Anticoagulant, Hemorrhagic and Cytotoxic Activities of Heparin-Like Compound From The Crab Chaceon fenneri

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Introduction. Heparin is a pharmaceutical animal widely used in medicine due to its potent anticoagulant effect. Furthermore, it has the ability to inhibit the proliferation, invasion and adhesion of cancer cells to vascular endothelium. However, its clinical applicability can be compromised by side effects such as bleeding. Thus, the search for natural compounds with low bleeding risk and possible therapeutic applicability has been targeted by several research groups. From this perspective, this study aims to evaluate the structure and effect of heparin-like compound from the crab viscera Chaceon fenneri (HEP-like) in hemostasis and viability of different tumor cell lines (HeLa, B16-F10, HepG2, HS-5). Material and Methods. The HEP-like was purified after proteolysis, ion-exchange chromatography, fractionation with acetone and characterized by electrophoresis (agarose gel) and enzymatic degradation. In addition, on this search was studied the hemostatic and hemorrhagic effect of compound obtained. Results and Discussion. Hep-like showed electroforetic behavior similar to mammalian heparin, and high trisulfated /N-acetylated disaccharides ratio. In addition, HEP-like presented low in vitro anticoagulant and hemorrhagic effects when compared to mammalian heparin. Furthermore, the HEP-like showed significant cytotoxic effect (p<0.001) on HeLa, HepG2 and B16-F10 tumor cells with IC50 values of 1000 ug/mL. Furthermore, HEP-like influence on the cell cycle of the HeLa increasing S phase and decreasing phase G2. Conclusion. Thus, these properties make this compound a suitable candidate for the development structure-driven heparin based therapeutic agents with lessside effects.

Keywords: Anticoagulant; Cell viability; Hemorrhagic risk; Heparin-like compound; Tumoral cells.