Rheological behavior of polysaccharide solutions from the green seaweed *Monostroma sp.* (Ulvalves)

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Marine green algae from genus *Monostroma* (order Ulvales, Chlorophyta) synthesize water-soluble sulfated polysaccharides namely heterorhamnans. In this study the rheological properties of polysaccharides from the green seaweed *Monostroma sp.* have been analyzed using different concentrations and salts. Sulfated heterorhamnans were obtained from the green seaweed *Monostroma sp.* by sequential aqueous extractions at 25 °C and 80 °C four times. The polysaccharides obtained from each extraction were pooled to give the crude extract M-I (24.6 % yield, 29.4% sulfate). M-I contains rhamnose (62.2 mol %) as the main monosaccharide besides minor amounts of glucose (15.1 mol %), xylose (12.1 mol %) and uronic acids (8.6 %). The rheological behavior of this pool of heterorhamnans was investigated at the range of 50, 75 and 100 g/L, and the salts tested were NaCl, CaCl₂ and H₃BO₃. The rheological analysis of these solutions showed a gel behavior and an even stronger gel behavior with addition of borate salts. These solutions showed thermal stability in the range of 5 to 95 °C and a great recovery (~59%) in the creep and recovery test. These analyses showed an interesting rheological behavior indicating that these polysaccharides can be an alternative to other hydrocolloids widely used by industries.

Word Keys: *Monostroma sp.*, green seaweed, polysaccharide, rheology.
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