

Antibacterial activity of Malaysian produced stingless-bee honey on wound pathogens

ABSTRACT

The antibacterial activity of Malaysian stingless bee honey was tested on six common wound pathogens using agar well diffusion. All pathogens showed varying degrees of susceptibility to undiluted and diluted honeys produced by *Geniotrigona thoracica* of multiflora source (GTM) and *Melastoma malabathricum* L (Senduduk). Multiflora honey from *Heterotrigona itama* (HTM) failed to inhibit the growth of all pathogens, except for methicillin-resistant *Staphylococcus aureus* (MRSA) which has demonstrated moderate susceptibility to undiluted honey. It was found that the antibacterial activity of GTM and Senduduk honeys were concentration dependent. The minimum inhibitory concentration (MIC) assay showed that a lower value (3.13% v/v) was observed with GTM honey for all pathogens and Senduduk honey for *Streptococcus pyogenes*, MRSA, *Staphylococcus aureus* and *Pseudomonas aeruginosa*, respectively. Interestingly, HTM honey showed MIC between 6.25 to 12.5% (v/v) in microdilution method. The minimum bactericidal concentration (MBC) of GTM honey ranged between 6.25 to 12.5% (v/v), whereas Senduduk and HTM honeys showed MBC of 25% (v/v). The lower MIC and MBC values exhibited by GTM honey indicate a potent antibacterial activity as seen in this honey. This study revealed that the Malaysian stingless bee honeys have promising antibacterial activity against wound pathogens, and this type of honey could be used as an alternative in treating infected wounds.

Keyword: *Geniotrigona*; *Heterotrigona*; Kelulut; Medicinal; Antibiotic; Environmental service; Sustainability