ABSTRACT

CHARACTERIZATION AND THERAPEUTIC POTENTIAL OF ANTI-HEICOBACTER PYLORI BACTERIOCIN OF A LACTIC ACID BACTERIAL ISOLATE

Peptic ulcer disease (PUD) is caused by an imbalance between the gut mucosal defense mechanisms and damaging forces of gastric juices or caused due to *H. pylori* infection. A study was undertaken to explore screening, isolation, characterization and *in vivo* *H. pylori* inhibition property of LAB isolated from fecal samples and its role in the prevention of PUD. *In vitro* safety assessment of *P. acidilactici* BA28 has revealed its various probiotic properties such as its GRAS status, capability of inhibiting a wide spectrum of pathogenic bacteria in a concentration dependent manner, bactericidal mode of action on sensitive strains, acid and bile tolerance etc. *P. acidilactici* BA28 is a hetero-fermentative, Gram positive lactic acid bacteria that can survive at a pH range from 2.0-9.0, with optimal growth observed between pH 6.5 to 8.5. Microorganism is mesophilic in nature and grows at moderate temperature range (10°C to 42°C). Strain has a good acid and bile tolerance, antibacterial activity and antibiotic sensitivity for its commercial use in various probiotic products. *P. acidilactici* BA28 is sensitive to a number of antibiotics that supports its GRAS character and usability in various probiotic food formulations and as an adjunct with antibiotic therapy. *P. acidilactici* BA28 produces a bacteriocin designated as pediocin BA28 that kills *H. pylori* in a concentration dependent manner. *In vivo* studies, carried out in C57BL/6 mice, revealed its potent peptic ulcer eliminating property in *H. pylori* infected animals. The current study may pave the way to propose use of probiotic *P. acidilactici* BA28 as a co-adjunct of standard antibiotic treatment.

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