

Probing sustainable active ingredients from *Plectranthus* spp. for dermocosmetic formulations

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Introduction: The search for natural products as sustainable active ingredients in cosmetics has gained increased interest among the scientific community in recent years. *Plectranthus* is a well-known genus used in traditional medicine for skin conditions. It belongs to the Lamiaceae family and is widely distributed in tropical areas of the globe, including Portugal.

Objective: The aim of this work was to scientifically validate the uses of these species in skin disorders and to probe potential sustainable applications in cosmetic formulations. Therefore, we assessed and evaluated the biological activity of the eight spp. of *Plectranthus* widely cited as traditional treatments for skin conditions (*P. ambigerus*, *P. barbatus*, *P. cylindraceus*, *P. ecklonii*, *P. fruticosus*, *P. grandidentatus*, *P. hadiensis*, *P. madagascariensis*).

Methods: All species were previously collected and dried at room temperature and methanol ultrasound-assisted extractions were performed (10%, w/v). Methanol extracts were screened to assay their potential bioactivity as antioxidants, antimicrobials and on skin-related enzymes, as well as their general toxicity.

Results and conclusion: The results showed a very promising antioxidant activity, but only a moderate effect against bacteria; and, no relevant general toxicity was highlighted. Good tyrosinase inhibition was observed, together with an excellent inhibitory activity on collagenase, making the methanol extract a promising raw material to be used for the development of dermocosmetic formulations, especially those with antiaging activity.

More studies are ongoing to probe other relevant biological activities and to further ascertain the safety of the bioactive extracts.

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