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OC20 - COMPARATIVE ANALYSES OF DIFFERENT EXTRACTION PROCEDURES OF ITALIAN PROPOLIS BY HPLC-PDA/UV-ESI-MS/MS AND EVALUATION OF *IN VIVO* ANTI-INFLAMMATORY ACTIVITY

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Propolis, also known as bee glue, is a resinous and sticky material produced by the honeybees (*Apis mellifera* L.) from secretions of several plant species, that are transformed with salivary enzymes and mixed with beeswax to be used by bees in the hive to seal the holes, smooth the internal walls and defend against external invaders, exerting in the same time its antibacterial activity within the hive [1]. Propolis has been used in folk medicine since ancient times as natural remedy due to its antimicrobial and anti-inflammatory properties and recently widely used in preventing several diseases and as health-promoting substance. Several biological and pharmacological studies reported propolis as an antioxidant, antimicrobial, anti-parasite, anti-inflammatory, anti-tumour, hepatoprotective, immunomodulatory, and wound healing agent [2]. Propolis is known to possess a very complex chemical composition influenced by its botanical origin and geographic region [3], with phenolic compounds, such as flavonoids, phenolic acids and esters, as major constituents [4].

In this research, the chemical profiles of six different hydroethanolic propolis extracts originating from several Italian regions, obtained by different extraction methods (static and dynamic macerations, ultrasound and microwave assisted extractions, and Naviglio Extractor[®]), were compared by HPLC-PDA/UV-ESI-MS/MS analysis. Furthermore, one of the propolis extracts was evaluated for its potential as therapeutic agent on inflammation diseases *in vivo*. Results showed that ultrasound microwave assisted extraction was the most efficient (3.3 g dry extract from 5 g of propolis/50 mL of solvent). Quali-quantitative analyses confirmed that propolis is a very complex mixture of phenolic derivatives with chrysin, chrysin methyl ether, and quercetin dimethyl ether as major components and most represented in the ultrasound assisted extract. Between caffeic acid derivatives, caffeic acid phenetyl ester, known for its anti-inflammatory and immunomodulatory actions [5], was detected in all extracts.

References

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