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Antioxidant activity of bee honey from four provinces in Sri Lanka

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Antioxidants are compounds which significantly retard or inhibit oxidation and these compounds are naturally present in bee honey. This study was conducted to identify the antioxidant capacity and phenolic content of bee honey collected from different provinces, i.e.; Southern, Uva, Sabaragamuwa and North Western provinces in Sri Lanka, and to determine the botanical origin of pollen in honey samples (n=40) obtained from the above four provinces. The DPPH (1, 1-diphenyl-2-picrylhydrazyl) assay was used to determine the antioxidant activity while the Folin – Ciocalteau method was used to determining the total phenolic content of bee honey. For the Folin – Ciocalteau method, Gallic acid was used as the standard. For the determination of pollen spectra and botanical origin of different honey samples, methods employed in Mellisopalynology (the study of pollen in bee honey) were used. Pollen identification was performed with reference to the New Castle Pollen Image Collection. The antioxidant activity of honey was varied between 48.21% (southern province) to 63.57% (North Western province) and the total phenolic content ranged from 56.74 to 83.94 mg Gallic acid equivalents/100 g of honey in Southern and Uva provinces respectively. Pollen of plant families, Euphorbiaceae, Solanaceae and Lamiaceae were most abundant in honey samples collected from all four provinces, but there was a difference between the most abundant pollen plant families among the four provinces. The variation of plant families of pollen among provinces was not comparable.

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