

## Assessment of fatty acid profile of some selected edible oils available in the Jaffna district

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**Background:** Lipids play a vital role in human health in different ways; they serve as an energy source, a component of cell membranes, hormones and carrier for lipid-soluble bioactives. Edible oils are the major source of lipids in the human diet. However, their quality is a serious concern due to adulteration with poor quality oils.

**Objectives:** This study aimed to assess the quality of three edible oils available in Jaffna district emphasizing on their fatty acid profile.

**Methods:** Triplicate samples of branded oils; sunflower oil (SO) (n=3), palm oil (palm olein) (PO) (n=4), and olive oil (OO) (n=2) were collected from markets in the Jaffna district. Fatty acid methyl esters prepared by BF<sub>3</sub>-methanol method were analyzed using gas chromatography. Values were compared with the standard values specified by the Codex Alimentarius Commission.

**Results:** All SO samples had the fatty acid composition within the standard ranges with the total unsaturated fatty acid content and saturated fatty acid content ranging from 92.21 to 92.24% and 7.01 to 7.74%, respectively. The saturated and unsaturated fatty acid contents of PO samples were 38.96 - 44.81% and 55.09 - 61.5%, respectively. In all the PO samples, the lauric acid content was higher (0.83-1.61%) than the standard (0.1-0.5%) and in brand 3, palmitic acid content (35.68%) was less than the standard (38.0-43.5%). The ranges of saturated and unsaturated fatty contents of OO samples were 10.55-13.1% and 89.61-87.62%, respectively. The fatty acid composition of brand 1 OO was in line with the standards. However, brand 2 of the OO had much less oleic acid content (49.45±0.01) than standard (55-83%) whereas linoleic acid content (38.17±0.00) was higher than the standard (3.5-21%).

**Conclusion:** PO and OO samples are suspected to be adulterated with other types of oil. Further studies are needed to confirm the adulteration of suspected samples.

**Keywords:** *Adulteration, Fatty acid composition, Olive oil, Palm oil, Sunflower oil*