4th International Conference of Multidisciplinary Approaches (iCMA), 2017
Faculty of Graduate Studies,
University of Sri Jayewardenepura,
Sri Lanka
ISSN: 2386 – 1509

CHARACTERIZATION AND SCREENING FOR PROBIOTIC POTENTIAL OF LACTIC ACID BACTERIA ISOLATED FROM CURD.

Sandarenu M.W.A.K.**1**, Rajawardana D.U.2* and Fernando K.M.E.P.**1**
1Department of Botany, Faculty of Applied Sciences, University of Sri Jayewardenepura, Sri Lanka
2Industrial Technology Institute, Sri Lanka
upekarajawardana@yahoo.com

Probiotics are live microorganisms when present in adequate amounts bestow health benefits on the host. Lactic acid bacteria (LAB) have been accepted generally recognized as safe (GRAS) for human consumption due to their proven probiotic properties. Present study was conducted to evaluate the probiotic potential of thirteen strains of LAB previously isolated and purified from curd. Morphological, biochemical, physiological characterization and probiotic potentials were studied for isolated strains. Finally antibiotic resistance was studied using selected antibiotics.Gram staining, catalase activity, endospore staining, motility, indole production, methyl red reaction, Voges-Proskauer reaction, utilization of citrate, oxidase activity, urease activity, production of H2S, arginine hydrolysis, growth at different temperatures, gas production from glucose and fermentation of different carbohydrates, were studied. Probiotic potentials of the isolates were determined by evaluating the pH tolerance, bile tolerance, NaCl tolerance, phenol tolerance, survival in the presence of simulated gastric and pancreatic juices and ability to survive at high and low temperatures. The isolates were identified as species belonging to the genus *Lactobacillus* and the probable species were identified as *Lactobacillus plantarum*, *Lactobacillus brevis* and *Lactobacillus delbrukeii* sub sp. *lactis*. The tolerance test results revealed that the most of isolates were able to withstand and grow under reduced pH (1.5 and 3.0), alkaline pH (9.0), extremes of bile (up to 0.5%), phenol (up to 0.6%) and NaCl (up to 6.5%). Isolates were also able to grow at high and low temperatures and in the presence of simulated gastric and pancreatic juices. Antibiotic resistance varied among the isolates. CD010 was resistant to six of the tested antibiotics; sulphamethoxazole, ampicillin, amikacin, cephalothin, vancomycin and norfloxacin. Results shown that six isolates were identified having higher probiotic capacity. These findings illustrate that the LAB isolated from curd have desirable probiotic properties. This provides an opportunity for further investigation of isolates for their safety aspects and technological properties.

Keywords: *Curd, Lactic acid bacteria, probiotics, Lactobacillus, antibiotic resistance*