ISOLATION AND ANTIINFLAMMATORY AND ANTIOXIDANT ACTION OF FUCANS FROM THE BROWN SEAWEED *Lobophora variegata* IN A MODEL OF ARTHRITIS IN RATS

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This study analyzes the action of sulfated polysaccharides, fucans, from algae *Lobophora variegata* on antioxidant trials and zymosan-induced arthritis in rats. Groups of fucans, obtained after acetone fractionation, were denominated F0.3, F0.5, F0.8, F1, F1.5, and F2. Chemical and structure analysis of F1, that showed high yield in relation to other fractionated, was performed by nuclear magnetic resonance (NMR) and infrared (IR) spectroscopies. *In vitro* scavenging activities of superoxide and hydroxyl radicals were performed. The fraction F1 showed a low percentage of protein (0.12 ± 0.08%) and significant amounts of carbohydrates (46.6 ± 0.36%) and sulfate (22.7 ± 2.1%), with antioxidant activity with EC50 of 0.3 and 0.12 mg/mL for removal of superoxide and hydroxyl radicals, respectively. Fucan F1 (25, 50, and 75 mg/kg by body weight), diclofenac sodium (10 mg/kg), and L-NAME (25 mg/kg) were administered intraperitoneally (i.p.) in rats in different groups of animals (n=6). After 6 h, analyses of cell influx and nitrite levels were conducted. Then after 96 h, analysis of edema and concentration of serum TNF-α was carried out along with histopathological analysis. F1 at 25, 50, and 75 mg/kg i.p. by body weight reduced cell influx in 52.1-96.7% and nitric oxide level in 27.2-39% compared with the control group. The reduction of edema and serum TNF-α was observed at 50 mg/kg i.p. (p < 0.001). These results suggest that this heterofucan from has potential anti-inflammatory activity in acute zymosan-induced arthritis in rats and that antioxidant activity promotes modulation in the cellular redox state.

Keywords: arthritis; heterofucans; cell influx; TNF-α; NMR.

Supported by: CNPq and CAPES