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Tualang honey has higher phenolic content and greater radical scavenging activity compared with other honey sources

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Abstract

Many chronic diseases are associated with increased oxidative stress caused by an imbalance between free-radical production and the antioxidant level. Antioxidants, which are abundant in natural honey, are free-radical scavengers that either reduce the formation of or neutralize free radicals. The composition and source of honey greatly dictates its biochemical properties. We performed a comparative analysis of the total phenolic content and antioxidant potential of common commercially available honeys along with Malaysian tualang honey. In vitro biochemical analysis of the phenolic content by the Folin-Ciocalteu method revealed a significantly elevated phenolic content (83.96 ± 4.53 mg gallic acid equivalents per 100 g) in tualang honey. In addition, the antioxidant capacity (53.06 ± 0.41 mg ascorbic acid equivalents per gram) of tualang honey was greater, as assessed by the phosphomolybdenum method, 2,2-diphenyl-1-picryl-hydrazyl assay, and ferric reducing/antioxidant power assay. Peroxynitrite and superoxide radical scavenging activity was determined by spectrophotometric analysis in different honey types. Our data suggest that the elevated free-radical scavenging and antioxidant activity observed in tualang honey is due to the increased level of phenolic compounds. In addition to its antibacterial, anticarcinogenic, and anti-inflammatory properties, our study highlights the favorable

antioxidant properties of tualang honey, which may be important to human nutrition and health.

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Abbreviation

DPPH, 2,2-diphenyl-1-picrylhydrazyl; FRAP, ferric reducing/antioxidant power; IC₅₀, 50% inhibitory concentration

Keywords

Honey; Oxidative stress; Total phenolic content; Free radical scavenging activity; Antioxidant capacity

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