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Chemical investigation of the properties of four traditional Sri Lankan oils

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Traditional Sri Lankan oils extracted from the seeds of *Calophyllum inophyllum* (Domba), *Madhuca perfolia* (Mee), *Canarium zeylanicum* (Kekuna), and *Ricinus calamus* (Endaru) are currently used only for medicinal purposes. The analysis of their fatty acid composition and the quality parameters is important in order to evaluate their potential as edible oils and as ingredients for beauty care products.

Fatty acid compositions of medicinal oils prepared by pressing the seeds of above plants were determined by Gas-Liquid Chromatography (GLC). Acid value (AV), iodine value (IV), saponification value (SV) and peroxide value (PV) were determined by the standard methods. The results are given in Table 1.

Table 1. Fatty acid compositions and quality parameters of medicinal oils

	Domba	Mee	Kekuna	Endaru
Saturated fatty acids (%)	35.4 ± 0.1	43.8 ± 0.1	15.4 ± 0.1	24.0 ± 0.1
Oleic acid (%) (C 18:1)	39.4 ± 0.1	46.5 ± 0.1	16.2 ± 0.1	35.5 ± 0.1
Linoleic acid (%) (C 18:2)	25.0 ± 0.1	9.6 ± 0.1	49.3 ± 0.3	38.6 ± 0.1
Linolenic acid (%) (C 18:3)	0.2 ± 0.1	0.1 ± 0.0	19.1 ± 0.1	1.9 ± 0.1
AV (mg of KOH/g)	2.1 ± 0.1	3.1 ± 0.1	1.2 ± 0.1	2.3 ± 0.1
IV (g of I ₂ /100g)	80.0 ± 0.6	52.0 ± 0.5	95 ± 1	101 ± 1
SV (mg of KOH/g)	219 ± 1	69 ± 1	185 ± 1	181 ± 1
PV absorbance at 500 nm	0.37 ± 0.04	0.41 ± 0.01	0.15 ± 0.02	0.50 ± 0.05

Each data point represents the mean of five replicates ± S.E

Quality parameters for the locally prepared medicinal oils were established in the current research. Fatty acid compositions and the tested quality parameters of local domba and endaru oils are within the ranges of the reported values. However, the trace amounts of eicosanoic acid reported for domba oil was not observed in the tested samples. Not much chemical information about mee and kekuna oils has been reported. High linoleic and linolenic acid compositions in kekuna oil suggest that this oil is an excellent source of essential fatty acids. High unsaturated fatty acid contents of all the tested oils indicate that these oils should be excellent ingredients for beauty care products.

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