

OP 7

***In-vitro* antimicrobial efficacy of Sri Lankan bee honey against microorganisms causing chronic wounds**

De Silva VKDM, Erathna SS, Dissanayake DMBT

Faculty of Medical Sciences, University of Sri Jaywardenepura

Objectives: To evaluate the *in-vitro* efficacy of Sri Lankan bee honey as an antimicrobial agent against pathogens causing chronic wounds.

Methods: Standard strains of 4 bacterial and 4 fungal species and fourteen bacterial isolates from chronic wounds were tested against twelve honey types belonging to seven Agro Ecological Regions (AERs). Antibacterial activity was determined by agar well diffusion, phenol equivalent methods and Minimum Inhibitory Concentration (MIC) by agar dilution.

Results: 6/12, 5/12, 11/12 and 11/12 honeys gave inhibitory zones ranging 12.5-19.5 mm for *Staphylococcus aureus* (ATCC-25923), *Escherichia coli* (ATCC-25922), *Pseudomonas aeruginosa* (ATCC-27853) and *Klebsiella pneumoniae* (ATCC-700603) respectively. All ATCC strains had MIC of 10-20%. Out of six selected honeys, four gave therapeutic level activity for all tested clinical isolates except for *Pseudomonas aeruginosa*. Phenol equivalence values ranged 12-18% and 14-28% (w/v) for tested gram negative and positive bacterial species respectively. Honey originated from low country regions reported phenol equivalence of 11-20% and superior activity against multidrug resistant bacteria. Commercially available honey reported lowest antibacterial activity with 5-10% phenol equivalence against 11/14 isolates. No inhibitory zones were observed for fungal species and MIC was >40% for all types of honey.

Conclusions: Sri Lankan bee honey exhibits significant antibacterial activity against both gram positive and negative bacteria including multidrug resistant organisms *in-vitro*. Antibacterial potency varies in different types of honey from different AERs. Low country honey was superior to others while antibacterial activity of commercially available honey was negligible. None of the honeys had antifungal activity against *Candida* species.