

Exopolysaccharide production employing food industry by-products

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Exopolysaccharides, the heterogeneous polymers are usually used in diverse fields. They are employed in pharmaceuticals, nutraceuticals, functional foods, cosmeceuticals, herbicides and insecticides owing to their anticoagulant, antithrombotic, immunodulation, anticancer and bioflocculant properties. They are also used in the food industry as biothickeners and texturisers with many health benefits. Exopolysaccharides are produced by thermophilic and halophilic groups of bacteria. They are secreted generally by microorganisms into the surrounding environment. Currently, the production cost for exopolysaccharides production is very high as the carbon source employed in the growth media for biomass fermentation is uneconomical. The cost in relation to the production of exopolysaccharides can be reduced by employing food industry by-products as the carbon source. By-products, such as vinasse, sweet water, molasses, whey, etc. can be used for the production of exopolysaccharides. The manipulation of fermentation conditions, especially the use of an economical carbon source might enhance the commercial production of these biomolecules. Moreover, the food industry by-products if utilised properly could not only be helpful in yielding exopolysaccharides with a high degree of purity and specific functional properties but might also reduce about 11% of greenhouse gases that are emitted from the food system contributing to climate change (by trapping heat), respiratory diseases (from smog and air pollution), etc.

Keywords: Exopolysaccharide, Glucose, Food industry by-products, Production cost, Green house gases

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