Histamine and serotonin mediated anti-edematogenic effect of a sulfated polysaccharidic fraction from the red marine alga *Acanthophora muscoides*

Quinderé, A.L.G.; Teles, F. B.; Alves, A.W.S.; Carneiro, J.G.; Fontes, B.P.; Vanderlei, E.S.O.; Rodrigues, J.A.G., Araújo, I.W.F.; Benevides, N.M.B.

Dep.de Bioquímica e Biologia Molecular, UFC, CE, Brazil

In recent years, sulfated polysaccharides from red marine algae have been shown to have a variety of potentially therapeutic biological effects. In this study, we evaluated the mechanisms of the anti-edematogenic action of a sulfated polysaccharide (AmII) isolated from the alga *Acanthophora muscoides*. We have previously demonstrated that AmII reduced the dextran-induce paw edema which is characterized by the increased vascular permeability caused by the release of vasoactive amines, such histamine, serotonin and bradykinin, leading to an osmotic edema, with low levels of protein and neutrophils. The total sulfated polysaccharides were extracted by enzymatic digestion and then purified by ion exchange chromatography on DEAE-cellulose column. The fraction eluted with 0.75 of NaCl (AmII) was used in the assays. Bradykinin (30 µg/paw; 100 µl), histamine (100 µg/paw; 100 µl) or serotonin (20 µg/paw; 100 µl) were injected s.c. into the right hind paws of rats. Animals (male Wistar rats, 200-250 g, n=6) were pretreated with either AmII (1mg/kg; s.c.) or sterile saline (s.c.) 1 h before stimuli. Control animals received the same volume of sterile saline (s.c.). Paw volume was measured immediately before (zero time) the stimulus and at selected time intervals following the stimulus (0.5, 1, 2, 3 and 4 h) using a plethysmometer. AmII (1 mg/kg) reduced the paw edema elicited by histamine and serotonin in 33.33% and 16.67% at one hour interval, respectively, but was ineffective on that induced by bradykinin. Therefore, we can suggest that histamine is the major target of AmII anti-edematogenic activity.

Word Keys: inflammation, marine alga, sulfated polysaccharide
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