Egyptian Propolis: 3. Antioxidant, Antimicrobial Activities and Chemical Composition of Propolis from Reclaimed Lands

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Propolis, Antioxidant, Antimicrobial Activities

The free radical scavenging effect of two propolis samples collected from reclaimed land, Egypt as well as of vitamin C and caffeic acid in 1,1-diphenyl-2-picrylhydrazyl (DPPH) free radical system was determined. The antimicrobial (*Staphylococcus aureus; Escherichia coli* and *Candida albicans*) activity was also investigated. The results of the free radical scavenging effect of El-Saff and Ismailia propolis showed a concentration-dependent activity. The antioxidant activity was varied according to the examined material. It was obvious that caffeic acid and vitamin C showed the highest activity if compared with the propolis samples. El- Saff propolis had a higher antioxidant activity than Ismailia propolis, it showed a higher antibacterial activity against *Staphylococcus aureus* and a higher anti-fungal activity against *Candida albicans*. While the Ismailia propolis had a higher antibacterial activity against *Escherichia coli*, than El-Saff propolis.

The chemical composition of propolis samples was investigated by GC/MS, where 75 compounds were identified, 22 being new for propolis. The Ismailia propolis was characterized by the presence of a highly significant amount of aromatic acid esters (47.3%) and triterpenoids (17.3%), while El-Saff propolis contained 3% and 1.9% respectively. The new esters belonged to 4-methoxyhydrocinnamic acid, hydroferulic acid and ferulic acid. El-Saff propolis had a very high significant amount (27%) of 2,6-bis-(pentanyloxy)-4-pentanylphenethanol, which is also a new compound for propolis.