Editorial for the Thematic Issue on Fish Health and Disease Management

Aquaculture continues to expand as one of the fastest-growing sectors of animal production, yet its sustainability remains closely tied to effective health management. Infectious diseases and parasitic infestations are persistent challenges that compromise productivity, animal welfare, and economic viability. This monothematic issue brings together four contributions that reflect current directions in fish health research – targeted therapeutics, physiological safety of treatments, host–pathogen interactions, and emerging biological control strategies.

A central theme emerging from this issue is the ongoing need to refine antiparasitic strategies. The study *"In vitro comparison of anthelmintic efficacy across Gyrodactylus species"* highlights the complexity of host–parasite interactions by demonstrating species-specific responses to anthelmintic agents. Such variability underscores the limitations of generalised treatment protocols and calls for more targeted approaches, particularly in systems where multiple *Gyrodactylus* species may coexist. This work provides a valuable framework for screening compounds and tailoring interventions to specific parasitic profiles.

Complementing this, the paper *"Oral efficacy of controlled-release doxycycline against Ichthyophthirius multifiliis infestation in Salmonids"* explores an innovative delivery system for therapeutics. The use of controlled-release formulations represents a promising direction for improving treatment efficiency while reducing handling stress and environmental impact. By addressing one of the most notorious protozoan parasites in aquaculture, this study contributes to the ongoing search for practical and scalable solutions to white spot disease.

Pharmacological intervention, however, must always be evaluated in the context of fish physiology and welfare. The article *"Effect of praziquantel's 24-hour bath on haematological and biochemical profile and selected parameters of oxidative stress in grass carp (Ctenopharyngodon idella)"* provides important insights into the systemic effects of a commonly used antiparasitic treatment. By integrating haematological, biochemical, and oxidative stress markers, the authors offer a comprehensive assessment of treatment safety. Such multidimensional evaluations are essential to ensure that therapeutic gains are not offset by sublethal physiological disturbances.

Beyond conventional chemotherapeutics, biological approaches are gaining increasing attention. The paper *"The effect of Lactiplantibacillus plantarum probiotic supplement on rainbow trout challenged with Aeromonas salmonicida"* explores the role of probiotics in enhancing host resilience to bacterial infection. *Aeromonas salmonicida*, the causative agent of furunculosis, continues to pose a serious threat in salmonid aquaculture. The use of probiotics represents a promising strategy to modulate the immune system and improve disease outcomes, potentially reducing reliance on antibiotics. This study contributes to a growing body of evidence supporting functional feeds as part of integrated disease management.

Together, the articles in this issue underscore a shift toward more integrated and sustainable fish health management. They highlight the importance of understanding pathogen diversity, evaluating physiological impacts of treatments, leveraging beneficial microbes, and optimising drug delivery systems. Rather than relying on a single approach, effective disease control increasingly depends on combining pharmacological, biological, and management strategies.