



Ss. CYRIL AND METHODIUS UNIVERSITY IN SKOPJE
FACULTY OF VETERINARY MEDICINE - SKOPJE

BOOK OF ABSTRACTS

**“Days Of Veterinary Medicine”
10th International Scientific Meeting
and
2nd European Conference on
Veterinary and Medical Education 2024**

22-25 September 2024,
Republic of North Macedonia

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P14**BIOAQUA - ENHANCING AQUACULTURE BIOSECURITY THROUGH BIOMOLECULAR INNOVATIONS**

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The COST CA22160 Action "Enhancing knowledge of biomolecular solutions for the well-being of the European aquaculture sector" (BioAqua), addresses critical biosecurity challenges in aquaculture by leveraging advanced biomolecular innovations. As aquaculture continues to grow, it faces significant threats from diseases and pathogens that can undermine its productivity and sustainability. BioAqua aims to revolutionize biosecurity strategies within the industry by integrating multidisciplinary approaches and pioneering biomolecular tools. WG1 Biomolecular solutions for water prophylaxis and biosafety focuses on developing new proteins and biomarkers to enhance water prophylaxis and biosafety in aquaculture systems. By identifying key biomarkers, this group aims to detect early signs of disease or contamination in aquaculture environments, allowing for timely interventions. Research efforts include discovering novel proteins and applying molecular techniques to monitor water quality and identify pathogenic threats, ensuring a safer aquaculture ecosystem. WG2 Biomolecular solutions as alternative methods and tools for fish-farm production explores environmentally friendly and safe treatments for aquaculture, emphasizing new molecular engineering methodologies and innovative approaches. The goal is to reduce reliance on antibiotics and chemical treatments, addressing concerns over antimicrobial resistance. WG 2 investigates molecular approaches such as CRISPR-based gene editing, probiotics, and other bio-based treatments to enhance fish health and resilience while minimizing environmental impacts. WG3 Fish welfare serves as a horizontal working group that ensures biomolecular solutions explored in WGs 1 and 2 positively impact fish welfare. This group considers aspects such as disease prevention, stress reduction, growth optimization, feeding efficiency, and behavior. WG 3 integrates welfare standards into biomolecular innovations to ensure that technological advancements improve fish quality of life and productivity without compromising their well-being. WG4 Sustainability insights conducts in-depth analyses of the drivers and barriers related to aquaculture sustainability and the adoption of solutions explored in WGs 1 and 2. This includes examining regulatory aspects, proposing innovative veterinary applications, and developing fish tracking systems. WG 4 addresses regulatory and sustainability challenges to facilitate the adoption of new technologies, ensuring aquaculture practices remain economically viable and environmentally responsible. WG5 Informed creativity focuses on research and innovation management, addressing the technological, sectorial, territorial, policy-oriented, and social dimensions that impact research and the uptake of results. WG 5 bridges the gap between innovation and practical application, promoting collaboration, creativity, and informed decision-making across multiple stakeholders. This approach is expected to improve biosecurity protocols, supporting healthier stocks and more sustainable practices across the industry.

Keywords: Aquaculture biosecurity, Biomolecular innovations