ANTI-INFLAMMATORY ACTION OF THE POLYSACCHARIDE FRACTION FROM RED ALGAE AMANSA MULTIFIDA

José Simião da Cruz Júnior, Eulina Gabriela do Nascimento Dias, Ramon Handerson Gomes Teles, Yago Medeiros Dutra, Isabela de Sousa Braúna, Tarcísio Vieira de Brito e André Luiz dos Reis Barbosa, da FEDERAL UNIVERSITY OF PIAUÍ,

Introdução: The study for natural products with pharmacological properties has contributed to the discovery of compounds with important applications (SOUZA et al. 2008; CORREA et al. 2008). Recently, seaweed have attention as a source of bioactive substances for the development of new drugs (QI et al. 2005). Red seaweeds produce an innumerous variety of sulfated polysaccharides (PLS). They also exhibit important pharmacological activities, such as anticoagulant, antioxidant, and anti-inflammatory (AZEVEDO et al. 2009). The present study investigates anti-inflammatory action of PLS fraction of the algea A. multifida by using experimental models of inflammation. Materiais e Métodos: The oedema has been induced by the injection into the paw of 50 µl of a suspension of carrageenan (500 µg/paw) in 0.9% sterile saline. Mice were pretreated intraperitoneally (i.p.) with either saline; 10 mg/kg indomethacin; or PLS 1, 3 and 10 mg/kg PLS. Paw volume was measured immediately before, and at 1, 2, 3, and 4 hour after carrageenan treatment with a plethysmometer. To induce paw oedema with different inflammatory agents, the animals were administered 50 µl of serotonin (1%, w/v), PGE2 (3 nmol/paw) bradykinin (1%, w/v) or histamine (1%, w/v) into the paw. PLS (3 mg/kg) or indomethacin (10 mg/kg, reference control) was injected i.p. 1 hour before these intraplantar injections of phlogistic agents. The tissues were removed from the paws 4 h after carrageenan induction, in mice terminally anesthetized from each experimental group for later quantification of Interleukin-1b (IL-1b), 10 (IL-10) and tumor necrosis factor-a (TNF-a) levels, expressed as picograms of cytokine per milliliter of protein solution. Resultados e Discussão: PLS 3 mg/kg prevented paw edema induced by Cg (3h: 0.020 ± 0.008), PGE2 (0.022 ± 0.006), bradykinin (0.005 ± 0.002), histamine (0.014 ± 0.007) and serotonin (0.059 ± 0.001) when compared with groups that only received the Cg (3h: 0.072 ± 0.007), PGE2 (30 min: 0.051 ± 0.015 ml), bradykinin (0.026 ± 0.013), histamine (0.043 ± 0.009 ml) or serotonin (0.099 ± 0.003 ml). PLS 3 mg/kg (268.1 ± 28.37; 685.8 ± 152.9) also significantly reduced the production of TNF-a (506.6 ± 49.86 pg/ml) and IL-1 (1227 ± 52.06 pg/ml). Finally, PLS 3 mg/kg (64.16 ± 7.367 pg/ml) promoted an increase of IL-10 (5.160 ± 2.593 pg/ml).

Conclusão: According our results we can infer that PLS of the A. multifida has anti-inflammatory

Yago Medeiros Dutra, Isabela de Sousa Braúna, Tarcísio Vieira de Brito e André Luiz dos Reis Barbosa, da FEDERAL UNIVERSITY OF PIAUÍ,
effect by modulating the action of several inflammatory mediators and cytokines involved in acute inflammatory process.