Antinociceptive activity of the sulfated polysaccharides obtained from red marine alga *Pterocladiella capillacea* in mice

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The sulfated polysaccharides from red marine algae have presented many pharmacological activities. Herein, we evaluated the antinociceptive effects of the total sulfated polysaccharide isolated from the alga *Pterocladiella capillacea* (Pc-TSP). The Pc-TSP were extracted by enzymatic digestion using papain and precipitated with 10% cetylpyridinium chloride solution. In the formalin test, mice received an injection of either Pc-TSP (3, 9 or 27 mg/kg; i.v.) or sterile saline (i.v.). After 30 min, 1% aqueous formalin (20 µL) was injected into the right hind paw. The amount of time that the animal spent licking the injected paw was measured during the first 5 min (Phase 1) and 20-25 min after formalin injection (Phase 2). In the hot plate test, mice received an injection of either sterile saline (i.v.) or Pc-TSP (3, 9 or 27 mg/kg; i.v.). Each mouse was placed onto the heated plate (51±1°C) and reaction times were measured at time zero (0 time) and 30, 60 and 90 min after drug administration. A cut-off time of 40 s was used to avoid paw lesions. Pc-TSP (9 or 27 mg/kg; i.v.) reduced the licking time in the first phase (neurogenic) of the test by 47.3%, and 74.7% and in the second phase (inflammatory) of the test by 58.1% and 100%, respectively. Pc-TSP (27 mg/kg) significant increased the reaction time in 6.67, 13.2 and 10.34 s at the 30, 60 and 90 min intervals, respectively. Therefore, the total sulfated polysaccharide isolated from *P. capillacea* presented antinociceptive action through peripheral and central mechanisms.

Word Keys: marine alga, nociception, sulfated polysaccharide

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