

Proceeding Paper

TECHNOLOGICAL POTENTIALS OF LACTIC ACID BACTERIA ISOLATED FROM CAMEL MILK

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Abstract: Camel milk is a primary food resource, providing significant amounts of basic nutrients such as proteins, minerals, vitamins and lipids. In addition, camel milk has been the subject of several studies emphasizing its therapeutic and technological potentials. This potentiality is at the origin of the presence of a diverse microbial flora in camel milk. Lactic acid bacteria (LAB) mainly represent this flora. Many attempts have been made previously to identify lactic acid bacteria from camel milk and its products and to study the technological potential of these bacteria. Lactic acid bacteria are widely used to produce a wide range of dairy products such as fermented milk. The proteolytic, lipolytic and glycolytic activities of LAB contribute to the flavor, texture, microstructure and nutritional and health-promoting benefits of fermented milk products. The objective of this bibliographic study is to explore the technological aptitudes (acidifying, proteolytic and antimicrobial power, etc.) of lactic acid bacteria from camel milk, experimentally proven by several authors.

Key words: camel milk, lactic acid bacteria, prebiotic potential, technological potential.

Introduction

Lactic acid bacteria (LAB) are widely recognized as the predominant bacterial population in camel milk [1]. The study of the microbiota composition is of great practical importance for industrialization in various sectors. Among the bacterial genera found in camel milk are *Leuconostoc*, *Enterococcus*, *Lactobacillus*, *Lactococcus*, and *Streptococcus*, which are considered probiotic candidates. The majority of these species are associated with health benefits for humans [2]. Indeed, they exhibit antihypertensive, hypoglycemic, and antioxidant properties [3][4]. Furthermore, probiotic-quality LAB have been recognized for their ability to disrupt biofilm formation and inhibit harmful pathogens [5]. In this context, it is essential to address the following issue: what is the specific technological potential of camel

lactic acid bacteria? This question raises crucial challenges for optimizing fermentation processes and developing new food products, while highlighting the potential benefits for health and food safety.

Technological potentials of lactic acid bacteria isolated from camel milk

Lactic acid bacteria present in camel milk offer several interesting technological potentials:

- Fermentation of dairy products: LAB can be used to ferment milk, which allows the production of yogurts, cheeses and other fermented dairy products, with unique organoleptic characteristics [6].

- Food preservation: LAB generate organic acids and other metabolites that inhibit the growth of pathogens and unwanted

microorganisms, thereby extending the shelf life of food products [7].

- Improvement of nutritional properties: Some LAB species can increase the bioavailability of nutrients and produce vitamins, thus enriching food products [6].

- Applications in biotechnology: LAB can be exploited in biotechnological processes for the production of biopesticides, biofuels or other bioproducts, thanks to their ability to ferment various substrates [3].

- Development of novel foods: The use of camel milk fermented with LAB could result in new innovative food products, meeting the growing demand for healthy and nutritious alternatives [7].

Conclusion

In conclusion, camel milk is a valuable food resource, rich in nutrients and presenting numerous therapeutic and technological potentials. The microbial flora, dominated by lactic acid bacteria (LAB), plays an essential role in the valorization of this milk by contributing to fermentation and providing health benefits through their probiotic properties. Their use in biotechnological applications and the development of new foods meets a growing demand for healthy alternatives. The exploration of the technological capabilities of LAB from camel milk opens new perspectives for food industrialization and innovation in the agri-food sector.

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