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ABSTRACT

This study examined the antibacterial and antioxidant properties of 18 honey samples from *Apis mellifera* bee in northern Thailand. Honey showed antibacterial activity, especially against Gram-positive bacteria, though weaker than conventional antibiotics. Antioxidant activity varied with floral sources and type of honeys, with darker honeys showing higher antioxidant capacity and lower pH correlating with stronger antibacterial effects.

INTRODUCTIONS



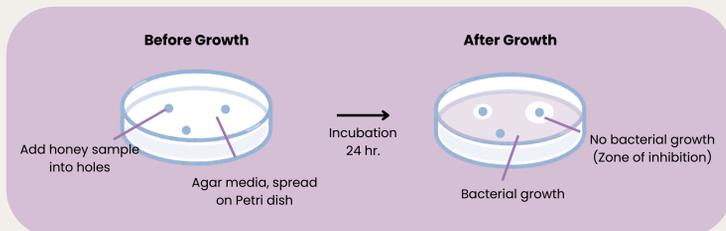
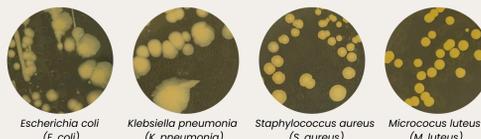
Figure1: *Apis mellifera* bee



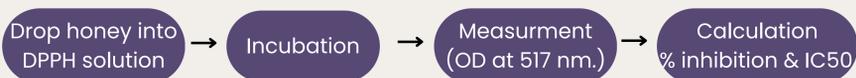
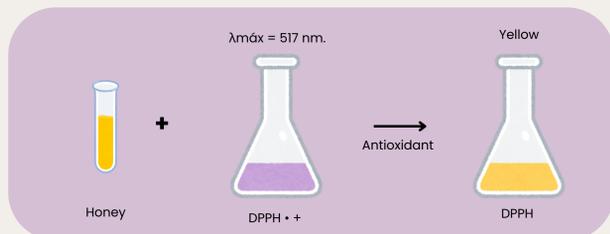
Figure2: Honey

METHODS

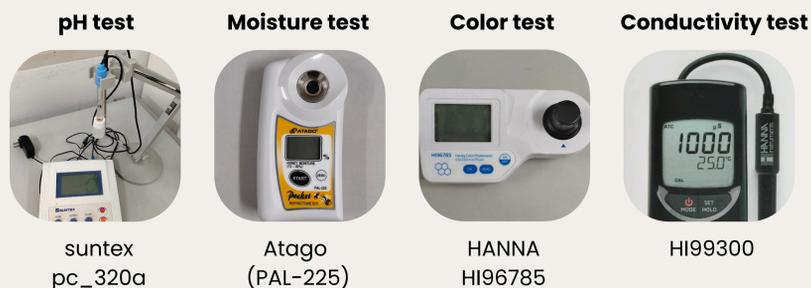
• Antibacterial test: Agar-well diffusion technique



• Antioxidant test: 2,2-Diphenyl-1-picrylhydrazyl (DPPH) assay



• Other quality parameter tests

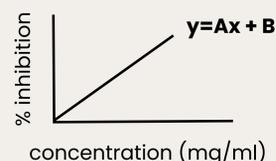


Calculations

$$\% \text{ Inhibition} = \left(\frac{A_0 - A_1}{A_0} \right) \times 100$$

A0: DPPH solution absorbance.
A1: DPPH solution absorbance with honey sample.

$$IC_{50} = \left(\frac{50 + y}{x} \right)$$



References:

- <https://pmc.ncbi.nlm.nih.gov/articles/PMC6589292/>
- <https://libios.fr/en/analytical-solutions/oxydative-stress-antioxidant-capacity/oxydative-stress-antioxidant-capacity-assay-kits/dpph-antioxidant-capacity>

RESULTS & DISCUSSIONS

• Antibacterial

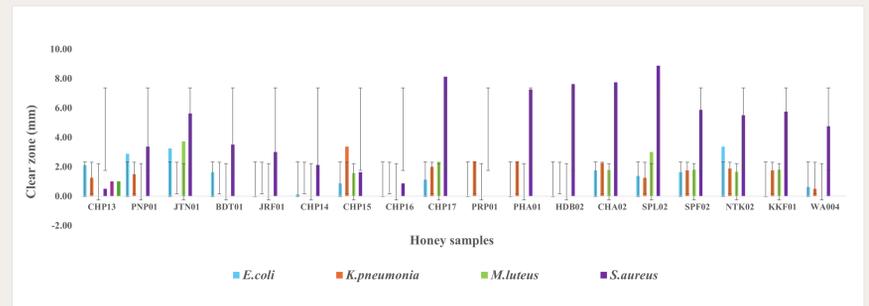


Figure5: Antibacterial activities of honey samples

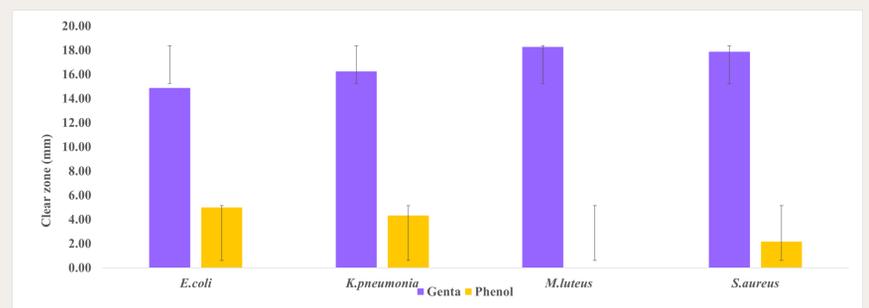


Figure6: Antibacterial activities of antibiotics

• Antioxidant

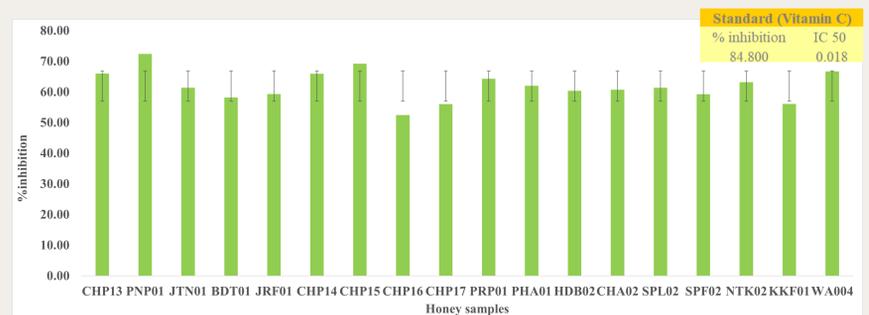


Figure7: % inhibition of honey samples compare with vitamin C

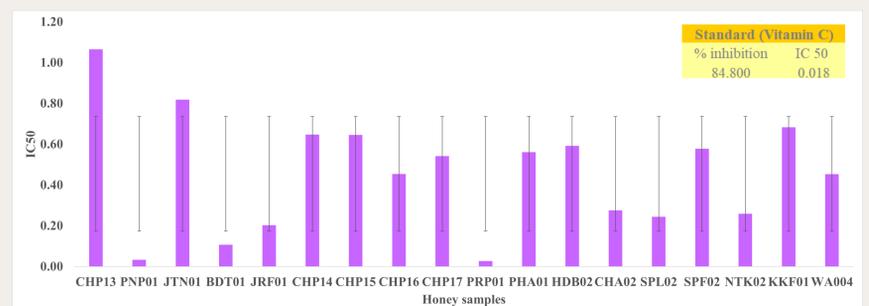


Figure8: IC50 value of honey samples compare with vitamin C

CONCLUSIONS

- Honey has little antibacterial activity compared to antibiotics.
- Honey has antioxidant properties similar to vitamin C but lower.
- Color, pH, conductivity, and moisture tests are significantly influence the antibacterial and antioxidant properties of honey.

ACKNOWLEDGEMENT

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