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Investigating The Phenotypic Traits And Probiotic Potential Of Lactobacillus Autochthon

HACENE Fatima[1], HOMRANI Mounia [2], HOMRANI Abdelkader [3,] DAHOU Abdelkader Elamine [4]

[1-4] Animal Production Sciences and Techniques Laboratory, University of Abdelhamid Ibn Badis, 27000, Mostaganem, ALGERIA
Corresponding author e-mail: haceneimen9@gmail.com

Abstract

The present study aimed to evaluate the biochemical and physiological characteristics, as well as the technological and probiotic properties of specific autochthonous Lactobacillus isolates. Initially, we confirmed the identification of these bacteria as belonging to the Lactobacillus genus by examining their macroscopic characteristics, conducting the catalase test, and performing Gram staining. Subsequently, we analyzed their biochemical and physiological traits, followed by an assessment of their technological properties. To evaluate their probiotic potential, we tested several of these isolates for antibacterial activity against a pathogenic strain of *Staphylococcus aureus* isolated from a urine sample of a patient with a urinary tract infection. The results indicated that most isolates are homofermentative and demonstrate the ability to thrive under challenging conditions. Additionally, the Lactobacillus strains exhibited strong acidifying, proteolytic, and lipolytic activities. They also produced flavors and exopolysaccharides (EPS), along with significant antibacterial properties. In conclusion, the Lactobacillus isolates assessed exhibited promising technological attributes that could be valuable in the food industry, particularly in dairy applications. Furthermore, their potential use in probiotic treatments, specifically for urinary tract infections, could provide a viable alternative to traditional antibiotic therapies.

Key Words: *Antibacterial activity, Lactic acid bacteria, Lactobacillus, probiotic effects, technological skills.*