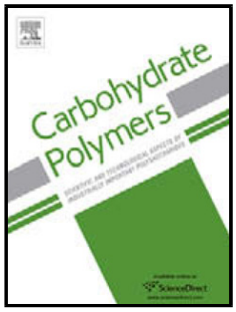

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Inulin, a flexible oligosaccharide I: Review of its physicochemical characteristics

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Abstract

Inulin, a fructan-type polysaccharide, consists of (2→1) linked ß-D-fructosyl residues (n=2-60), usually with an (1↔2) α-D-glucose end group. The applications of inulin and its hydrolyzed form oligofructose (n=2-10) are diverse. It is widely used in food industry to modify texture, replace fat or as low-calorie sweetener. Additionally, it has several applications in other fields like the pharmaceutical arena. Most notably it is used as a diagnostic agent for kidney function and as a protein stabilizer. This work reviews the physicochemical characteristics of inulin that make it such a versatile substance. Topics that are addressed include morphology (crystal morphology, crystal structure, structure in solution); solubility; rheology (viscosity, hydrodynamic shape, gelling); thermal characteristics and physical stability (glass transition temperature, vapor sorption, melting temperature) and chemical stability. When using inulin, the degree of polymerization and processing history should be taken into account, as they have a large impact on physicochemical behavior of inulin.

Contents

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