

ANTITHROMBOTIC FUCAN FROM SPATOGLOSSUM SCHROEDERI

Edjane M. A. Barroso¹, Leandro S. Costa¹, Sara L Cordeiro¹, Mariana S.S. P. Costa¹, Jailma A. Lima¹, Valquíria P. Medeiros², Helena B. Nader², Edda L. Leite¹, Hugo A. O. Rocha¹

¹Depto. de Bioquímica, Programa de Pós-Graduação em Ciências da Saúde - UFRN, Natal-RN; ²Depto. de Bioquímica, UNIFESP, São Paulo-SP

Fucan is a term used to denominate a family of sulfated L-fucose-rich polysaccharides. The brown seaweed *Spatoglossum schröederi* contains three main fucans (fucan A, B and C). The 21kDa Fucan A was purified by acetone fractionation, ion exchange and molecular sieving chromatography. This polymer showed no anticoagulant activity on aPTT, PT and TT anticoagulants tests. Nevertheless, it (20mg/kg) had a potent antithrombotic activity on an animal model of experimental venus thrombosis. This effect was time-dependent, reaching the maximum 8h after its administration (i.v.). The effect was not observed with desulfated molecule. Furthermore, this polymer was able to stimulate synthesis of an antithrombotic heparan sulfate from endothelial cells in a dose-dependent manner. This effect was abolished by desulfation. Because this fucan A has no anticoagulant activity but stimulates the synthesis of heparan sulfate by endothelial cells, we suggested that this last effect may be related to the *in vivo* antithrombotic activity of this fucan. In this case the heparan sulfate produced by endothelial cells is in fact the antithrombotic agent. These results suggest that fucan A has a potential clinical application as antithrombotic drug.

Key words: Brown seaweed, fucans, antithrombotic activity, heparan sulfate