Anticoagulant and Antithrombotic Activities of Sulfated Polysaccharides from the Red Marine Alga *Solieria filiformis*

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Currently available anticoagulants have significant limitations which demonstrate the necessity of alternative agents. Sulfated polysaccharides from marine algae presenting anticoagulant and/or antithrombotic activity represent new perspectives in the treatment of thromboembolic disorders. Previous studies with the sulfated polysaccharides from the red marine alga *Solieria filiformis* have reported a low anticoagulant activity and have not studied its possible antithrombotic effect. Herein the anticoagulant and the antithrombotic activities of sulfated polysaccharides of *S. filiformis* were evaluated. The total sulfated polysaccharides (TSP) were obtained by enzymatic digestion (papain). The amount of galactose and sulfate were measured by phenol/ sulfuric acid BaCl₂/gelatin methods, respectively. The TPS were analyzed in 0.5% agarose gel electrophoresis and submitted to clotting assay (Activated Partial Thromboplastin Time) using human plasma and heparin (193 IU/mg) as standard. The antithrombotic activity was investigated in rats using thromboplastin as the thrombogenic stimulus. Rats (male, 190-250g, n=5) were previously anesthetized with intramuscular injection (xylazine 16mg/kg and ketamine 100 mg/kg) and TPS (0.25; 0.5 or 1.0mg/kg) were infused into the cava vein. The electrophoresis on 0.5% agarose gel showed that the TSP is homogeneous. The contents of total carbohydrate and free sulfate of TSP were 29.21% and 27.75%, respectively. The TSP prolonged clotting time (42.71 IU/mg) and it demonstrated antithrombotic activity, achieving the best inhibitory effect (54%) at the dose 1.0 mg/kg body weight. The sulfated polysaccharides from *S. filiformis* might represent an important therapeutic agent warranting future studies.

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