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Formulation and Evaluation of Herbal Sunscreen

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Abstract: *The harmful effects of ultraviolet (UV) radiation, including photoaging, erythema, and increased risk of skin cancer, have intensified the demand for effective sun protection. However, the long-term use of synthetic sunscreens has raised concerns due to potential adverse effects such as skin irritation, allergic reactions, and environmental toxicity. In response, the present study focuses on the formulation and evaluation of a herbal sunscreen incorporating natural ingredients known for their photoprotective, antioxidant, and skin-nourishing properties. The formulation was prepared using aloe vera gel, green tea extract, coconut oil, beeswax, zinc oxide, lavender essential oil, and vitamin E. Aloe vera and green tea provide antioxidant and anti-inflammatory benefits, while zinc oxide acts as a physical UV filter. The sunscreen cream was developed using a simple emulsification method and evaluated for physicochemical parameters including appearance, pH, spreadability, washability, stability, and sun protection factor (SPF) using an in vitro spectrophotometric method.The results demonstrated that the formulation possessed suitable consistency, skin-compatible pH (6.0–7.0), good spreadability, and a moderate SPF value, indicative of its potential effectiveness in UV protection. Stability studies conducted over a one- week period at room temperature showed no phase separation or degradation. Additionally, a patch test confirmed the absence of skin irritation on human volunteers.In conclusion, the herbal sunscreen formulation was found to be stable, safe, and effective, offering a promising natural alternative to synthetic sunscreens. This research supports the potential application of herbal ingredients in the development of eco-friendly and skin-compatible sun care products.*

Keywords: effects of ultraviolet

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