

Antibacterial activity of a laboratory made cosmetic cream Vs marketed creams containing bee honey

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Introduction and Objectives: Many cosmetic products in the market contain bee honey and the aim of this study was to compare the antibacterial activity of a laboratory made cosmetic cream containing Sri Lankan raw honey with marketed creams containing honey from local and international sources.

Methods: The natural honey of *Apis cerana* collected from Sabaragamuwa province in Sri Lanka was used in making a series of oil in water emulsions based vanishing creams by incorporating different weights of honey mixture (F₁-12.5%w/w, F₂-18.75%w/w and F₃-25%w/w) according to a previously developed formulation. These formulations were compared with three commercially available creams containing honey - C₁(local honey), C₂(foreign honey) and C₃(foreignhoney) - to determine the stability via accelerated stability testing and antibacterial activity via agar well diffusion assay against *Escherichia coli* using gentamicin as the control. Wells were prepared in agar plates using an 8 mm diameter cork-borer. All experiments were carried out in triplicate.

Results: All cream formulations were stable at room temperature (25°C) and all cream formulations produced inhibitory zones against *E. coli*(Table 1).F₂ and F₃ showed significantly higher zones of inhibition (F₂-C₂ p=0.009; F₂-C₃ p=0.038; F₃-C₂ p=0.005; F₃-C₃ p=0.019) compared to C₂ and C₃, while the zone of inhibition of F₁ was significantly higher (p=0.024) compared to C₂. However, there was no significant difference between the zones of inhibition observed between C₁ and all laboratory made creams.

Table1: Inhibitory zones against *E. coli*.

Cream type	Diameter of zone of inhibition (mm)
F ₁	19.5±2.12
F ₂	21.0±1.41
F ₃	24.0±1.41
C ₁	26.5±3.54
C ₂	09.5±0.71
C ₃	14.0±1.41

Conclusions:The inhibition zones against *E. coli* increased with increasing honey concentration of laboratory made creams. These showed similar inhibition zones against *E. colito* the commercial product containing local honey compared with the commercial products containing foreignhoney.

Keywords: Antibacterial activity, Sri Lankan raw honey, cosmetic creams, *E. coli*

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