عنوان مقاله:

Antibacterial activity of dromedary camel milk fermented with probiotics against some pathogenic bacteria

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خلاصه مقاله:

The production of natural dairies with antimicrobial properties represents a significant advancement in the context of food biopreservation. This study aims to explore the antibacterial properties of a novel standard probiotic-fermented camel milk (PFCM) and assess the impact of product heat treatment and dilution on these properties. A standard PFCM was prepared using a probiotic starter culture (ABT-١٠) containing Lactobacillus acidophilus La-٥, and Bifidobacterium animalis subsp. lactis BB-١٢® probiotics. The PFCM subjected to heat treatment to produce two subgroups of heated (H-PFCM) and non-heated (N-PFCM) products. The products were then subjected to chemical and bacteriological evaluation within ten days. The antagonistic activity of N-PFCM against Escherichia coli O١٥٧:H٧, Pseudomonas aeruginosa, Staphylococcus aureus, Listeria monocytogenes, and methicillin-resistant Staphylococcus aureus (MRSA) was investigated by comparison between antibacterial activity and minimum inhibitory level (MIL) of N-PFCM with its lactic acid content and H-PFCM ($p<٠.٠٥$). The assessment of the chemical and bacteriological properties of PFCM demonstrated an augmented antibacterial effect. The antibacterial activity of camel milk was enhanced ٢- to ٤-fold after fermentation. The study additionally assessed the antibacterial efficacy of N-PFCM and H-PFCM, comparing it to their lactic acid content, in order to investigate lactic antagonism within PFCM. In this context, N-PFCM demonstrated effective bacterial inhibition at its minimum inhibitory level (MIL), while the lactic acid concentration alone within the MIL did not exhibit antibacterial activity. Furthermore, heat treatment of PFCM at ٨٥°C for ٢ minutes reduced the antibacterial activity by ١- to ٢-fold in MIL assay. Except for MRSA, the thermal process reduced the antibacterial activity of PFCM to its lactic acid level. These findings reveal the antagonistic impact of lactic acid bacteria (LAB) within N-PFCM. The study concludes that non-thermally abused PFCM retains significant antibacterial properties even at ٨-times dilution, suggesting its potential as a natural antibacterial compound for the bio-preservation of foods.

کلمات کلیدی:

Antibacterial, Camel, Heat treatment, Lactic antagonism, milk, Pathogen, probiotic