ANTIIPLATELET AND ANTICOAGULANT PROPERTIES
OF THE BRAZILIAN RED ALGAE Acanthofora spicifera

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Cardiovascular diseases such as thrombosis and stroke represent the major cause of death and disabilities worldwide. They occur due to disbalances in platelets and/or in the coagulation system. Currently, some drugs as heparin, aspirin and warfarin have been used to treat or to prevent these dysfunctions. However, they have some limitations, drawbacks and may cause side effects. In this way, many studies have been performed looking for new molecules with antiplatelet and/or anticoagulant effects, but without any inconvenience. Marine organisms produce complex substances with several pharmacological bioactivities, such as antiviral, antiprophic and anticancer. In this work, we evaluated the effects of extracts of the Brazilian red algae Acanthofora spicifera upon platelet aggregation and blood coagulation, through in vitro assays. The extracts of the algae were obtained with solvents of increasing polarities: dichloromethane, ethyl acetate, acetone and methanol. Platelet aggregation was monitored on platelet-rich-plasma (PRP) using an Agregometer (Chronolog) and triggered by adding collagen or ADP. Plasma coagulation was evaluated through different protocols: Prothrombin Time (PT), activated Partial Thromboplastin Time (aPTT), Thrombin Time (TT) and fibrin clot, monitored in a Coagulometer (Amelung). The extracts did not induce platelet aggregation or clotting. However, they inhibited platelet aggregation induced by collagen and ADP, but with different potencies. Moreover, the extracts delayed coagulation time by three fold, regardless the method employed. In conclusion, the polarity of the solvent used to prepare the algal extracts has influenced in the inhibitory profile on platelet aggregation and coagulation. These results show that the extracts of A. spicifera have molecules with antiplatelet and anticoagulant properties, and they could be used in the development of new drugs to treat hemostatic disturbs. This work also highlights the importance of the marine environment for bioprospecting and biotechnology.

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