

Hypocholesterolemic Potential of Probiotic Bacteria Isolated from Human Breast Milk

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Probiotics are live microorganism, which, when consumed in adequate amount, confer health benefits to the host (FAO/WHO, 2002). Health benefits conferred by probiotics are majorly includes defense against microbial infections, bioavailability of nutrients, development of systemic immunity, management of raised cholesterol, triglyceride levels, diabetes and related cardiovascular diseases (CVD). CVD has become a leading cause of global mortality. The probiotics affects the host's energy homeostasis by means of various mechanisms producing small biomolecules responsible for managing lipid profiles, and participating in the absorption, metabolism and excretion of bile salts, which directly regulates the serum cholesterol levels. Cholesterol is a vital substance of the human body; however, longstanding raised serum cholesterol levels may lead to development of atherosclerosis which poses a major risk for CVD. In study, investigation was carried out to hypocholesterolemic potential of human breast milk probiotic bacteria. *Enterococcus faecalis* K2 exhibited highest bile salt hydrolase activity (BSH; 31.82nmol/mL/min of glycine) and produced the highest amount of cholic acid from deconjugation of bile salts (28.24%) *in vitro*. The *E. faecalis* K2 showed significantly high cholesterol assimilation (63.29%), co-precipitation of cholesterol with deconjugated bile acids (41.64%), cholesterol removal via cell wall fraction (39.22%) and sequestered appreciable amount of cholesterol from mixed micelles. The probiotic candidates with characteristic probiotic properties and significant cholesterol lowering potential may be used for lowering the risk of CVD development.

Keywords: Probiotics; Cholesterol, CVD; Human Breast Milk; *Enterococcus faecalis* K2