J Food Process Technol 2018, Volume 9
DOI: 10.4172/2157-7110-C8-099

In vitro antioxidant, anticancer properties and probiotic characteristics of selected lactic acid bacteria strains

M G Shehata[1], **Marwa M Abu Serie**[2], **Nourhan M Abd El Aziz**[1] and **S A El Sohaimy**[1]
[1]Arid Lands Cultivation Research Institute – SRTA-City, Egypt
[2]Genetic Engineering and Biotechnology Research Institute – SRTA-City, Egypt

Probiotic strains can potentially be used as bio-preservatives and functional food supplements. 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 pathogens (*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* sub sp., 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.

gamalsng@gmail.com