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Egyptian Honeybee Pollen as Antimicrobial, Antioxidant Agents, and Dietary Food Supplements (2013)
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Abstract

In this study, three Egyptian bee pollen types from different plant sources, namely maize (Zea mays), clover (*Trifolium alexandrinum*), and date palm (Phoenix dactylifera), were evaluated as natural antimicrobial agents, antioxidants, and food additives. A methanolic extract of maize bee pollen exhibited the highest antibacterial activity, followed by clover and date palm bee pollen. *Staphylococcus aureus* and *Escherichia coli* were the most sensitive, followed by *Listeria monocytogenes*, *Salmonella enteritidis*, and *Pseudomonas aeruginosa*.

In ghee, all methanolic extracts, especially that of maize bee pollen, showed high antioxidant activities as radical scavenger substances and as inhibitors of lipid peroxidation. Sensory evaluation of yoghurt supplemented with different bee pollens revealed that maize bee pollen improve texture, increased gel strength, and decreased syneresis and had favorable nutty flavor, while clover and date palm pollen added a sweet taste and bean-like flavor, respectively.

These findings establish the potential of Egyptian maize and clover bee pollen as antioxidants, antimicrobial agents, promising natural food supplements, and natural preservatives.