



# OHID

One Health  
International Days

2024 June  
27 & 28

## Book of abstracts



Université  
de Lille



Région  
Hauts-de-France

POLYTECH  
LILLE

LIAN  
Laboratoire International Associé en  
Bioproduction d'Antimicrobiens Naturels



ADRINORD



UFV  
Universidade Federal de Viçosa

INAF  
INSTITUT SUR LA  
NUTRITION ET LES  
ALIMENTS FONCTIONNELS

LEROUX  
Depuis 1858

JUNIA Grande  
école  
d'ingénieurs

UNIVERSITÉ  
LAVAL

Polytech Lille, Villeneuve d'Ascq, France

# Probiotics and their derivative preparations as nature-based solutions for one health advancements

**Hary Razafindralambo**<sup>1,2</sup>, Vijayaram Srirengaraj<sup>3,†</sup>, Huu-Thanh Nguyen<sup>4</sup>, W. H. Coulibaly<sup>5</sup>

<sup>1</sup>ProBioLab, 5004 Namur, Belgium

<sup>2</sup>Sustainable Management of Bio-Agressors & Microbial Technologies, Gembloux Agro-Bio Tech, Université de Liège, BioEcoAgro Joint Research Unit, Belgium

<sup>3</sup>Department of Environmental Studies, School of Energy sciences, Madurai Kamaraj University, Madurai

<sup>4</sup>An Giang University, An Giang, Vietnam

<sup>5</sup>Biotechnology and Food Microbiology Laboratory, University Nangui Abrogoua, Ivory Coast

## **Abstract :**

Face to recent global disease outbreak such as COVID-19, there has been a growing adoption of a One Health approach that considers how environmental changes influence the risks of infectious and chronic diseases for humans, animals, and plants. Therefore, designing adaptive, forward-looking and multidisciplinary solutions to these challenges is necessary with more preventive actions by addressing the root causes and drivers of infectious diseases, particularly at the animal-human-ecosystem interface. One health approaches, such as reducing synthetic agricultural inputs and increasing biodiversity, present a global strategic framework to reduce the risks of new emerging infectious diseases at the animal-human-ecosystem interface, which requires a collaborative effort of multiple disciplines-working locally, nationally, and globally. The exploration of probiotics and their internal and external molecular elements appears an interesting route in One Health initiatives. As benefit live microorganisms and preparations to the host, the probiotics and their derivatives act in promoting health in direct and indirect manners by preventing and treating many diseases for humans and animals, which are nowadays recognized throughout the world. Moreover, their roles in plant growth promoting and protection, soil fertilizing, as well as environment protection and depolluting have also been evidenced through many experiments conducted in labs and pilot with large scale, and currently in expansion. These bio-based preparations may exist in diverse forms, including mono- or multi-strain living microorganisms (living components), postbiotics as internal and external structural elements sourced from probiotics (non-living components), and synbiotic preparations containing a mixture of probiotics and substrates such as prebiotics. They can be incorporated into the formulations of either food and feed supplements or biopesticides and biofertilizers. Our contribution to this conference will be an overview and discussion of relevant functionalities and applications of probiotics and their derivative products as nature-based solutions for One Health advancements through various relevant examples.

**Keywords :** Probiotics; Prebiotics; Postbiotics; Synbiotics; Nature.