



In vitro screening of Korean halophytes for cosmeceutical ingredients

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Abstract :

Salt-tolerant halophyte plants have various beneficial health effects, but their effects on skin health are largely unknown. To identify novel cosmeceutical ingredients, we screened 23 parts of 21 Korean halophyte plant species collected from the Jeju Biodiversity Research Institute (JBRI) in Jeju Island, the southernmost island of the Korean Peninsula. Total flavonoid and phenolic contents as well as 2,2-diphenyl-1-picrylhydrazyl (DPPH) and 2,2'-azobis(3-ethylbenzothiazoline-6-sulphonic acid) (ABTS) scavenging activities were evaluated in the halophyte plants. In the ABTS assay, we observed significantly greater scavenging activity for *Rumex acetosella* [half-maximal inhibitory concentration (IC₅₀) < 100 µg/ml] than the other plants. *R. acetosella* also had the highest total flavonoid and phenolic contents (40.6 and 63.6 mg, respectively). However, the halophyte plants in this study showed low elastase and no tyrosinase inhibition activities. We investigated the anti-inflammatory effects of these halophyte plants for potential use in skin products and preparations. Specifically, they were screened for inhibitory effects on the proinflammatory mediator nitric oxide (NO) in lipopolysaccharide (LPS)-stimulated macrophage RAW 264.7 cells. *Aster spathulifolius* whole plants and *Aster fukudo* aerial parts strongly inhibited LPS-stimulated NO production in a concentration-dependent manner, with IC₅₀ values of 35.6 and 81.7 µg/ml respectively. These results suggest that these halophyte plants possess several biological activities that confer potent inhibition of skin aging and inflammation. Further investigations will focus on cell-based in vitro assays and the identification of the major active components mediating anti-aging and anti-inflammation.

Keywords : ABTS, DPPH, Cosmetic, Elastase, Halophytes, Tyrosinase.

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