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RECEIVED 08 May 2024
ACCEPTED 13 May 2024
PUBLISHED 27 May 2024

CITATION
Mohsin M, Aleem MT, Goraya MU,
Aguilar-Marcelino L, Abbas RZ and Abbas A
(2024) Editorial: Natural products and
pseudo-natural products against veterinary
disease-causing microorganisms.
Front. Vet. Sci. 11:1429587.
doi: 10.3389/fvets.2024.1429587

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Editorial: Natural products and pseudo-natural products against veterinary disease-causing microorganisms

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KEYWORDS

natural products, novel compounds, diseases control measures, veterinary drug, drug development

Editorial on the Research Topic

Natural products and pseudo-natural products against veterinary disease-causing microorganisms

The livestock/poultry sector plays a vital role in the economy, particularly in developing countries, contributing significantly to the Gross Domestic Product (GDP) and addressing key agricultural challenges. However, its growth is hindered by the prevalence of viral, bacterial, parasitic, and fungal infections, which cause significant morbidity and mortality among livestock/poultry populations. These diseases have devastating effects on animal health and impose substantial financial burdens on the livestock/poultry industry (1). Moreover, the sector faces challenges related to developing diseases attributed to synthetic antibiotics and drugs in animal feed. As a response, European nations have taken stringent measures by completely banning synthetic antibiotics.

Consequently, exploring innovative treatment options for preventing infectious diseases has become an intriguing strategy (1). Studies have demonstrated the potential effectiveness of nanoparticles and plant-based products in combating pathogens (2). Essential oils and botanical substances have also shown notable effectiveness against infectious diseases. Phytochemicals have demonstrated favorable results against pathogens such as *Salmonella typhimurium* (3, 4) (Almuzaini; Liu et al.; Mao et al.). Chlorogenic acid has emerged as a promising drug for the treatment and control of *Riemerella anatipestifer*. Icaritin, derived from herbs, has exhibited positive effects against cisplatin-induced renal cell damage in canines (Liu et al.). Probiotics have proven to be beneficial ingredients in animal feed. In treatment alone and combination with novel plants and prebiotics, probiotics have emerged as a viable alternative to antibiotics. The role of lactic acid bacteria as antioxidants and anti-inflammatories makes them effective against *Staphylococcus aureus* as proven in different studies (Mao et al.) (3).

Overall, this Research Topic offers a brief overview of the current research landscape concerning novel compounds and advancements in controlling infectious diseases in livestock and poultry. We anticipate that the findings presented in this topic will enhance our understanding and introduce new strategies for effectively managing various infectious diseases.

Author contributions

MM: Conceptualization, Writing—original draft. MA: Resources, Writing—review & editing. MG: Writing—review & editing, Data curation. LA-M: Writing—review & editing, Formal analysis. RA: Writing—review & editing, Supervision. AA: Writing—review & editing, Formal analysis.

Funding

The author(s) declare that no financial support was received for the research, authorship, and/or publication of this article.

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Acknowledgments

The authors express their gratitude to Frontiers in Veterinary Science Journal for initiating the Research Topic and facilitating the submission of this Editorial.

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