

Assessment of the anticoagulant capacity and cytology of sulfated polysaccharides, purified and extracted from seaweed *Udotea flabellum*

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Introduction and objectives: Seaweeds synthesize several bioactive compounds, among these sulfated polysaccharides (SPs) stand out, because they have several pharmacological activity. The green seaweed *Udotea flabellum* is found in Rio Grande do Norte coast. However, there no data about the pharmacological activity of its sulfated polysaccharides (SPs). Thus, this study was aimed at evaluating the potential anticoagulant activity of *Udotea* SPs. **Materials and methods:** We extracted nine SP-rich fractions (F0,3v, F0,5v, F0,6v; F0,7v; F0,8v; F1,0v; F1,2v; F1,5v e F2,0v) from *Udotea flabellum* by proteolytic digestion followed by sequential acetone precipitation. The amount of protein, sulfate, sugar and the monosaccharide composition of the samples was determined. APTT and PT anticoagulant tests were used. The fraction F0,5v was purified by molecular mass with Amicon® Ultra-15 devices given five fractions (FI, FII, FIII, FIV, FV). F0,5v, FI and FII cytotoxic activity against normal and tumor cells was evaluated using MTT assay. **Results and conclusions:** All SP-rich fractions showed anticoagulant activity. To prolong the coagulation time to double the baseline value in the APTT, the required concentration of F0,5v (2.5 ug/mL) was almost 2-fold lower than that of the low molecular weight heparin Clexane (4.1 ug/mL). Only FI, FII, FIV showed anticoagulant activity. FI was most potent compound. It is composed of galactose and sulfate and it showed no protein contamination. In addition, F0,5v, FI e FII (from 10 to 1000 ug/mL) have no cytotoxic effect. The data showed that variable steps of purification allows the obtaining sulfated galactans with anticoagulant potential.

Key Words: *Udotea flabellum*; sulfated galactan; green seaweed

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