Comparative Analysis of Antimicrobial Properties of Different Honey Varieties Against Multidrug-Resistant Bacteria in Chronic Wounds

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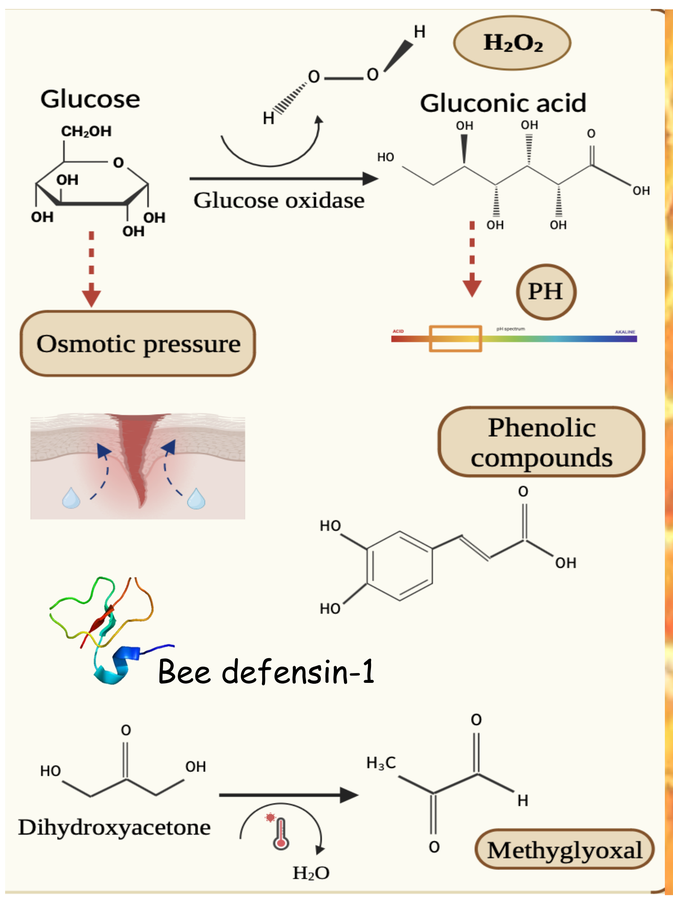
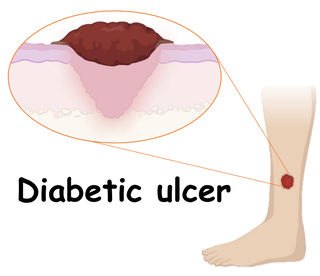
Introduction

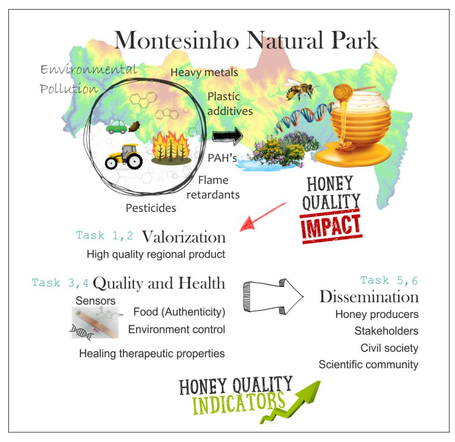


Anti-inflammatory and Antioxidant capacity

Antibacterial effect

Antimicrobial protection

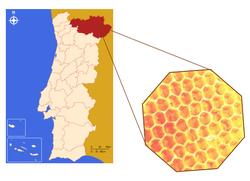




Objective

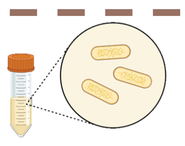
Investigate how the different floral sources present in different honey samples might influence their antibiofilm activity

Material and Methods

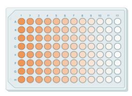


Seven types of honey samples were collected

Staphylococcus aureus, *Escherichia coli*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Candida albicans*



Multidrug resistant bacteria were collected from chronic wounds

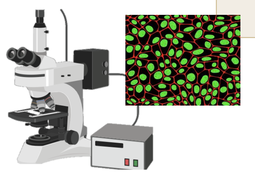


Biofilm formation

MIC determination

1x MIC
5x MIC
10x MIC

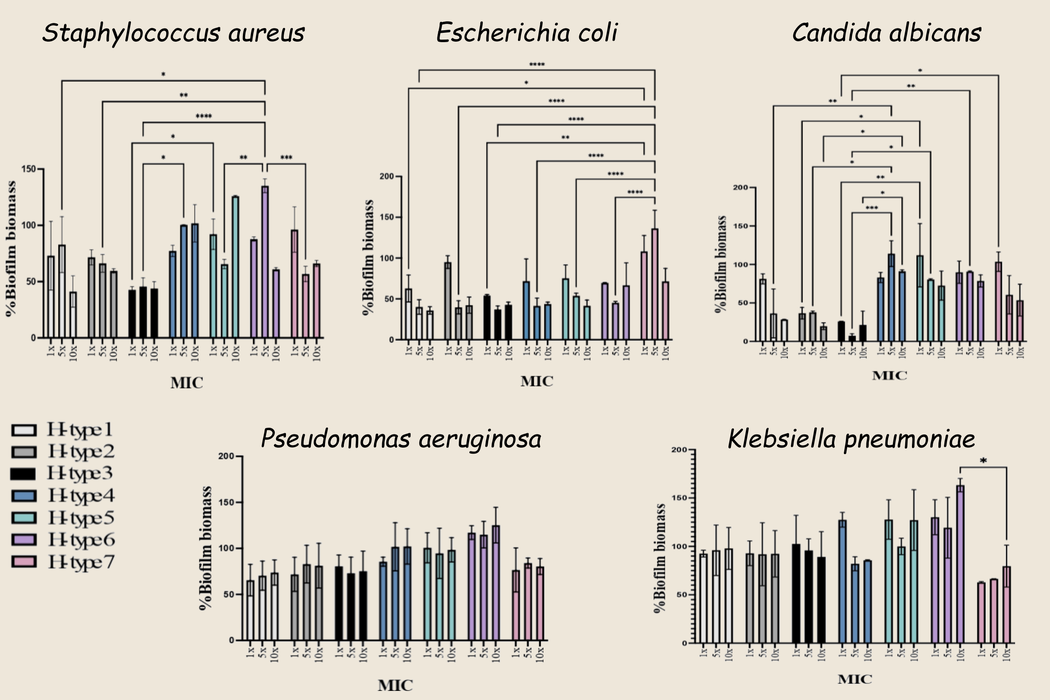
% Biofilm removal
% Metabolic Inactivation

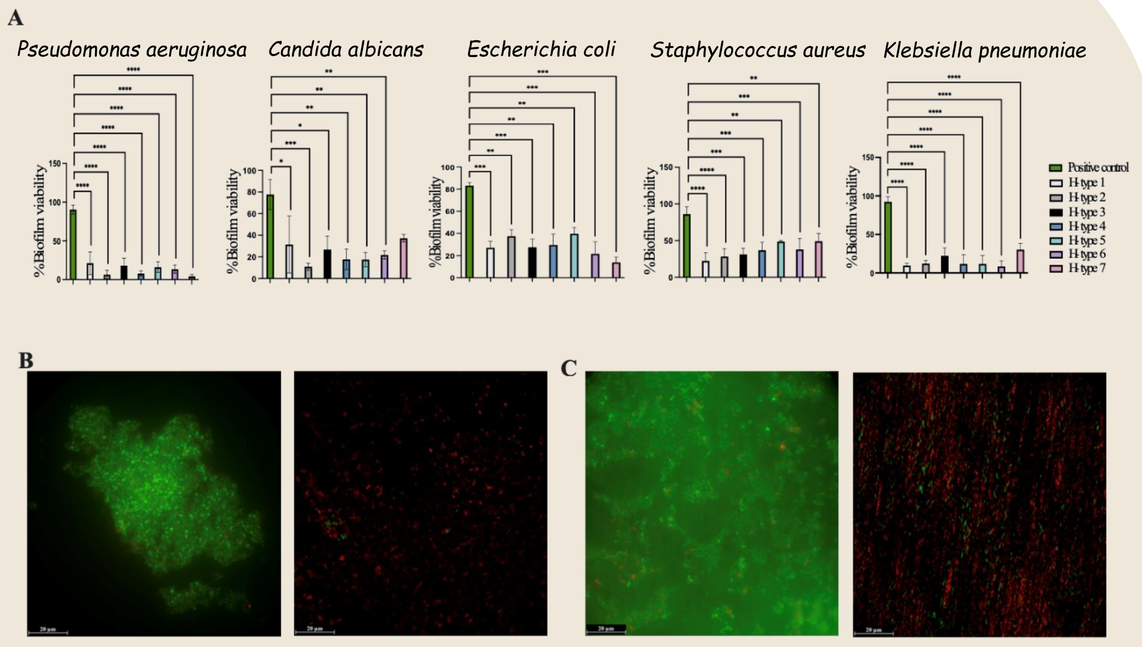


Live/Dead bacterial staining

Statistical analysis
One-way ANOVA
Two-way ANOVA
Tukey's test

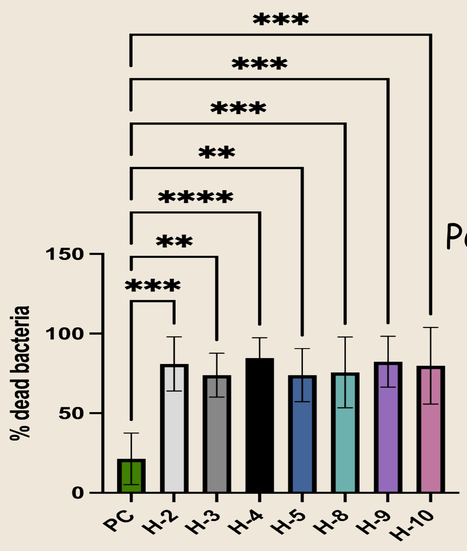
Results





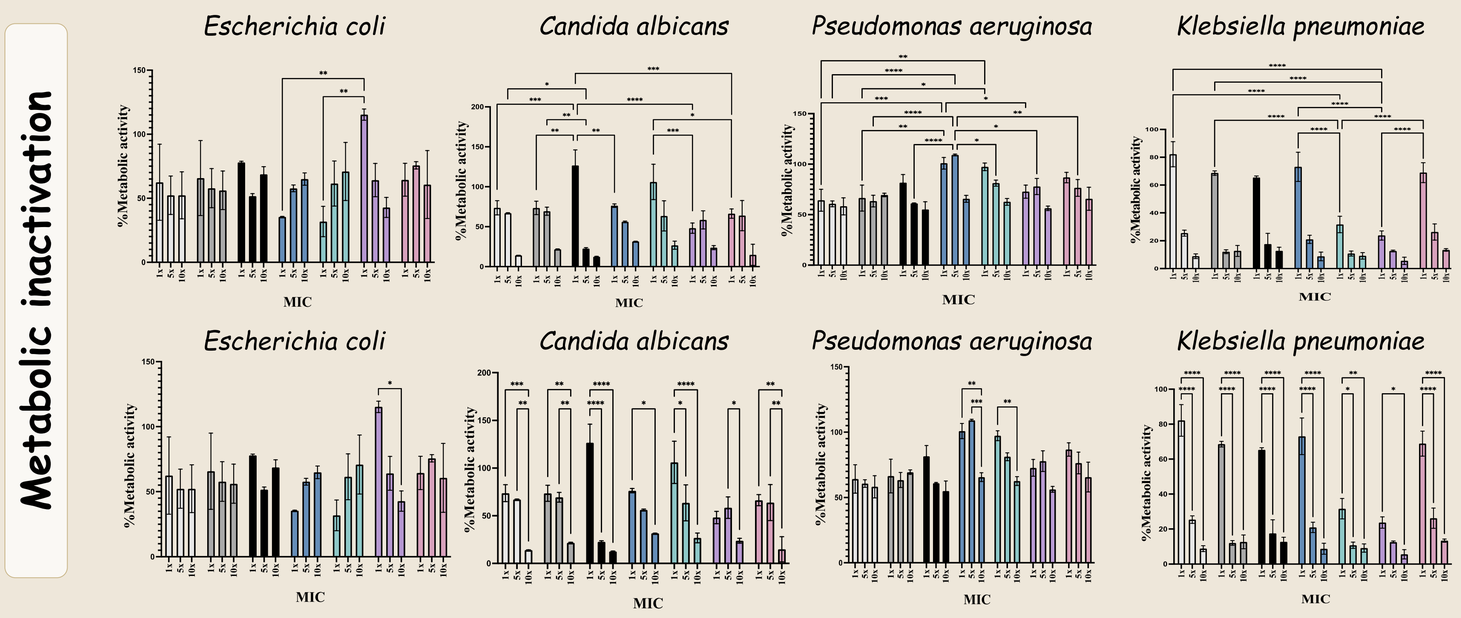
A) Biofilm viability analysis. B) Fluorescent analysis of fungus viability with positive control and biofilm treated with honey. C) Fluorescent analysis of bacterial viability with positive control and biofilm treated with honey.

Live/Dead bacterial staining



Abbreviations:
H= Honey type;
PC=positive control.

Metabolic inactivation



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Conclusions

Honey was effective against multi-drug resistant bacterial biofilm, especially at higher concentrations.

This work aligns with Goal 3 of the 2030 Agenda by promoting good health and well-being through innovative medical treatments, and Goal 12 by supporting responsible consumption and production of natural medicinal resources.

References

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