

CRAB HEPARINOIDS CONTAIN HIGH DEGREE OF 2-O-SULFATED GLUCURONIC ACID AND ANTITHROMBOTIC ACTIVITY

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Heparin has been used for decades in treatment and prophylaxis of thrombotic disease. However, these compounds have several side effects. This explains the necessity to look for alternative sources of compounds that may play a role in the prevention or treatment of these diseases. In invertebrates, heparinoids with structural peculiarities and anticoagulant/antithrombotic activities have been shown. We now report the structural characteristics and anticoagulant/antithrombotic effect of heparinoids from the crab *Goniopsis cruentata*. The purified heparinoids (CH) were obtained from the crab after proteolysis, ion-exchange chromatography, fractionation with acetone and characterized by electrophoresis, chemical, enzymatic and NMR analyses. CH (12800-13600 kDa) showed a high content of the fast-moving heparin component and low amounts of the trisulfated disaccharide units when compared to mammalian heparins. Enzymatic and NMR analysis revealed the CH are rich in disulfated disaccharides containing N-sulfated and N-acetylated, 6-sulfated glucosamines linked to 2-O-sulfated β -D-glucuronic acid units. In addition CH show a low anticoagulant activity using aPTT, PT, HEPTTEST® and TT. Furthermore, it has a high in vivo antithrombotic activity using a vena cavae ligation model. This is the first description in the literature of a compound rich in 2-O-sulfated glucuronic acid residues that display a potent antithrombotic activity in spite of low in vitro anticoagulant activity.

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