"Pharmacological Effects of Sulfated galactans from *Hypnea musciformis*"

Alves, M.G.C.F ,Paiva, A.A.O. , Viana, R.L.S., Dantas, L.A., Almeida-Lima, J. , Leite, E.L., Rocha, H.A.O.

Departamento de Bioquímica, DBQ, UFRN, RN, Brazil

INTRODUCTION: The red seaweed *Hypnea musciformis* is a source of bioactivity compounds such as sulfated galactans. **OBJECTIVES:** To purify and evaluate the anticoagulant, antioxidant and imunomodulatory potentials of sulfated galactan-rich fraction (SG) purified from *H. musciformis.* **MATERIALS AND METHODS:** The seaweed was submitted to proteolysis for 18 h. After the supernatant was fractionated with increasing volumes of acetone. The fraction obtained with 1.0 volume of acetone (F1.0v) was fractionated using Amicon® Ultra-15 device**.** Then, sulfated galactan-rich fractions F1,0v, FI> 100KDa, DI and DII were evaluated for chemical composition, electrophoresis profile and anticoagulant activity. The antioxidant and imunomodulatory activities were measured by total antioxidant capacity method and by Griess reaction and C*ytometric Bead Array (CBA) Mouse Th1/Th2/Th17 Cytokine* (BD) respectively. **RESULTS AND DISCUSSION:** SG displayed high sugar content ranging from 40.95 ± 1.40 to 54.85 ± 1.02 with variable sulfate/sugar relation (F1.0v: 0.15; FI>100KDa: 0.33; DI: 0.27; DII: 0.16) and no protein contamination. Agarose gel electrophoresis showed characteristic metachromasia with toluidine blue of sulfate polymers. All SG (F1,0v, FI>100 kDa, DI, DII) showed anticoagulant activity once they promoted the extension of activated parcial thromboplastin time of 4.9, 6.1, 3.3 and 7.1 times when compared with reaction control. One of the most purified SG (DII) showed the highest anticoagulant activity (213 ± 6 seconds). All SG showed antioxidant activity of 30.99 ± 4.34, 92.11 ± 3.10, 69.88 ± 0.21, 32.89 ±0.83 mg of ascorbic acid equivalentes/g of fraction, respectively.FI> 100 kDa exhibited the highest antioxidant capacity followed by DI purified fraction. The samples also showed immunomostimulatory activity once it was observed high levels of NO, IL-6, TNF in RAW cells treated for 24 hours. **CONCLUSIONS:** Variable steps of purification allows the obtaining of sulfated galactan-rich fraction with different chemical composition and with biological properties as anticoagulant, antioxidant and imunomodulatory.

Keywords: Sulfated galactan-rich fractions; red seaweed, imunomodulatory.

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