

Structural Characterization and Evaluation of Potential Pharmacological Activities Performed by a Fraction Rich in Polysaccharides from Seaweed *Dictyota menstrualis*

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INTRODUCTION: Fucans are sulfated polysaccharides widely distributed in the cell walls of brown algae, present complex structure, diversified and consist mainly of fucose, besides having sulfate group. **OBJECTIVES:** Taking into account the need to search for alternative sources of biomolecules performing any pharmacological activity, this study aimed to characterize partially and examine possible pharmacological activity of a fraction rich in polysaccharides (FRP) extracted from seaweed *Dictyota menstrualis*. **MATERIALS AND METHODS:** FRP was extracted by proteolysis with maxatase proteolytic enzyme and precipitation with crescent volumes of acetone. FRP was structural characterized by electrophoresis, spectroscopy and chemical analysis. The pharmacological assays were made with anticoagulant kits and the antioxidant activities and antiproliferative effects were made with described by Dore et al., 2013. **RESULTS AND DISCUSSION:** FRP presented yield about 29.36%. Chemical analysis showed 48.6% of total sugars, 16.5% of uronic acids and 2.3% sulfate and irrelevant protein contamination. Spectroscopic data of IR and NMR confirmed the presence of fucopyranose residues and sulfate groups bonded to them as well as residues of β -D-galactose. FRP prolonged blood coagulation time especially interfere significantly in the intrinsic pathway (APTT test) increasing the clotting time to > 120 seconds from 1.25 mg/ml. FRP altered cell function of different cell lines (HeLa, 3T3, B16-F10 and HT29). At the concentration of 1000 μ g/ml, the viability of all cell lines decreased significantly. The number of B16-F10 cells decreased by dose-dependent manner at 48h time incubation. FRP increases the viability of HT-29 cells at the concentrations of 0.1, 1, 10, 100 μ g/ml at 24, 48 and 72h time treatment. FRP probably acts selectively interfering with cellular function triggering different responses. **CONCLUSION:** The chemical and structure analysis indicated that FRP is a heterofucan that have prolongation effect over intrinsic pathway of blood coagulation and inhibited the cell proliferation of all the cells lines tested.

Keywords: fucans, anticoagulant activity, antiproliferative activity.

Supported by CNPq