MICROBIAL QUALITY OF HERBAL COSMETIC PRODUCTS

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Abstract

The demand for herbal cosmetic products in market has been increased tremendously, because the consumer assumes that the natural products are better "healthier" than the similar synthetic products. But there are no ways of proving the exact quality of herbal cosmetics, because no any national or international standards have been formulated yet on herbal cosmetic products as for synthetic products. Therefore as an overall objective of this project, a study on the microbial quality of herbal cosmetic products widely available in the market has been carried out with the idea of utilizing data on the development of National Standards on Herbal cosmetic products.

During this study fifty-five samples of herbal skin creams and herbal shampoos drawn from the retail market were tested as per the microbiological requirements specified in the Sri Lanka Standards Specifications, SLS 743; 1986, Skin Creams and Lotions, SLS 738; 1986, Shampoo, SLS 742; 1986, Skin creams and Lotions for Babies. Samples were tested for heterotrophic bacteria as total aerobic plate count (APC), *Pseudomonas aeruginosa*, and *Staphylococcus aureus* according to the relevant standard for synthetic products. In addition yeast and mould counts were also determined. The isolation of heterotrophic bacteria were carried out using standard microbiological techniques and identification of the isolated were done according to their morphological and biochemical characters as given in Bergey's manual.

The results revealed that the 44% of the tested herbal cosmetic samples had higher aerobic plate counts than the specified standard given by SLSI. However none of the samples were positive for two main human pathogens i.e. *S. aureus* and *Ps. aeruginosa* that can invade through damaged or wounded skin. The heterotrophic bacteria most commonly found in the samples were identified as *Bacillus sp.*, non-pigmented *Pseudomonas sp.*, *Enterobacter sp.*, *Staphylococcus sp.* and *Micrococcus* sp. According to the results either yeast or moulds were present in 17.5% of the tested samples. A pathogenic mould species *Paecilomyces sp.* was detected in two-tested skin cream samples indicating the necessity of including yeast and mould counts as a parameter to be tested, in addition to the parameters specified for synthetic products.

Thirteen plant extracts generally used in the preparation of herbal cosmetics were screened for their antibacterial activity using disk diffusion assay. Nine species of bacteria including *Ps. aeruginosa* and *S. aureus* were selected as the test organisms. Under test conditions and at the used concentrations, only eight plant extracts showed some positive activity as antibacterial components. Five plant extracts including Aloe vera did not show any antibacterial activity, where as cinnamon oil showed the broadest spectrum of activity.