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ANALYSIS OF THE RELATIONSHIP BETWEEN PHENOLIC COMPOUNDS AND PHOTOPROTECTIVE POTENTIAL OF ULTRASOUND EXTRACTS OF THE SPECIES MELALEUCA VIMINALIS

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This study aimed to evaluate the relationship between the phenolic compounds content and the photoprotective potential of ultrasound-assisted extracts[1] from *Melaleuca viminalis* leaves. Plant material was collected in Divinópolis, Minas Gerais (MG), in which samples of 100 g of pre-selected leaves were cut, oven-dried at 40 ºC, and pulverized to then be subjected to the ultrasound-assisted extraction. The selected solvents were water (EUA), 96ºGL ethanol (EUE), methanol (EUM), and ethyl acetate (EUAc). The quantification of phenolic compounds was carried out using the Folin- Ciocalteau method[2] using gallic acid as the standard at concentrations of 600, 300, 150, 75, 37.5 and 18.75 µg/mL. Due to the statistically significant difference among most extracts using ANOVA one-way and Tukey, their photoprotective potential was evaluated using the modified Mansur method[3]. Each extract was prepared at 0.2 mg/mL in a methanol:water (8:2) solution and analyzed by a UV spectrophotometer in the UVB range (290 to 320 nm) at 5 nm intervals. Among the extracts, EUA had the lowest phenolic content (17.167 ± 2.205 GAE/g), while EUAc had the highest (70.5 ± 2.357 GAE/g), followed by EUM (34.944 ± 1.925 GAE/g). Even though EUAc had the highest phenolic content, it did not yield the highest sun protection factor (SPF). The highest SPF was observed for EUE (SPF 35), followed by EUM (SPF 33,9). Thus, a direct correlation between the phenolic content and the sun protection factor of these extracts of *M. viminalis* species was not observed. Nevertheless, all extracts fit the ANVISA legislation, which requires a minimum SPF of 6 to qualify as a photoprotective agent. Therefore, all extracts demonstrated potential as viable ingredients in photoprotective formulations.

Keywords: *Callistemon viminalis, leaves, UVB rays*

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