

COMPARISON OF ANTIOXIDANT CAPACITY OF DIFFERENT COCONUT OIL TYPES

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The antioxidant capacity of coconut oils depends on the methods of processing. The data on antioxidant capacity of coconut oil is scanty. The present study was carried out to compare the total phenolic content (TPC) and antioxidant activity (AA) of four different coconut oil types available in Sri Lanka namely, copra oil (CO), refined, bleached and deodorized coconut oil (RBDCO), white coconut oil (WCO) and virgin coconut oil (VCO). Samples of these coconut oils were purchased from the local market. TPC was determined using Folin- Ceocalteu reagent colorimetric method and expressed as mg gallic acid equivalent (GAE) per 100g of oil. Antioxidant activity of the sample extracts was evaluated using DPPH radical scavenging activity (expressed as IC₅₀ values of mg/l), ABTS radical scavenging activity and the egg yolk model (expressed as mg/100g). The TPC of coconut oil samples ranged from 1.24±0.356 to 3.66±0.355 mg (GAE) per 100g of oil. The highest TPC was observed in copra oil and the lowest was observed in virgin coconut oil. The Antioxidant activity of different coconut oil types was significantly different ($p < 0.05$). The DPPH radical scavenging and ABTS radical scavenging activities of different coconut oil types were significantly different ($p < 0.05$). The highest DPPH radical scavenging activity as indicated by the lowest IC₅₀ value was observed in copra oil extract (53.16±0.622 mg/l) while the lowest scavenging activity represented by the highest IC₅₀ value (83.26±0.291 mg/l) was observed in VCO extract. The ABTS radical scavenging activity ranged between 0.05±0.00 mg/100g (VCO extract) and 0.18±0.00 mg/100g (Copra oil extract). In the egg yolk model for antioxidant activity determination, white coconut oil extract showed the highest antioxidant activity (0.167±0.00 mg/100 g) while VCO extract showed the lowest activity (0.0531±0.002 mg/100 g). In conclusion, the VCO possesses the lowest TPC and antioxidant activity among the four types of oil tested. The TPC and antioxidant activity comparatively lower in RBDCO, while most of the time CO contains the highest.

Keywords: Antioxidant Activity, Egg yolk model, Folin- Ceocalteu colorimetric method, IC₅₀ value, Total Phenolic Content