

Antibacterial Effects of Imported (New Zealand) and Local Algerian Honeys Based on Botanical Origin

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Abstract

The overuse of antibiotics in agriculture and veterinary medicine poses significant risks to public health and the environment. Honey, known for its natural antibacterial properties, presents a potential alternative. This study evaluates the antibacterial activity of honeys based on their botanical origin. Pollen analysis was conducted following the classical method of Louveaux et al. (1978) to identify pollen grains. Physicochemical parameters (pH, moisture, hydroxymethylfurfural (HMF), and conductivity) were assessed according to Codex Alimentarius (2001) guidelines. Antibacterial activity was determined using agar diffusion assays. The analysis identified one polyfloral and five monofloral honeys from three botanical sources (*Citrus*, *Eucalyptus*, *Jujube*). Two samples were classified as honeydew honey. Most samples met quality standards regarding pH, moisture, and conductivity. Among bacterial strains, *Staphylococcus aureus* exhibited the highest sensitivity, with inhibition zones of 36.84 ± 5.52 mm for undiluted honey, decreasing to 22.92 ± 6.01 mm at a 12.5% dilution. *Escherichia coli* and *Klebsiella pneumoniae* showed slightly higher resistance, with inhibition zones ranging from 34.48 ± 4.03 mm to 21.36 ± 3.54 mm for *E. coli* and 34.68 ± 4.32 mm to 22.88 ± 4.25 mm for *K. pneumoniae*. Manuka honey and honeydew honey exhibited the strongest antibacterial activity, particularly at higher concentrations. These findings highlight the potential of honey as a natural alternative for treating bacterial infections, especially in light of rising antibiotic resistance. Manuka and honeydew honeys show promising therapeutic properties, warranting further research into their antibacterial mechanisms and medical applications.

Key Words:

