P-147

Biological Properties of Malaysian Tropical Seaweed for Topical Application

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The increasing demands on anti-oxidant and skin lightening agents in Asia Pacific market have created vast excitement in the cosmetic and pharmaceutical industry to introduce robust and effective, yet safe invention of topical product. The emergence of various herbal-based products stimulates comprehensive study to evaluate the potential of various tropical plants. Seaweed is a marine tropical alga that has been claimed to possess good anti-aging and anti-pigmentation activity. Nonetheless, these claims are not supported by strong scientific evidences. Three species of Malaysian tropical seaweed, Turbinaria sp. (TR), Gracilaria sp. (G) and Padina sp. (PD) were studied for anti-oxidant and skin lightening properties. Crude aqueous extracts of the selected seaweed species (TRA, GA and PDA) were evaluated using ABTS and mushroom tyrosinase assay, for anti-oxidant and skin lightening activity, respectively. Amongst the extracts, TRA showed the most potent anti-oxidant activity. This extract displayed lower IC_{50} value of 0.063 ± 0.001 mg/ml, whilst commercial anti-oxidant agent, vitamin C (L-ascorbic acid) demonstrated better IC_{50} value at 0.008 mg/ml. In addition, TRA showed good skin lightening activity at 2 mg/ml with 50.11 ± 0.04 % inhibition against tyrosinase enzyme activity. Therefore, this study could underpin the dual inhibitory effect of the selected seaweed species as anti-oxidant and skin lightening agent for topical application. The cellular antioxidant activity (CAA) for quantifying the antioxidant activities will then further evaluate to measure the antioxidant potential of seaweed extracts. The cell based bioassay represents a promising analytical tool for potential biological activity.

Keywords: Anti-oxidant, skin lightening, seaweed.