

Exopolysaccharide Production from Lactic Acid Bacteria

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Abstract—Probiotics are living microorganisms which when consumed in adequate amounts colonize the human gut thereby imparting nutritional and therapeutic benefit to the host. Probiotic micro-organisms including lactic acid bacteria (LAB) positively influence the composition of the gut microflora. Probiotics since centuries are known to have imparted health benefits, which include suppression of conditions, like cholesterol, high blood pressure, and irritable bowel syndrome and colon cancer. Examples of such probiotic microorganisms are *Lactobacillus acidophilus*, *Lactobacillus johnsonii*, *Lactobacillus brevis*, *Lactobacillus casei*, *Lactobacillus delbrueckii*, *Bifidobacterium bifidum* and *Bifidobacterium infantis*. Exopolysaccharides (EPS) are one of the end products and have immense commercial values because of their industrially useful physical and chemical properties. EPS of microbial origin are long chain, high molecular mass, water-soluble polymers that may be ionic or non-ionic in nature. Monosaccharide components of EPS in lactobacilli comprise of glucose, galactose and rhamnose. EPS plays a key role in co-aggregating the host strains making them adhere to the intestinal epithelial cells and providing competitive inhibition to the adhesion of pathogenic bacteria, also they have numerous applications in food, agronomy, pharmaceutical and cosmetic industries. 14 strains were isolated from fermented food products and were analysed for production of EPS. The EPS production was checked qualitatively and quantitatively. Quantitative results demonstrated that out of 14 strains, I3(3) and DO2(2) strains were showing maximum concentration of EPS, i.e., 0.949 mg/ml and 0.973 mg/ml respectively. The rest of the strains produced insignificant amount of EPS.

Keywords: Probiotics, exopolysaccharides, industries, application, MRS agar, Lactic Acid Bacteria.