

β -Glucans from Isolates of *Botryosphaeria*: Production, Chemical Characterization and Anticoagulant Activity

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Exopolysaccharides (EPS) as β -glucans are polymers produced by a great variety of microorganisms with different physical and chemical properties and structural features. These biopolymers have interesting biological activities and commercial applications in foods and pharmaceutical products. The goal of that study was the production and chemical characterization of four exopolysaccharides (EPS_{GRAVIOLA}, EPS_{MANGO}, EPS_{PINHA} and EPS_{ORANGE}) obtained from *Botryosphaeria* strains isolated from rotting tropical fruit (graviola, mango, pinha, and orange, respectively) grown on sucrose as carbon and sulfation of the best EPS to induce anticoagulant activity and make the EPS more soluble. Data from total acid hydrolysis and HPAEC/PAD analysis, methylation and ¹³C NMR and FT-IR analysis indicated that the EPS_{MANGO}, EPS_{PINHA} and EPS_{ORANGE} consisted of a linear chain of (1-6)-linked glucopyranosyl residues and EPS_{GRAVIOLA} consisted of a main chain of glucopyranosyl (1-3) linkages substituted at O-6. All glucosidic linkages were of the β -configuration. The D.S. of sulfated β -(1-6)-D-glucan (EPS_{ORANGE}) was 0.95 and ¹³C NMR analysis showed that the sulfonyl groups were inserted mainly in C-4. Tests of APTT and TT and results of thrombin inhibition by antithrombin for the sulfated β -(1 \rightarrow 6)-D-glucan indicated a anticoagulant activity *in vitro*, which showed to be dose-dependent and probably due to the activated antithrombin by sulfated polysaccharide.

Keywords: β -glucans; chemical characterization, anticoagulant activity.

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