

Technological and probiotic potential of autochthonous lactic acid bacteria from spontaneously fermented dromedary milk

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Abstract

This work aimed to identify autochthonous lactic acid bacteria (LAB) from spontaneously fermented dromedary milk and explore their technological and probiotic properties *in vitro*. Analysis of the strains by 16S rDNA gene sequencing revealed four strains as *Enterococcus faecalis*, one strain as *Enterococcus faecium*, one strain as *Lactococcus lactis*, and four strains as *Streptococcus pasteurianus*. However, two strains (LEFS 42 and LEFS 55) showed a low 16S similarity (97.60% and 97.54%, respectively) with the type strain *Streptococcus suis* 92-2742^T. All the tested LAB strains possessed acidifying and proteolytic capacities. Most of them were lipolytic (83.33%) and had the ability to produce exopolysaccharides (91.67%). All the studied LAB strains were non-hemolytic and exhibited antibacterial activity and sensitivity toward five antibiotics. *Streptococcus* sp. LEFS 55 had the highest hydrophobicity, autoaggregation, and coaggregation abilities. Moreover, all the isolated strains were able to resist simulated human gastrointestinal tract conditions and scavenge DPPH and ABTS radicals.

Practical applications

Nutritional and medicinal values of dromedary milk can be further increased after fermentation. Commercially available starter cultures are from bovine-based dairy industry being not competitive with endogenous microbiota of dromedary milk, which might not give a desirable final product. However, to date, few attempts have been performed to isolate and characterize lactic acid bacteria from spontaneously fermented dromedary milk. Besides, the probiotic potential of autochthonous lactic acid bacteria from fermented dromedary milk remains unexplored. Hence, this study aimed to identify autochthonous lactic acid bacteria from spontaneously fermented dromedary milk and to investigate their technological and probiotic potential. The isolation of autochthonous lactic acid bacteria with technological and probiotic properties from dromedary milk allows the production of fermented dromedary milk with functional properties and the diversification of dromedary milk products.

1 | INTRODUCTION

Nowadays, the market of functional food is increasing since consumers are becoming more aware about the benefits of

foods for potential health enhancement and disease prevention (Shiby & Mishra, 2013). Fermented dairy products have been used as functional foods worldwide (Iravani, Korbekandi, & Mirmohammadi, 2015). Lactic acid bacteria (LAB), which are the