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Isolation and characterization of probiotic properties of lactic acid bacteria from yogurt and fish (Channa punctate) sample

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Probiotics are alive and nonpathogenic microorganisms that have beneficial effects on their host's health. Lactic acid bacteria (LAB) are the most common microorganisms used as probiotics. Probiotics are actively used for treatment of diarrhea, respiratory infections, and prevention of infectious gastrointestinal diseases. The present study evaluated probiotic potentials of lactic acid bacteria (LAB) from yogurt and fish (Channa punctate) sample. Yogurt and fish (Channa punctate) have been used for many centuries among the natives and are the main source of potential probiotic bacteria. That's why the objective of this study was to isolate and characterize probiotic lactic acid bacteria (LAB) from yogurt and fish sample (Channa punctate) focusing on their safety, Gram staining, biochemical, antimicrobial, pH tolerance test, sodium salt (NaCl) tolerance test, bile salt tolerance test, phenol tolerance test and milk coagulation ability. In this study total 40 isolates were obtained, 25 isolates from yogurt and 15 isolates from fish (Channa punctate) sample. The isolates show their best optimal growth at 37°C temperature. All the isolates were Gram positive in Gram staining procedure and catalase negative and oxidase negative in biochemical test. Among the isolates 2, 4, 5, 7, 11, 15 and 18 of yogurt sample showed the antagonistic activity against Enterotoxic Escherichia coli (ETEC), Enteropathogenic Escherichia coli (EPEC), and Escherichia coli strain and isolates 26, 29, 31, 33 of fish samples has shown their antagonistic activity against Vibrio parahaemolyticus. All the antagonistic activities positive (+) isolates were able to coagulase milk. They were able to tolerate low pH (2.0), sodium salt (8-9% NaCl), bile salt (0.4%), and phenol (0.4%). The results of these tests indicate that the lactic acid bacteria isolated from yogurt and fish (Channa punctate) samples have excellent potential for use as probiotics in various perspectives.

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