

Antioxidant potential of an anthraquinone metabolite isolated from a marine fungus

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Marine ecosystem is a fruitful source of many pharmacologically active. In particular, a number of marine anthraquinones and their derivatives, have been studied for their potential as anti-cancer and anti-metastatic agents, although little is known about their anti-angiogenic activities. In addition, there is some controversy regarding the pro- or antioxidant effect of these marine secondary metabolites. In this study, we describe for the first time the anti-angiogenic activity of an anthraquinone, isolated from a marine fungus, which was evidenced in vitro by the inhibition of the activated endothelial cells survival, proliferation, and differentiation into tube-like structures. Furthermore, we have demonstrated its protective effect against reactive oxygen species (ROS), especially in presence of hydrogen peroxide, a potent pro-oxidant agent. These results were evidenced by a reduced ROS production and an increased redox capacity of cells after treatment with this anthraquinone, evidenced through the staining with DCFH-DA and the sulfhydryl groups determination, respectively. The observation that this compound appears to present a more potent effect in tumor than in endothelial cells, suggests a putative selectivity. All these results highlight the need for further study of this molecule as a potential therapeutic agent for cancer and other angiogenesis-dependent diseases.