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IMPACT OF EXTRACTION PARAMETERS ON THE PHOTOPROTECTIVE POTENCIAL OF Melaleuca viminalis LEAF EXTRACTS

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Sunscreens often contain organic and inorganic compounds, the latter associated with adverse effects such as allergies and allergies. In view of this, low-toxicity natural active ingredients have emerged as safer alternatives (Bhattacharjee et al., 2021). Furthermore, due to growing concern about the environmental impact of cosmetics, the use of less toxic solvents and more sustainable and efficient processes has become a global priority (NEVES et al., 2020). *Melaleuca viminalis*, from the Myrtaceae family, is rich in phenolic compounds with antioxidants, anti-inflammatory, antibacterial, antitumor and photoprotective properties (Bhagat et al., 2017). In this context, this study evaluated the photoprotective potential of *M. viminalis* leaf extracts.

10 g of dried and ground plant material were added to 100 mL of three different solvents (ethanol, methanol, and ethyl acetate). Ultrasound-assisted extraction was performed for 30, 60, and 90 minutes, in triplicate. Subsequently, the photoprotective potential was evaluated by the modified Mansur method, using ethanolic solutions 0.02 mg/mL of each extract. Absorbance readings were performed in quadruplicate using a microplate reader, with 5 nm intervals within the UVB radiation range (290–320 nm). The ethanolic extracts exhibited the highest Sun Protection Factor (SPF), followed by those extracted with methanol and ethyl acetate. The extraction time positively influenced the photoprotective potential of the methanolic extracts, whose SPF values were 9.77, 10.39 and 11.41 for the extractions at 30, 60 and 90 minutes, respectively. However, for the extracts obtained with ethyl acetate there was no significant variation in SPF (5.47, 5.67 and 5.94 for 30, 60 and 90 minutes of extraction, respectively). These results confirmed the photoprotective potential of M. *viminalis*, as well as the importance of the solvent and extraction's time in the search for effective, safe and environmentally friendly photoprotective agents.

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