Preparation of aminated fucoidan and its evaluation as an antithrombotic and antilipemic agent.

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Fucoidan, a sulfated poly(L-fucopyranose), is an effective anticoagulant in vitro and in vivo. In the present study, an aminated derivative of fucoidan was prepared and examined for its fibrinolytic and anticoagulant activities. The aminated derivative was more potent than native fucoidan as a stimulator of tissue plasminogen activator-induced plasma clot lysis, and its effectiveness was comparable to that of oversulfated fucoidan reported previously. Furthermore, the ability of aminated fucoidan to accelerate heparin cofactor II-mediated thrombin inhibition was 2.3 times more potent than that of native fucoidan. Aminated fucoidan effectively prevented endotoxin-induced hepatic vein thrombosis in hyperlipemic rats and decreased the elevated levels of serum cholesterol and triglyceride. The present results that the anticoagulant and antilipemic potency of fucoidan can be improved by charge modification may provide useful clues for the development of an ideal anticoagulant and antilipemic drug.

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