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Antibacterial Properties of Kelulut, Tualang and Acacia Honey against Wound-Infesting Bacteria

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Abstract

Bacterial infection is the most common cause of contamination that affects wound healing. This study aims to investigate the bacteriostatic and bactericidal effects of three varieties of Malaysian honey represented by two polyfloral honey varieties - Kelulut and Tualang, as well as one monofloral honey - Acacia, against eight common bacteria that infect wounds. The factors contributing to the antibacterial properties of honey such as acidity, peroxide compounds, and non-peroxide compounds, were determined using the agar well diffusion assay method and compared with medical-grade Manuka honey used in wound care (UMF 18+). The minimum inhibitory concentration (MIC) and minimum bactericidal concentration (MBC) were determined using honey concentrations of 1.3% to 90% (w/v). The MICs for Kelulut, Tualang, and Acacia ranged from 5% to 12.5% (w/v), 12.5% to 30% (w/v), and 25% to 50% (w/v) respectively. Meanwhile, the MBCs were found to range from 5% to 12.5% (w/v), 12.5% to 90% (w/v), and 25% to 90% (w/v) respectively. Kelulut showed the highest inhibition activity. The antibacterial properties of Malaysian honey were generally comparable to Manuka. However, Kelulut bore the closest resemblance and was highly dependent on an acidic environment as the major antibacterial factor. This effect was further supported by the presence of peroxide and non-peroxide compounds.

Keywords

KeyWords Plus: STINGLESS BEE HONEY; MANUKA HONEY; ANTIOXIDANT; ORIGIN; CAPACITY

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