Sulfated Galactan from *Chondrophycus flagelliferus*: Structural Analysis

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Sulfated galactans are the mayor water soluble polysaccharides from red seaweeds. However, we recently described that *C. flagelliferus* and *C. papillosus* also synthesize a xylo-2-sulfated-mannan. Now we present the structure of the galactan from the former species. The milled alga was sequentially submitted to aqueous extraction at 25ºC and 90ºC (FC and FH, respectively). These extracts were treated with KCl (2.0 M) precipitating the xylo-2-sulfated-mannan. The KCl-soluble fraction (FCs) was chromatographed on DEAE-Sephacel to give a homogeneous (HPSEC–MALLS-RID, MW= 143 KDa) fraction FCs-0.6 (55.0%, SO_3Na 21.2%, pyruvate 5.2%). Galactose (61.8%), 6-*O*-methylgalactose (16.5%) and 3,6-anhydrogalactose (12.3%) are the major sugars, with small amounts of xylose (4.3%), 3,6-anhydro-2-*O*-methylgalactose (2.8%) and 2-*O*-methylgalactose (2.2%). The ^{13}C NMR spectrum of FCs-0.6 showed signals at 25.2 and 175.4 ppm corresponding to the methyl and carboxyl carbons, respectively, from the pyruvate acetal group (P) in the R form. The anomeric region showed two main signals at 100.6 and 97.9 ppm corresponding to ß-D-galactose-2-sulfate(P)? 3,6-anhydro-α-L-galactose. Additionally, minor absorptions (ppm) at 103.4-103.0 corresponding to ß-D-galactose? α-L-galactose (100.7) and at 102.3-102.1 to ß-D-galactose? 3,6-anhydro-α-L-galactose (97.9) were assigned. In order to determine the glycosidic linkages and sulfation positions the native and desulfated galactans were submitted to methylation analyses. These results combined with the spectroscopic analyses showed that *C. flagelliferus* biosynthesizes an agaran sulfate mostly sulfated on C-2 and highly pyruvylated (1 pyruvate acetal every 5 units). Supported by CNPq, PRONEX-CARBOIDRATOS.