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Improving the nutritional quality of coconut oil by incorporating phenolic substances of coconut cake

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Plant-based phenolic substances are important in improving the nutritional quality and the oxidative stability of food. In the present study, phenolic substances from coconut cake were incorporated into copra oil (CO) using a heat treatment method in order to improve the nutritional quality of coconut oil without affecting its flavor. The effect of the consumption of phenol-enriched copra oil (ECO) containing ~450 mg/kg of phenolic substances, on the antioxidant properties of serum was evaluated using Wistar rats. Scavenging of the $ABTS^{\bullet+}$ radical by serum was monitored and antioxidant capacity was expressed as TROLOX equivalent antioxidant capacity (TEAC). The results are given in Table 1.

Table 1 Variation of TEAC values of different samples in equal time periods

Sample name	Base line	28 days	56 days	84 days
	Trolox equalent (µmole/ L)			
Soybean oil	34.0 ± 1.7	33.0 ± 0.3[a]	35.5 ± 0.5[a]	36.1 ± 1.0[a]
CO	34.0 ± 1.7	31.5 ± 0.1[b]	32.8 ± 0.6[b]	33.8 ± 0.5[b]
ECO	34.0 ± 1.7	43.2 ± 0.4[c]	52.8 ± 0.5[c]	53.7 ± 1.2[c]

Values are means (n = 4) ± SD (n = 4), ($p < 0.05$). Within the same column different letters are significantly different at $P<0.05$.

The results indicate that the serum TEAC of the rats fed with ECO is superior to that of rats fed with soybean oil and CO, suggesting that nutritional quality of coconut oil can be improved by the enrichment of coconut oil with phenolic substances from coconut cake.

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