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Preparation of Coconut oil blends and the evaluation of their health effects

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Coconut oil prepared by pressing copra (copra oil, CO) is the major cooking oil in Sri Lanka. However, copra oil contains only less than 1.5 % of essential fatty acids. The objective of the project is to improve the quality of copra oil by blending copra oil with traditional Sri Lankan seed oils containing high percentages of polyunsaturated fatty acids. Oils of the seeds of *Brassica juncea* (Aba), *Madhuca nerifolia* (Mee) and *Sessamum indicum* (Thala) were used to prepare oil blends. The organoleptic acceptability of the prepared blends was checked by a panel and the oil blends selected by the panel were selected for the evaluation of health effects. The acceptable blends of coconut oil were aba oil (AO) (40%), thala oil (TO) (50%) and mee oil (MO) (60%) and by volume.

Male Wistar rats were fed with a special diet containing these oil blends, coconut oil (CO), and soya oil (control) and their serum levels of total cholesterol (TC), HDL, LDL, and triglycerides (TG) were determined. The results are summarized in Table 1.

Table 1. Fasting serum levels of TC, HDL, LDL and TG of Wista rats after 84 days.

Type of oil blend	TC (mg/dL)	HDL(mg/dL)	LDL (mg/dL)	TG (mg/dL)
CO (100%)	162.0 ± 1.0 ^e	48.0 ± 1.0 ^a	114.0 ± 1.0 ^d	152.0 ± 2.0 ^e
AO (40%) + CO (60%)	128.0 ± 2.0 ^b	62.0 ± 3.0 ^d	66.0 ± 1.0 ^b	96.0 ± 2.0 ^{a,b}
TO (50%) + CO (50%)	131.0 ± 1.0 ^c	55.0 ± 2.0 ^c	76.0 ± 1.0 ^{b,c}	109.0 ± 0.5 ^c
MO (60%) + CO (40%)	141.5 ± 1.2 ^d	52.0 ± 1.0 ^b	89.0 ± 1.0 ^c	135.0 ± 1.0 ^d
Soya oil (control)	121.0 ± 1.0 ^a	65.0 ± 1.0 ^d	55.0 ± 1.0 ^a	92.0 ± 1.0 ^a

Each data point represents the mean of five replicates ± S.E; Different superscript letters in same column denote significant difference at 5% level by one way ANOVA.

The results indicate that there is a remarkable decrease in the TC, LDL and TG levels and an increase in HDL levels in blood serum due to consumption of oil blends compared to the consumption of CO. The beneficial effects of the oil blend with AO (40%) + CO (60%) are closely comparable with those of soya oil. Blending coconut oil with given oils improves beneficial health effects and provide essential fatty acids without significantly altering the organoleptic quality of coconut oil.

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