Biological Activities of a Heterofucan from *Dictyota menstrualis*

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**Introduction and objectives:** Natural products are sources of diverse bioactive molecules. In this context, one can mention the seaweeds. Furthermore, among the bioactive compounds synthesized in greater amounts by seaweeds, the sulfated polysaccharides stand out. Fucan is a term that defines a family of homo- and heteropolysaccharides containing sulfated L-fucose in its structure. In this work, a heterofucan (F2.0v) from the seaweed, *Dictyota menstrualis*, was evaluated as an antinociceptive and anti-inflammatory agent. **Materials and Methods:** The brown seaweed, *Dictyota menstrualis*, was collected at Búzios beach, Rio Grande do Norte State (Brazil’s Northeast). The polysaccharides were separated into five fractions using precipitation with acetone. The fraction F2.0v, was subjected to ion exchange chromatography DEAE cellulose, and subsequently submitted to anti-nociceptive and anti-inflammatory test in vitro and in vivo. **Results and conclusions:** F2.0v (20.0 mg/kg) inhibits 100% of leukocyte migration into the peritoneal cavity after chemical stimulation. However, F2.0v does not alter the expression of interleukin-1 beta (IL-1\(\beta\)) and interleukin-6 (IL-6), as well as tumor necrosis factor alpha (TNF-\(\alpha\)). F2.0v (20.0 mg/kg) has peripheral antinociceptive activity with potency similar to dipyrone. On the other hand, it had no effect on pain response on the hot plate test. Confocal microscopy analysis and flow cytometry showed that F2.0v binds to the surface of leucocytes, which leads us to suggest that the mechanism of action of anti-inflammatory and antinociceptive F2.0v is related to its ability to inhibit the migration of leukocytes to the site of tissue injury. In summary, the data show that F2.0v compound has great potential as an antinociceptive and anti-inflammatory, and future studies will be performed to further characterize the mechanism of action of F2.0v.

Keywords: Fucoidan, Brown Algae, Anti-nociceptive