

Sulfated galactans from red seaweeds and their potential applications

ABSTRACT

Red seaweeds (Rhodophyta) produce a variety of sulfated galactans in their cell wall matrix and intercellular space, contributing up to 50-60 % of their total dry weight. These sulfated polysaccharides are made up of galactose disaccharides substituted with sulfate, methoxyl, pyruvic acid, or non-galactose monosaccharides (e.g. xylose, glucose and mannose). They are required by the Rhodophytes for protection against pathogen, desiccation, tidal waves and extreme changes in pH, temperature and salinity. Since ancient times, sulfated galactans from red seaweeds, such as agar and carrageenan, have been consumed as human foods and later being used in traditional medicine. Nowadays, some red seaweeds are cultivated and exploited for commercial uses in various fields. In this review, different types of sulfated galactans found in red seaweeds and their current and potential uses in food, biotechnology, medical and pharmaceutical industries are discussed.

Keyword: Agar; Carrageenan; Red seaweed; Rhodophyta; Sulfated galactan