Polysaccharides from the Seaweed *Gracilaria birdiae*: Structure and Toxicological Evaluation.

Fontenelle,T.P.C, Chaves,L.C, Bezerra,C.F, Gonçalves, V.C.S, Silva, M.L.S, Freitas, A.L.P.
Departamento de Bioquímica e Biologia Molecular, Universidade Federal do Ceará, Fortaleza, Brasil.

The red seaweed *Gracilaria birdiae*, submitted to aqueous extraction of polysaccharides, yielded 6,4% in the cold extraction (25º C) (Gb-f), and 56% in the hot extraction, at 100°C (Gb-q). The sulfate content on the fractions Gb-f and Gb-q showed values of 6,4 and 3,6%, respectively. The sulfate degree of Gb-f was 0,22, whereas Gb-q showed value of 0,04. The protein content in the samples Gb-f e Gb-q was 7,6 and 2,0%, respectively. The samples were characterized by Gel Permeation Chromatography (GPC), Infrared Spectoscopy (FT-IR) and nuclear magnetic resonance (NMR) spectroscopy. The GPC chromatograms of both samples showed similarity and typical characteristics of red seaweeds polysaccharides. The fraction Gb-f showed a pick and a shoulder with molecular weight of 1,11 x 10^6 and 1,26 x 10^5 g/mol, respectively, whereas the fraction Gb-f showed both pick and shoulder with molecular weight of 3,18 x 10^5 and 1,09 x 10^5 g/mol, respectively. The infrared spectra of Gb-f and Gb-q showed similar profile, with the characteristic bands of agarocoloids, more specifically, agaran-like. MNR 1D and 2D were employed to the structural characterization of the samples Gb-f and Gb-q and revealed that the polysaccharides structures are composed by (1? 3)-ß-D-galactopiranosil linkage to (1? 4)-a-L-anidrogalactopiranosil segments. The acute toxicological evaluation in mice demonstrated absence of mortality and toxicity in the groups treated by intraperitoneal way, at 0,5; 1,0 e 2,5 mg/100g of body weight dosage. The chronic toxicological evaluation did not evidence toxicity signs in rats, in the 50 mg/g body weight dosage, by oral way. The parameters evaluated were: monitoring of rats' weight, hematological and hystopatological analyses.

Key words: Polysaccharides, Spectroscopy, Toxicology.