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### Formulation of a New Herbal Soap Based on a Traditional Herbal Recipe of Medicinal Plants in Sri Lanka

De Silva M.B.V.R., Godakumbura P.I.#

*Department of Chemistry, Faculty of Applied Sciences, University of Sri Jayawardenepura, Sri Lanka*

# *Corresponding author: pahanig@gmail.com*

**Background:** Herbal soaps based on traditional recipes with proven qualities are not readily available in Sri Lankan market. Hence, the current study was aimed to formulate a new herbal soap with specific qualities using an extract of traditional herbal recipe.

**Objectives:** To formulate a new herbal soap using a traditional herbal recipe containing *Santalum album*, *Curcuma longa*, *Coscinium fenestratum*, *Rubia cordifolia*, *Glycyrrhiza glabra*, *Kokoona zeylanica*, *Hemidesmus indicus*, *Cassia auriculata* and *Azadirachta indica* and to evaluate its properties

**Methods:** Methanol, ethyl acetate and hexane extracts of herbal mixture were obtained by soxhlet extraction and each extract was tested for antioxidant potential using Folin – Ciocalteu method, aluminium chloride method and DPPH assay. The extracts were also screened for antimicrobial activity using well diffusion method carried out against *Staphylococcus aureus*, *Escherichia coli*, *Pseudomonas aeruginosa* and *Candida albicans*. The most active methanolic extract was used to formulate soaps with different extract concentrations and tested for antimicrobial activity against the selected microorganisms by disc diffusion method using Dettol and Ketaconazole as positive controls. Herbal soap with the highest antimicrobial activity was further tested for pH, Total Fatty Matter (TFM) and moisture content.

**Results:** Methanol extract with the highest total phenolic content ( $296.4 \pm 0.6$  mg GAE/g), total flavonoid content ( $714.47 \pm 0.39$  mg CE/g) and the lowest  $IC_{50}$  value ( $0.398 \pm 0.051$  mg/L) has the highest antioxidant activity. It also exhibited a considerable antimicrobial activity against *S. aureus* and *C. albicans*. Herbal soap with the highest concentration of methanolic extract (1% w/w) exhibited the highest antimicrobial activity against *S. aureus* and *C. albicans* when compared to other samples and controls. The measured pH ( $10.5 \pm 0.1$ ), TFM ( $69.8 \pm 0.6$  %) and moisture content ( $16.0 \pm 0.2$  %) for soap were found to be considerably acceptable.

**Conclusion:** The methanolic extract of selected traditional herbal recipe can be successfully used to formulate a herbal soap with improved antioxidant and antimicrobial activities for a healthy skin.

**Keywords:** *Antimicrobial, Antioxidant, Herbal, Soap, Traditional*