

Alginates Production, Characterization and Modification

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Abstract

Alginate, naturally occurring in brown seaweeds, is an anionic polysaccharide that has been deeply researched, and its properties of biocompatibility with human tissue, bone, and teeth, and mild gelation along with minimal toxicity while being relatively cheap, have found application in many biomedical science and engineering products and processes. Globally, seaweeds provide the major raw material source for economically producing alginate and related polysaccharides and industrial products. The physicochemical properties of alginates vary as they are composed of various proportions of β -d-mannuronic acid (M) and α -l-guluronic acid (G) residues in their polymeric chains, measured by the G/M ratio, and the specific distribution of molecular weight of the different polymers in the product. The sequence and nature of extraction and precipitation procedures of alginates from seaweed species not only affect the purity and amount of yield but also control the chemical constitution and rheological properties of the product alginate. This chapter will provide a detailed overview of alginate's production, characterization, and modification, which could indicate new starting points for future studies.

Keywords: Alginates, production, characterization, modification

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