Angiogenesis Assay and Hepatoprotective Activity using a biomolecule  
*Lobophora variegata* algae

Will, L.S.E.P.¹; Castro, A.J.G.¹; Almeida, H.W.B.¹; Florentin, K.Q.¹, Nascimento, M.S.¹, Pinheiro, T.S.¹, Magalhães, J.E.M.¹, Leite, E.L.¹

¹Departamento de Bioquímica, UFRN, Rio Grande do Norte, Brazil.

Many studies revealed that fucans had some pharmacological properties like angiogenesis which may contribute to healing, stimulating growth and new endothelial vessels development; hepatoprotection with protect liver’s damage, and many others such antioxidant, anti-inflammatory, antiviral, anticoagulant. Thus we aimed verify angiogenic and hepatoprotective potentials of the fucans from *Lobophora variegata* algae. The algae passed for different processes like extraction and fractionation by differential precipitation for subsequent use. For angiogenic assay was used incubated eggs (37°C) and 5 days after was opened one window to added sample in different concentrations (10, 100 and 1000 µg/egg), negative control (phenantroline-5 µg/egg and spironolactone-10 µg/egg) and positive control (heparin-10 µg/egg) dissolved in agarose solution (2.5%). Neovascular areas were photographed and analyzed. Hepatoprotective activity was made through gavage treatment at different doses (25, 50 and 75mg of fucans/kg animal), 2 days after was induced hepatotoxicity with carbon tetrachloride and the blood was collected for enzymatic quantification by kits (ALT, AST, bilirubin and y-GT). Sleeping-time was induced by pentobarbital sodium allowed verifying possible influence of fucans on cytochrome-P450 enzyme system. Pro-angiogenic profile was observed in all fucans concentrations tested. The best hepatoprotective effect were observed at the higher dose (75mg/kg animal) which showed effective decrease (p <0.001) of indirect bilirubin (63.62%), AST (36.07%), ALT (49.16%) and y-GT (44.44%) levels. Hepatoprotective effect was confirmed by H&E histological analysis revealing cellular infiltration decrease and parenchyma region integrated and by sleeping-time inhibiting the P450 enzyme. Finally we conclude that the polymer has a high pro-angiogenic profile and hepatoprotective activity.

Word Keys: angiogenic profile, fucans, hepatoprotective effect, pharmacological properties, sleep time.

Supported by: CNPq and CAPES.