

In vitro Antioxidant, Anticancer Properties and Probiotic Characteristics of Selected Lactic Acid Bacteria Strains

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Abstract : Probiotic strains can potentially be used as bio-preservatives and functional food supplement. Eight lactic acid bacteria strains (LAB) *Lactobacillus brevis* NRRL B-4527; *Streptococcus thermophilus* BLM 58; *Pediococcus acidilactici* ATCC 8042; *Lactobacillus rhamnosus* CCUG 1452; *Lactobacillus curvatus* ATCC 51436; *Lactococcus lactis* sub sp. *lactis* DSM 20481; *Lactobacillus plantarum* DMSZ 20079 and *Lactobacillus plantarum* TF103 were selected to screen the antioxidant, anticancer potential and probiotic properties. LAB strains exhibited good probiotic, antioxidant properties and showed antagonistic activity against food-borne pathogenic (*Bacillus subtilis* DB 100 host; *Candida albicans* ATCCMYA-2876; *Clostridium botulinum* ATCC 3584; *Escherichia coli* BA 12296; *Klebsiella pneumoniae* ATCC12296; *Salmonella senftenberg* ATCC 8400 and *Staphylococcus aureus* NCTC 10788). Further, in vitro probiotic properties of eight strains displayed excellent acid tolerance, bile tolerance, simulated gastrointestinal juice tolerance, in vitro adhesion ability for HT-29 cell line. The antioxidant effect of intracellular and cell-free extract of lactic acid bacteria strains was evaluated by various antioxidant assays, namely, resistance to hydrogen peroxide, DPPH radical scavenging, ABTS radical scavenging, and hydroxyl radical scavenging (HRS). The results showed that intracellular and cell-free supernatant of *S. Thermophilus* BLM 58, *L. lactis* subsp. *lactis* DSM 20481, *P. acidilactici* ATCC 8042, *L. brevis* NRRL B-4527 strains possess excellent antioxidant capacity. The intracellular of *S. Thermophilus* BLM 58 and *P. acidilactici* ATCC 8042 also showed excellent anticancer activity against Caco-2, MCF-7, HepG-2, and PC-3. Antioxidative property of selected lactic acid bacteria strains would be useful in the functional food manufacturing industry. They could beneficially affect the consumer by providing dietary source of antioxidants.

Keywords : anticancer activity, antioxidant activity, functional food, lactic acid bacteria, probiotic

Conference Title : ICFSN 2018 : International Conference on Food Security and Nutrition

Conference Location : Vancouver, Canada

Conference Dates : September 17-18, 2018