

UNIVERSITI TEKNOLOGI MARA

**ANTIBACTERIAL, ANTIOXIDANT
AND ATR-FTIR ANALYSIS OF
TRIGONA HONEY FROM WEST
COAST OF PENINSULAR MALAYSIA**

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ABSTRACT

Honey is a natural nutritional product produced from nectar. It has been shown to have immunological, antibacterial, antifungal, anti-inflammatory and antioxidant properties. This study set out with the aim to study the antibacterial activities of Trigona honey in West Coast of Peninsular Malaysia, to determine the antioxidant activities of Trigona honey based on their total phenolic content and colour intensity, and also to study on the chemical bonds present using ATR-FTIR. The findings on antibacterial activities of Trigona honey show that *P. aeruginosa* was most susceptible to Trigona honey especially honey from Perak, Melaka and Johor 2, while *B. cereus* was identified to be resistant against all of the Trigona honey. As for the antioxidant activities of the Trigona honey, the total phenolic content of the Trigona honey was ranged from 786.64 to 2691.89 GAE mg/100g, while the colour intensity of the Trigona honey was ranged from 0.31 to 1.08 mAU. Moreover, the pH value of the Trigona honey is acidic where the range are within 2.56 to 3.83, and the ATR-FTIR analysis shows that Trigona honey contains phenolic, amino acids, flavonoids, stilbenes, fatty acids, carboxylic acids, steroids, chemical skeleton of sugar, water, glucose, fructose, carbohydrates, carotenes, organic acids, flavanols, phenols and polyphenols. In conclusion, several parameters have been measured to study the antibacterial and antioxidant activities, and also the chemical bonds present in the Trigona honey from West Coast of Peninsular Malaysia. Some recommendations have been identified for future research.

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