

P-243 - ANTIMICROBIAL POTENTIAL OF DIFFERENT PROPOLIS EXTRACTS

Mónica Oliveira¹; Helena Teixeira¹; Joana Barbosa¹; Helena Albano¹; Paula Teixeira¹

1 - Universidade Católica Portuguesa, CBQF - Centro de Biotecnologia e Química Fina – Laboratório Associado, Escola Superior de Biotecnologia

Background

Propolis is a mixture of different types of beeswax and resins collected from plants by bees (*Apis mellifera*). Propolis is known for having antibacterial activity conferred by the presence of flavonoids, aromatic acids and esters in their composition^[1]. Also, it has bactericidal action, due to the presence of ferulic and caffeic acids, antifungal, antiviral, anti-inflammatory, anti-tumor and antioxidant activity^[2]. The objective of this study was to evaluate the chemical characteristics and antimicrobial activity of different propolis extracts using different solvents (propylene glycol, ethanol, water at pH 8.0, sunflower oil and olive oil) at two temperatures (room temperature and 50 °C).

Method

Four samples of propolis, from different sources, were extracted using five different solvents at two temperatures. Each propolis extract was characterized chemically by determination of pH value, color, total antioxidant activity and phenolic compounds by both spectrophotometry and HPLC methods. Antimicrobial activity of each propolis extract was performed by the disk diffusion method against 32 target microorganisms. For the extracts inhibiting growth, their minimum inhibitory concentrations were determined.

Results & Conclusions

Propolis extracted with ethanol and propylene glycol (PG) allowed better extractions of the compounds presented in propolis and higher antimicrobial activity against several microorganisms. The concentration of phenolic compounds of PG extracts was similar to those of ethanolic extracts. The antioxidant activities of all extracts were similar and their composition was identical, varying only in the content of flavonoid compounds. Caffeic acid, coumaric acid, ferulic acid, quercetin and kaempferol were identified. Although further tests are required, propolis extracted with PG, a compound that according to the United States FDA is Generally Recognized as Safe (GRAS), could be a promising product to be used in food industry to, for example, reduce the microbial loads of raw meats and avoid cross-contaminations.

References & Acknowledgments

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