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Isolation of probiotic from human breast milk and study of its functional characteristics

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Abstract : With the increasing interest in probiotics having potential application in health benefits and disease prevention, the aim of this study was to isolate and identify bacteria from human breast milk with probiotic potential. Bacteria isolated from human breast milk, was evaluated for their ability to survive *invitro* simulated conditions of gastrointestinal stress, their resistance to different pH, bile concentrations and resistance and susceptibility to different antibiotics.

Molecular identification showed that the strain was *Lactobacillus sp.* which showed maximum resistance at pH 3, tolerated 0.5-4.0% bile concentrations and had potential to survive in low simulated gastric juice of pH 1. Moreover, the strain showed susceptibility to antibiotics like erythromycin, rifampicin, ampicilin, and resistivity to streptomycin and gentamycin.

Therefore, the isolated bacteria may be considered as a potential probiotic that can be mass cultivated *in vitro* for the pharmaceutical and food industry.

Keywords: *Probiotics, Lactobacillus sp., human breast milk.*

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Introduction:

The probiotic, literally meaning "for life" was first addressed by Lilly and Stillwell (1965) and was used to describe substances produced by protozoa to stimulate the growth of other organisms. Nowadays, the term refers to viable nonpathogenic microorganisms (bacteria and yeast) that when ingested, are able to reach the intestine in sufficient numbers to confer health benefits to the host (Schrezenmeir and De Vrese, 2001). Probiotics stimulates the growth of beneficial microorganisms and reduces the amount of pathogens (Fuller, 1989; Cross, 2002; Chiang and Pan, 2012), also help to alleviate lactose intolerance, enhance nutrients bio availability, and prevent or reduce the prevalence of allergies in susceptible individuals (Chiang and Pan, 2012). Probiotics being safe for human consumption