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Studies on the antioxidant properties of Nepalese honey from different altitudes

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Twenty two honey samples (collected 2013) which came from various locations of the Nepal and varied with their origins, were examined spectrophotometrically for their antioxidant properties. The total phenolic contents were determined by the modified Folin-Ciocalteu method and antiradical activity by the 2, 2-diphenyl-1-picrylhydrazyl radicals (DPPH) assay. In all samples, physicochemical parameters (moisture content, reducing sugars, sucrose, ash content, free acidity and water insoluble matter) were measured according to Nepalese legislation and International Honey Commission standards. The results of physicochemical analysis showed that all the values, except moisture content and water insoluble matter of few high altitude honey samples, are in agreement with the current Nepalese legislation. The total phenolic contents of honey collected from high and low altitude were ranged from 154.87 to 41.90 mg gallic acid equivalent (GAE/100 g), respectively, at correspondingantiradical activity using DPPH expressed as percent inhibition (% inhibition)of 76.66% and 25.69%. The high altitude honey exhibited the highest antioxidant properties with IC50 value 55 mg/ml. The total antioxidant properties correlated ($P<0.01$) between total phenol content and antiradical activity ($r=0.992$), indicating that phenolic compounds are mainly responsible for the highest antioxidant power of high altitude Nepalese honey.

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