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BOOK OF ABSTRACTS

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H-07

Exploration of Madagascar's Aloe Species as Sources of Prebiotic and Nutraceutical Synbiotics for One Health-Oriented Nutritional Support and Public Health Improvement

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Abstract

Madagascar is home of an exceptional botanical diversity, including over 128 native Aloe species traditionally used for treating gastrointestinal and immunological disorders. Despite their wide range of functionalities for biotechnological and medicinal uses, their scientific validations as functional prebiotics and nutraceutical synbiotics are yet mostly unexplored. In this context, we propose to explore the Madagascar's Aloe Species as sources of prebiotic and nutraceutical synbiotics for One Health-oriented nutritional support and public health improvement in local communities, but also for international perspectives. Attention will be paid to the treatment of chronic ulcers and gastritis, and infant nutritional support, especially for malnourished children in southern Madagascar. Our objective is to evaluate the prebiotic potential of Aloe-based polysaccharides and combine them in synbiotic formulations for nutraceutical development as diet supplementation. This research will bridge the gap between traditional Malagasy ethnomedicine and modern biotechnology. By valorizing endemic resources, the study supports the One Health framework through the development of eco-friendly, indigenous nutraceuticals that advance human health while prompting the conservation of Madagascar's unique flora. This communication will present the mapping of Aloe species in Madagascar (taxonomy, botany, traditional uses, etc.), and discuss the preliminary results obtained for representative Aloe species across different regions and climatic conditions. *Aloe divaricata*, *Aloe deltoideodonta*, *Aloe vaombe*, and *Aloe macroclada* (endemic species) were first characterized. Their dry materials and contents in soluble and insoluble fibers were determined at least in duplicate prior to extracting polysaccharides from leaf gel material. The results indicated dry matter percentages 7-8%, soluble fibers 10-11%, and insoluble fibers 41-51%. Polysaccharide yields varied from 1,5 to 1,7% of dry matter after ethanolic precipitation. The physicochemical characterization of polysaccharide samples (e.g., molecular weight, size distribution, thermal stability, etc.) will be determined before assessing their effect on the *Lactaseibacillus rhamnosus* GG growth, viability, and production of nutraceuticals.

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Keywords: Fibers; Probiotics; Polysaccharides; Supplement; Malnutrition

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