

## Abstract

Herbal skin care products have become increasingly popular in the cosmeceutical industry. Skin care products are used to lighten the skin, improve the skin tone, treat pigmentation disorders and to combat the skin microflora. The approaches in development of skin care products have broadened widely in the recent years. One of the approaches is the utilization of a consortium of herbal extracts that have multiple benefits such as antimicrobial, anti-tyrosinase and antioxidant activities for their combined effects in skin care formulations. In this direction, the present study is an effort to investigate the anti-tyrosinase, anti-oxidant and antibacterial properties in selected Malaysian plants viz. *Tridax procumbens*, *Lantana camara*, *Euphorbia hirta* and *Thevetia peruviana* towards their application in skincare formulation. The extraction of the individual plant materials was carried out with three different solvents. The crude extracts were screened for (i) anti-tyrosinase property by dopachrome method; (ii) Anti-oxidant property by DPPH and FRAP Assays and (iii) antimicrobial property using disc diffusion and broth dilution methods. Synergistic combination of specific plant extracts rich in anti-tyrosinase, antioxidant and antimicrobial properties were incorporated and evaluated for their benefits in the skincare cream. The skincare cream was evaluated for preservative efficacy by challenging it with test microorganisms: *Pseudomonas aeruginosa*, *Escherichia coli* and *Staphylococcus aureus* as described in British Pharmacopoeia 2002. The polyherbal extract combination acted as the only preservative in the formulation and recorded 99% mortality of the loaded microorganisms in 7 days. Hence, the polyherbal extract combination would serve as natural preservative augmented with skin lightening benefits replacing the synthetic anti-tyrosinase, anti-oxidant and anti-bacterial compounds.