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Comparison of major fatty acid groups in commercially available edible plant lipids in Sri Lanka

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Crude plant oils are processed industrially by several techniques such as partial hydrogenation, deodorizing, and refining for preparing different processed lipid products. In the food industry, the partial hydrogenation is practiced where a part of the unsaturated fatty acids (USFA) changes to saturated fatty acids (SFA) and *trans* fatty acids. During the processing, fatty acid (FA) composition can be changed. The determination of FA composition and changes in FA groups in processed plant lipids are important in relation to nutritional value. Under this study twenty-four processed plant lipid samples were analyzed. First, oil was extracted from selected edible plant lipid products; thereafter, oil samples were methylated and analyzed in triplicate using gas chromatography fitted with a flame ionization detector to determine the FA composition. Most processed plant oils contained more USFA than SFA. Total USFA ranged from 8.17% for virgin coconut oil to 85.84% for mustard oil. Total polyunsaturated fatty acid (PUFA) ranged from 1.14% for virgin coconut oil to 56.17% for sunflower oil and total monounsaturated fatty acid (MUFA) ranged from 7.03% for virgin coconut oil to 70.31% for olive oil. The highest content of SFA was found in virgin coconut oil (91.80%) and was lowest in sunflower oil (12.26%). In most hard/semi-solid edible lipids, SFA content was higher than USFA content. Total SFA ranged from 22.57% to 62.34%. Total USFA ranged from 37.37% to 77.42% and the prominent PUFA was, linoleic acid. The MUFA was high in a margarine brand (54.64%) which has enriched with MUFA. In conclusion, the FA groups change considerably among the processed edible plant lipids and due to the high content of PUFA, it is suggested that consumption of sunflower oil could be beneficial to health.

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