

**EXPLORATION OF COSMECEUTICAL POTENTIAL OF LEAF EXTRACTS OF
GUAVA (*Psidium guajava* L.)**

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Sunscreen formulations are widely used to prevent and minimize harmful UV-induced photodamage. Nowadays, sunscreen development using natural ingredients revolutionises the cosmetic industry as they are healthier and safer than synthetic chemicals. Therefore, this study was focused on the evaluation of the cosmeceutical potential of leaf extracts of *Psidium guajava* L. (collected from Padukka, Sri Lanka) by determining their photoprotective properties and antimicrobial activities. Chemical constituents of guava leaves were cold extracted to ethanol, ethyl acetate and distilled water separately. The in-vitro sun protection factor (SPF) of each extract was determined using a spectrophotometric method and the Mansur equation. As many natural antioxidants and antimicrobial agents are phenolic, and flavonoid compounds, the total phenolic content (TPC) and total flavonoid content (TFC) of each extract were determined by Folin-Ciocalteu method and AlCl₃ colorimetric method, respectively. Antimicrobial activity was determined by Agar well diffusion method against the bacterial strains of *Staphylococcus aureus* (ATCC 25923), *Pseudomonas aeruginosa* (ATCC 9027), *Escherichia coli* (ATCC 25922) and a fungal strain of *Candida albicans* (ATCC 10231), the potential pathogens in cosmetics. The treatments were triplicated (n=3). All extracts exhibited UV B absorption. Among them, the ethyl acetate extract showed an SPF value of 43.77±0.16 at 2.0 mg/mL while the SPF of the reference sunscreen was 39.18±0.56 (sunscreens with SPF>30 provide high protection against sunburn). The highest TPC was found to be in ethyl acetate extract (544.06±4.81 mg of gallic acid equivalent/g of dry weight), while the highest TFC was observed in ethanol extract (13.84±0.89 mg of quercetin equivalent/g of dry weight). According to the results, all extracts showed antibacterial activity against tested bacterial strains, while only the ethanol extract showed antifungal activity. This study revealed that guava leaves could be considered a promising natural source for the cosmeceutical industry as it is rich in chemical constituents with photoprotective properties and antimicrobial activities.

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