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Purification, standardization and biological studies of propolis extracts from Mt Olympus

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Propolis has been extensively studied for its diverse biological properties. This study focuses on the unique benefits and chemical composition of propolis sourced from Mount Olympus, renowned for its rich biodiversity. The propolis from this region is characterized by a high concentration of flavonoids, phenolic acids, and terpenes, contributing to its potent antioxidant, anti-inflammatory, and antimicrobial properties. Especially in this study we focus on a Billion Bees apiary in a nature reserve area of Mt Olympus.

Several purification methods were developed to effectively separate propolis from waxes and other impurities such as centrifugation with and without cooling, specific pore-size filters and vacuum filtration.

The purified propolis was subjected to standardization of its chemical content using 1. Freeze drying methods to provide a pure solid raw material of propolis 2. Production of inclusion complexes in cyclodextrins. The target is the diminishing of the variability of the chemical content of propolis that leads to discrepancies in its biological efficacy.

Accelerated aging studies reveal the stable nature of produced propolis derivatives and non-cellular antioxidant assays (DPPH, ABTS) demonstrate significant radical scavenging activity. Initial antimicrobial and in vitro efficacy studies on human dermal keratinocytes reveal promising application in the field of pharmacy and cosmetology.

In conclusion, the propolis from Mount Olympus, with its unique chemical profile and potent biological activities, holds significant promise for developing new therapeutic and cosmetic applications. Further research and development, as well as scale up of selected formulations could lead to innovative products that harness the full potential of this natural substance.