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Cosmeceutical potential of crude extracts from *Grateloupia turuturu*

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Biological invasions are recognised as a major global change and one of the most important threats to aquatic biodiversity and ecosystem integrity. *Grateloupia turuturu* is one of the 11 invasive macroalgae documented in Portugal and Galicia and its geographical span is growing every year. It has also been documented that this seaweed is a great source of polysaccharides, sulphated or not, presenting vast biotechnological opportunities. Under the scope of EU-funded project AMALIA – Algae-to-Market-Lab-IdeAs, and in an industry-focused approach, extractions of this alga were performed using low volumes of water and ethanol combined with short extraction times and different temperatures. The most promising extracts to be fitted into a cosmetic formulation with photoprotection activities, and collagenase and elastase inhibitory effects, were chosen after a Response Surface Methodology-based optimization of yield, in vitro antioxidant capacity, and UV-absorbance. The chosen extracts were then tested with a solar simulator and using a 3T3 cell line for the assessment of their potential photoprotection activity. The same extracts were tested for the inhibitory activity of the enzymes collagenase and elastase, responsible for UV radiation-induced skin aging, showing promising activities in all the tests performed.

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