
Formulation of anti-aging cosmetic products from *Ericaria amentacea* seaweed extracts and analysis of their biological activity on human skin reconstructed tissues

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Résumé

Due to the high content of polyphenols and the significant antioxidant activity of *Ericaria amentacea* brown alga extracts from the Ligurian sea, the photoprotective and antiaging properties of a hydro and a lipophilic extract were investigated in human keratinocytes (HaCaT) and mouse fibroblasts (L929). Both extracts showed absence of cytotoxicity, the ability to counteract the cytotoxic effects of UVB radiation and H₂O₂ challenge, to scavenge the intracellular ROS rise caused by these inflammatory stimuli, to counteract the inflammation caused by UV radiation, and to inhibit the enzymatic activity of collagenase, hyaluronidase and tyrosinase in biochemical tests. Overall, these results show very promising nutraceutical and cosmetic properties of *E. amentacea* extracts. Thus, a first attempt at producing a cosmetic facial serum and an antiaging moisturizing cream was carried out by choosing the hydrophilic extract, since the lipophilic employs non-eco-friendly organic solvents, with higher costs of the final product and acceptability concerns from potential customers. The formulations of the facial serum and cream contained 500 µg/ml of extract each. Colour, odour, emulsion stability, and bacterial/fungal growth, were monitored for at least three months for samples stored at room temperature, at 37°C, and at 4°C in the dark (control). The abovementioned parameters never changed from the beginning of the analysis as compared to the controls. Furthermore, absence of toxicity was demonstrated by the human Epiderm™ skin irritation test, performed on human reconstructed epidermis, and a significant anti-inflammatory activity was also shown on an endotoxin-challenged human Epiderm™ tissue.

Mots-Clés: Brown algae, *E. amentacea*, cosmetic use, antiinflammatory, gene expression

*Intervenant