

Alginates: General Introduction and Properties

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Abstract

Alginates (ALGs) are a group of naturally occurring anionic polysaccharides derived from brown seaweeds. They are linear biopolymers of 1,4-linked β -D-mannuronic acid (M) and 1,4 α -L-guluronic acid (G) residues that are arranged in homogenous (poly-G, poly-M) or heterogenous (MG) block-like patterns. The physiological and chemical characteristics of ALGs depend on this arrangement of residues. Alginates are primarily used as thermally stable cold-setting gelling agents, which are formed in presence of divalent cations. They are more efficient gelling agents than gelatin and can gel at far lower concentrations as compared to other agents. This ability to create a chemically set, irreversible gel has proved to be useful in many food applications. Among various ALGs, sodium ALG is most widely studied in the pharmaceutical and biomedical field. Its various properties favor its use for viscosity enhancement, encapsulation polymer, matrixing agent, stabilizer, bioadhesive, and film former in transdermal and transmucosal drug delivery. With well-established uses in dentistry, the ALGs also offer interesting possibilities in the field of medicine and cosmetics as a skin care ingredient. This chapter will include general introduction, understanding of structure and properties of ALGs, and different forms of ALGs used in industries.

Keywords: Alginates, biopolymer, polysaccharide, medicines, cosmetics

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