

*In vitro* Anticoagulant and Antiplatelet Activities of a Triterpenoid Saponin from *Ilex paraguariensis* Fruits

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Blood coagulation is a complex process involving the formation of fibrin clot, platelet plug and localization of the clot on the area of vascular injury. Thrombin plays a central role in this process, being responsible for converting fibrinogen into fibrin and to activate several coagulation factors. As a consequence, its inhibition may be a useful strategy in the treatment of some cardiovascular and thromboembolic diseases. In this context, previous works of our group had shown that glycyrrhizin, a triterpenoid saponin obtained from the roots of *Glycyrrhiza glabra*, presents promising anticoagulant and antithrombotic effects. So the present work describes the isolation, identification, and characterization of the effect of a triterpenoid saponin from the fruits of *Ilex paraguariensis* on blood coagulation enzymes and platelet aggregation. The *I. paraguariensis* saponin prolonged the clotting parameters of human plasma, inhibited in a dose-dependent manner the thrombin-induced fibrinogen coagulation and the thrombin amidolytic activity. Moreover, the compound also inhibited the factor Xa-induced prothrombin activation and factor Xa amidolytic activity. Platelet aggregation assays with washed rabbit platelets showed a significant inhibition of the aggregation induced by thrombin and collagen. Also, a slightly inhibition was observed in ADP and arachidonic acid-induced aggregation. These results indicate that the *I. paraguariensis* saponin is a novel plant-derived anticoagulant molecule with a similar activity to that described to glycyrrhizin. Characterization of its *in vivo* antithrombotic effect is the aim of further investigation.

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