MICROBIOLOGICAL STUDIES ON THE STABILITY OF INCORPORATED PLANT MATERIALS IN CERTAIN COSMETIC PREPARATIONS

By

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B.Sc. (Agric. Microbiology), Fac. Agric.,
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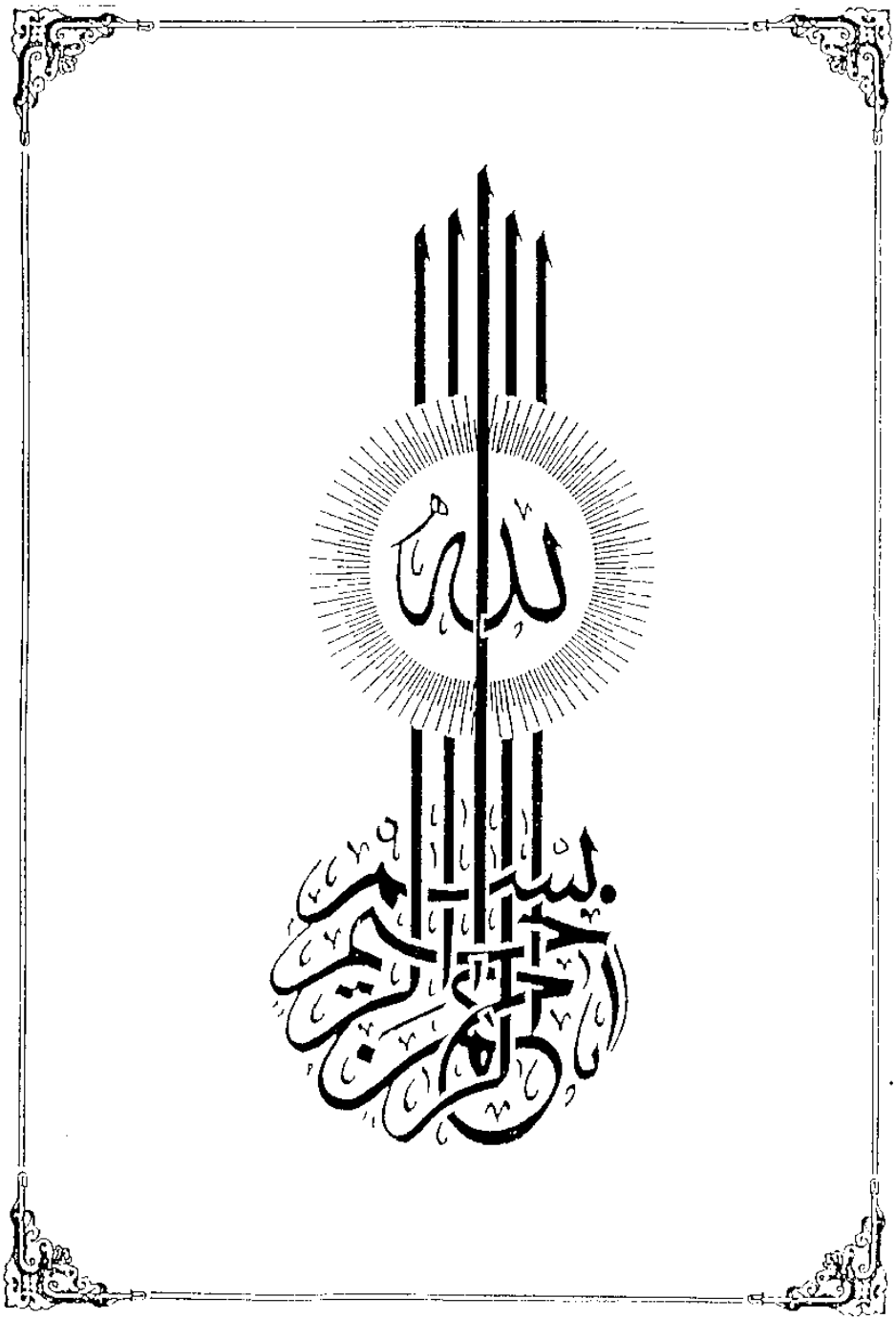

Approval Sheet

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ABSTRACT

A survey study was carried out to determine the microbial load of different cosmetics produced in Egypt. Fifty eight cosmetic samples were collected and microbiologically analyzed to determine the densities of total microbes, total fungi, coliform group, *Staphylococcus aureus*, *Pseudomonas aeruginosa*, anaerobes. The efficacy of preservatives occurred

in these cosmetic samples was evaluated by inoculating them with different microorganisms and enumerating them after 7, 14, 21 and 28 days of inoculation. The effect of commonly used preservatives (methyl and propyl parabens) in inhibiting the growth of microorganisms was tested in laboratory prepared cosmetics (creams, shampoo and lotion). The inhibitory effect of these preservatives was evaluated singly or in combination of them in different ratios and concentrations. Extracts of chamomila, calendula and *Aloe vera* were added to laboratory prepared creams and shampoos to detect their effect on microbial growth in such cosmetics and therefore, their stability.

The obtained results show that the majority of cosmetics were free from microbial contamination. They also proved to be unsuitable for the growth of inoculated microorganisms. A combination of methyl and propyl paraben in a ratio of 1:1 and a concentration of 0.1% gave the highest inhibitory effect against *Staph. aureus* and *E. coli*, while the growth of *Ps. aeruginosa* and a mixed fungal and bacterial culture was supressed by a higher concentration being 0.15 and 0.20% respectively. It was also found that plant extracts added to cosmetic preparation almostly decreased their stability.

Key Words: Cosmetics, cosmetic preservatives, Parabens, Chamomile, Calendula, *Aloe vera*

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