beneath the intact skin or to occupy another adjacent body cavity. This case report describes the successful surgical management of a large umbilical hernia in a bovine calf using polypropylene mesh (hernioplasty). A 9-month-old calf with a history of herniorrhaphy conducted five months previously was presented to the Veterinary Teaching Hospital, Bangladesh Agricultural University, with an enlarged umbilical region. Physical examinations on the ventral aspect revealed the presence of a hernial ring with a diameter of 12.44 cm in length (max) and 9.67 cm in width (max). When a needle was inserted, there was no blood, pus, or fluid, which ruled out other possible incidents besides hernia. After clinical evaluation and appropriate preoperative preparation, the calf underwent surgical repair under sedation and local anesthesia. The hernia sac was excised, and hernioplasty was performed using a polypropylene mesh for reinforcement of the abdominal wall. Postoperative care included wound management and antibiotics to prevent infection. The calf recovered uneventfully and a follow-up examination confirmed complete healing and absence of recurrence. This case highlights the efficacy of surgical hernioplasty in managing umbilical hernias in calves and emphasizes the importance of timely intervention for optimal outcomes.

Keywords: Hernioplasty, polypropylene mesh, bovine calf

P-158. An Investigation of Contagious Caprine Pleuropneumonia Outbreak on a Commercial Goat Farm in Dhamrai Subdistrict of Dhaka

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Abstract

An outbreak investigation was conducted on a goat farm at Barakai village in Dhamrai subdistrict of Dhaka district following high morbidity and deaths of goats as notified by the Upazila Livestock Officer, Dhamrai, Dhaka on mid-April 2024 to identify the cause, implement control measures and prevent further occurrences. CDC Guideline of outbreak investigation was followed; clinical examination of affected goats and postmortems of deceased goats were performed; liver, lung, spleen, heart and blood samples were collected and multiplex qPCR was performed at Central Disease Investigation Laboratory (CDIL) of the Department of Livestock Services (DLS). Goats of any age on that farm having or died due to high fever, nasal discharge, and laboured breathing from last 15 days were considered as cases. The attack rate and case-fatality were 42% (60/142) and 47% (28/60), respectively. The mortality rate was higher (80%) in 1 to 1.5 months old goats. The affected goats also showed respiratory rales, tachypnea, discomfort, lethargy and anorexia and were responsive to antibiotic treatment and death occur due to discontinuation of treatment. Postmortem findings were pleural fibrosis and foamy fluid in the trachea and thoracic cavity. Contagious Caprine Pleuropneumonia (CCPP) was confirmed with lung tissue samples supplied. The source of the infection might be the goats brought from North-west region of Bangladesh and transportation, high stocking density, poor ventilation, and excessive heat might be the contributory factors. The study reveals the severity of CCPP in goats reared in poor conditions that warrant implementation of strict biosecurity with good farming practices.

Keywords: CCPP, goat, outbreak, Bangladesh, differential diagnosis

P-159. Identification and Genome Analysis of *P. Multocida* Isolated from Domestic Duck and Commercial Layer Chicken in Bangladesh

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Abstract

Fowl cholera is a highly transmissible disease that is caused by *Pasteurella multocida* and can result in substantial economic losses in the poultry sector due to high morbidity and death rates. The study aimed to identify and complete the genome sequence of *P. multocida* isolated from domestic ducks and commercial chickens in Bangladesh. A total of 40 clinically suspected samples were collected during 2023-2024, including 10 from ducks and 30 from chickens, originating from commercial farms across four districts in Bangladesh. The samples were processed and subjected to identification of bacteria using cultural, morphological, biochemical tests, and finally molecular detection by PCR. Whole genome sequencing (WGS) of the *P. multocida* strain was performed using Illumina next-generation technology, enabling genome assembly and analysis. The study revealed that out of 40 samples, only eleven (nine from chickens and two from ducks) were positive for *P. multocida* using cultural, morphological, biochemical, and PCR assays. The isolated eleven samples were also found to be *P. multocida* type B confirmed by PCR using gene-specific primers. The WGS of *P. multocida* revealed a diverse genetic profile, comprising a single chromosome that is 2,369,073 base pairs long and has an average GC content of 40%. The annotation results revealed a total of 2,286 genes, of which 2,157 were protein-coding genes and 64 were non-coding. The study provides valuable insights into the genetic makeup of *P. multocida* and its potential impact on poultry health.

Keywords: Fowl cholera, *P. multocida,* identification, PCR, whole genome sequencing, genetic makeup

P-160. Comparing Reproductive Performance Indices of Buffalo (*Bos Bubalis*) And Dairy Cow (*Bos Indicus*) Bred by Natural Service

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Abstract

The reproductive performances indices of buffaloes (n = 6453, Murrah, Jafrabadi, Mehsana) and dairy cows (n = 410, Holstein-Friesian × Jersey), parities 1-12, were analyzed. Data (12-years) were collected from a peri-urban commercial dairy farm (central-province, India), where buffaloes and cows were supplemented with fodder-grass-concentrate in loose-housing barn; and maintained natural mating. The indices, namely, days - to - first - service – after - calving (SP, days), dry - period (DP, days), calving-interval (CI, days), gestation - period (GP, days), calving – to – conception - interval (CCI, days), and natural – services – numbers /conception (NSC), were compared between the breeds. Differences were considered significant if $P < 0.05$ in Tukey's t-test. Murrah and afrabadi had significantly lower SP (89 ± 1 vs. 110 ± 6 vs. 131 ± 4) days, CI (428 ± 2 vs. 460 ± 9 vs. 505 ± 11) days, CCI (128 ± 1 vs. 166 ± 11 vs. 243 ±10 days) and NSC (1.5 ± 0.0 vs. 1.5 ±0.1 vs. 2.2 ± 0.1) but greater DP (108 ± 1 vs. 125 ±7 vs. 91 ± 6 days) and GP (304 ± 0.3 vs. 303 ± 2 vs. 267 ± 2 days), respectively, than cows. Mehsana had significantly lower SP (100 ± 8 vs. 131 ± 4 days), CI (448 ±17 vs. 505 ± 11 days), CCI (142 ± 15 vs. 243 ±10 days) but greater DP (130 ±111 vs. 91 ± 6 days) and GP (304 ± 3 vs. 267 ± 2 days) than cows respectively. This study demonstrates that in natural breeding Murrah is a better-performing breed also prioterise the breaches to upgrade other breeds.

Keywords: Buffalo; cows, reproductive indices, natural mating

161.Repeat Breeding Syndrome in Cows and Accompanying Farm Practices in Potia Upazila, Chittagong, During the Winter Season.

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Abstract

Repeat Breeding Syndrome (RBS) is a reproductive disorder affecting dairy cows, characterized by the inability to conceive after multiple breeding attempts despite regular estrous cycles. This study investigated how farm practices in the winter season affect RBS occurrences in dairy farms. Seventy-two dairy farms in Potia Upazila, Chittagong, were investigated during the winter season. Data collection involved farmer interviews, clinical examinations, and farm record reviews. Meteorological data showed variations in temperature, humidity, and temperature-humidity index (THI) in the months of the winter season. Among 84 examined crossbred dairy cows within the studied farms, 54 were found as repeat breeders, and 30 were selected as healthy (control cows). When comparing RBS-affected cows with healthy counterparts, farms with RBS cases have longer ages of farming, larger herd sizes, and tended to utilize high-concentrate feeding practices ($P<0.05$). Whenever the comparison was made between RBS and regular healthy cows, no significant differences were observed in estrus duration or milk production ($P>0.05$). At the individual animal level, it was found that RBS cows had lower body weight, higher parity, and longer intervals between calving and insemination ($P>0.05$). Additionally, suboptimal insemination timing was a key factor with RBS-affected cows. RBS cows were more often bred outside the optimal estrus window. The study emphasises the importance of effective estrus detection, precise insemination timing, balanced nutrition, and proper reproductive management strategies to mitigate RBS and enhance dairy farming sustainability.

Keywords: Farm, dair, RBS, winter, repeat-breeding

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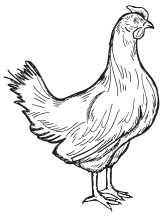

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অথবা, কনসালটেন্ট এর পরামর্শ অনুযায়ী ব্যবহার্য।

স্পেন থেকে আমদানীকৃত

প্যাক সাইজ:
১০০গ্রাম/৫০০গ্রাম/১০০০গ্রাম/২৫কেজি

Marketed by :
Gentry Pharmaceuticals Limited
জেনট্রি ফার্মাসিউটিক্যালস্ লিমিটেড

Manufactured by :
AVITASA



জানেন কি?

- গর্ভবতী গাভীতে গ্লুকোজের চাহিদা বাড়ে ৪ গুণ
- বাচ্চা প্রসবের পর গ্লুকোজের চাহিদা বাড়ে ৩ গুণ
- ভালো খাবার সরবরাহের পরও প্রায় ১৫% গাভীতে গ্লুকোজের ঘাটতি থেকে যায়
- প্রতি লিটার দুধ উৎপাদনের জন্য গ্লুকোজ প্রয়োজন ৭২ গ্রাম
- প্রায় ৬০% গাভী নেগেটিভ এনার্জি ব্যালান্স (NEB) এ আক্রান্ত
- শুধুমাত্র গ্লুকোজের অভাবে NEB, দুধ উৎপাদন ও প্রজনন ক্ষমতা হ্রাস এবং কিটোসিস রোগ দেখা দেয়

কাজেই গ্লুকোজের চাহিদাপূরণে

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RP-GLUCOSE Vet

Rumen Protected Glucose

1st Time in Bangladesh

প্রস্তুতকারক: MORNINGBIO Republic of Korea

Product of South Korea

ব্যবহারবিধি

প্রতি কেজি খাদ্যে ১-৫ গ্রাম অথবা প্রতিটি প্রাণিকে ১০-৫০ গ্রাম করে খাওয়াতে হবে।

সরবরাহ

১০০ গ্রাম, ৫০০ গ্রাম স্যাশেট ও ২৫ কেজি ব্যাগ।



Animal Feed Supplement

WSP Globigen® Dia Stop

Sodium chloride, Sodium bicarbonate, Potassium chloride, Yeast, Egg powder (IgY), Vitamin A, Vitamin D3, Vitamin E, Dextrose

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ew | nutrition

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- পানি ও ইলেক্ট্রোলাইটসের ভারসাম্য রক্ষা করে
- রোগ প্রতিরোধ ক্ষমতা বৃদ্ধি করে
- আন্ত্রিক অসুস্থতায় (ডায়রিয়া, ডিহাইড্রেশন) সহযোগী হিসাবে কাজ করে
- দৈহিক ওজন বৃদ্ধি ও সর্বোচ্চ উৎপাদন দক্ষতা নিশ্চিত করে
- অ্যান্টিবায়োটিক এর ব্যবহার হ্রাস করে

ব্যবহারবিধি

২৫ গ্রাম করে পানি অথবা দুধ অথবা মিল্ক রিপ্লেসার এর সাথে মিশিয়ে ১২ ঘন্টা পর পর খাওয়াতে হবে।

সরবরাহ

১০ X ২৫ গ্রাম, ১০০ গ্রাম স্যাশেট ও ৭.৫ কেজি।



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Veterinary Division

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Navana Pharmaceuticals PLC.
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ঢাকা: ০১৭২৯০৭০০৯২ ময়মনসিংহ : ০১৭২৯০৭০০৮৫ রাজশাহী: ০১৭২৯০৭০০৮৪ খুলনা: ০১৭২৯০৭০১০২
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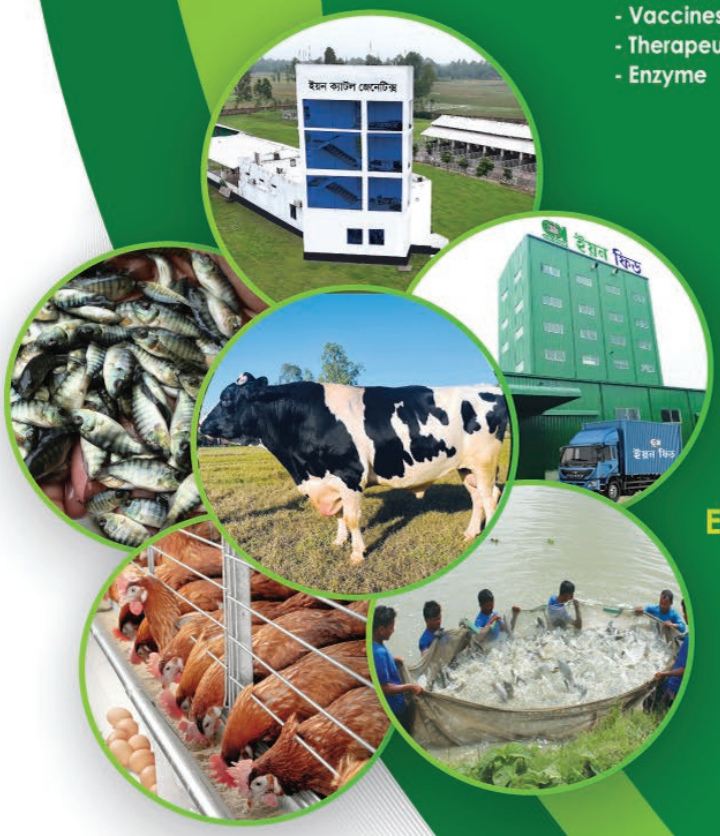

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Assistant Manager (Veterinary Technical Services)
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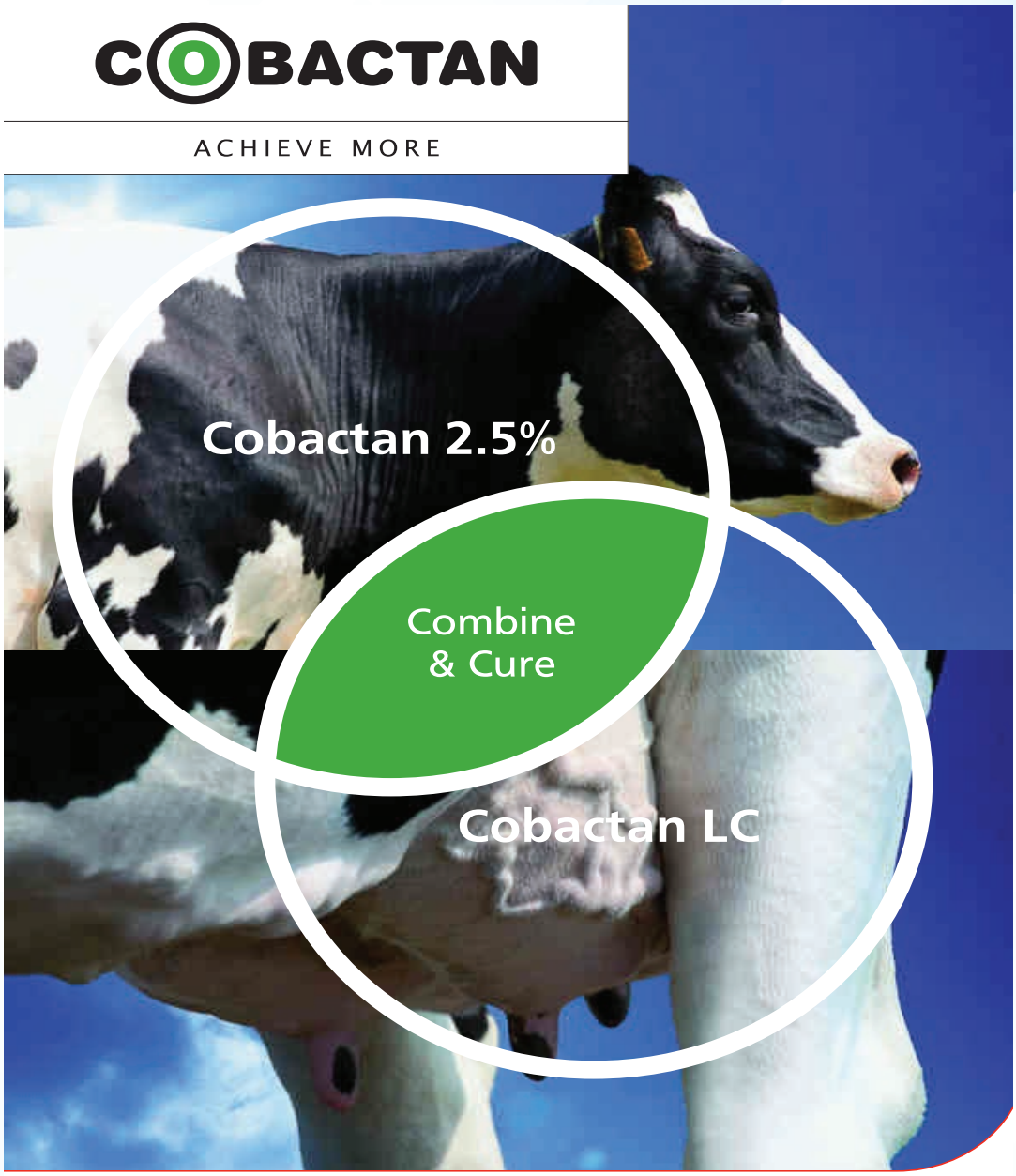

Combined therapy for treatment of mastitis the following treatment regime should be followed:

Cobactan	Cobactan LC Intramammary
1mg cefquinome/kg bw (2ml/50 kg bw) ↓ 24 hours 1mg cefquinome/kg bw (2ml/50 kg bw)	One syringe gently infused into the teat of the infected quarter ↓ 12 hours One syringe gently infused into the teat of the infected quarter ↓ 12 hours One syringe gently infused into the teat of the infected quarter

When using Cobactan LC Intramammary and Cobactan in combination, animals must not be slaughtered for human consumption during treatment. Animals may not be slaughtered for human consumption until 5 days after the last treatment. Milk must not be taken for human consumption during treatment. Milk must be discarded for 84 hours after the last treatment.

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ডায়মন্ড
জৈব সার

১ কেজি, ৫ কেজি,
২৫ কেজি, ৪০ কেজি

কেন কৃষকের আস্থা প্রতিবার?

- ডায়মণ্ড জৈব সার মাটির উর্বরতা শক্তি বৃদ্ধি করে।
- ডায়মণ্ড জৈব সার ব্যবহারে মাটিতে উপকারী অনুজীবের কার্যকারীতা বৃদ্ধি পায়।
- মাটির পি এইচ মান নিয়ন্ত্রণ করে ও মাটির গুনগত মান বাড়ায়।
- ডায়মন্ড জৈব সার ব্যবহারে ফসলের রোগ প্রতিরোধ ক্ষমতা বৃদ্ধি করে।
- জৈব সার ব্যবহারে রাসায়নিক সারের কার্যকারিতা বৃদ্ধি পায় এবং রাসায়নিক সারের পরিমান কম লাগে।
- ডায়মন্ড জৈব সার মাটির পানি ধারণ ক্ষমতা বৃদ্ধি করে।



উৎপাদন ও বাজারজাতকারী–
ডায়মন্ড অর্গানিক ফার্টিলাইজার লিমিটেড

হেড অফিস- বাড়ি # ৪২৯, রোড # ০৭,
বারিধারা ডিওএইচ এস, ঢাকা-১২০৬
মোবাইল নং: ০১৩২২-৮২৭৩১১,
০১৭০০-৭১০২৭১

ফ্যাক্টরি কার্যালয়- কেন্দুয়াব, বীর উজলী,
কাপাসিয়া, গাজীপুর
মোবাইল নং : ০১৭০০-৭১০২৮০

কাজী ফার্মস

কাজী ফার্মস কন্ট্রাক্ট ব্রয়লার খামার: জিতবে ভোক্তা, জিতবে খামারি

স্বতন্ত্র খামারিরা ডিলারদের কাছ থেকে মুরগির বাচ্চা, ফিড, এবং ওষুধ কিনে থাকেন। আমাদের কন্ট্র্যাক্ট খামারিরা কাজী ফার্মস থেকে এই উপকরণগুলি সরাসরি বিনামূল্যে পান। তারা ব্রয়লারগুলো লালন-পালন করেন, যা কাজী ফার্মসের মালিকানায় থাকে, এবং তাদের উৎপাদনশীলতার ভিত্তিতে টাকা দেওয়া হয়। এটি খামারিদের জন্য ক্ষতির ঝুঁকি কমায়, কারণ রোগের প্রাদুর্ভাবে কাজী ফার্মস ক্ষতি বহন করে।

স্বতন্ত্র খামারিরা প্রায়ই সুস্থ মুরগিকে "প্রতিরোধমূলক" অ্যান্টিবায়োটিক দেন, কিন্তু আমাদের কন্ট্র্যাক্ট খামারিরা তা করেন না। বিশ্ব স্বাস্থ্য সংস্থা (WHO) নির্দেশনা অনুযায়ী প্রাণিসম্পদ খামারিদের প্রতিরোধমূলক অ্যান্টিবায়োটিক এড়ানো উচিত, কারণ এটি জীবাণুকে অ্যান্টিবায়োটিক প্রতিরোধী করতে পারে, যা মানুষের মধ্যে প্রাণঘাতী সংক্রমণের কারণ হতে পারে। কাজী ফার্মস খামারিদের জৈব নিরাপত্তার ওপর প্রশিক্ষণ দেয়। এটি অ্যান্টিবায়োটিকের প্রয়োজনীয়তা কমায় এবং অ্যান্টিবায়োটিক প্রতিরোধ প্রতিরোধ করে।



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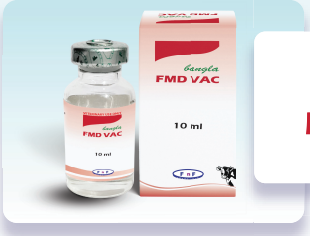

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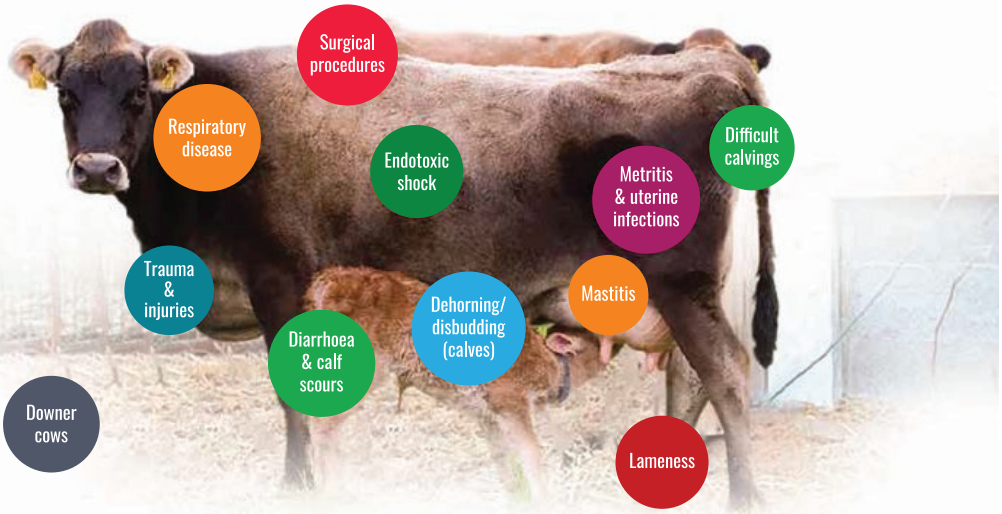

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- BRD (Bovine Respiratory Disease), Endotoxemia-এর সাথে জ্বর ও প্রদাহ নিয়ন্ত্রণের জন্য
- তীব্র শ্বাসতন্ত্রের রোগের ক্ষেত্রে ক্লিনিক্যাল লক্ষণগুলো কমানোর জন্য
- ম্যাস্টাইটিস রোগে সহযোগী চিকিৎসা হিসেবে
- "ডাউনার কাউ সিনড্রোম"-এ ব্যথা নিরাময়ে
- বাছুরের ডায়রিয়ার ক্ষেত্রে সহযোগী চিকিৎসা হিসেবে

মাত্রা ও প্রয়োগবিধি
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অথবা, রেজিস্টার্ড ভেটেরিনারিয়ানের পরামর্শ অনুযায়ী প্রয়োগ করতে হবে



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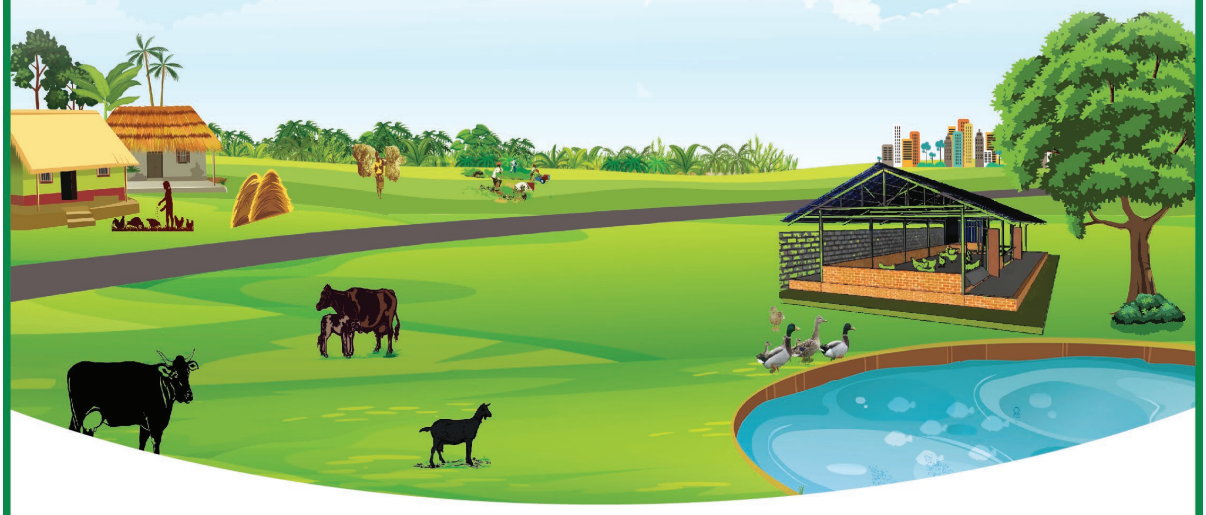

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