

FATTY ACID COMPOSITION OF EDIBLE OILS AND FATS

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Abstract

The content of fatty acids as well as the ratio between unsaturated and saturated fatty acids is important parameter for determination of nutritional value of certain oil. Therefore, the newest trend in food processing industry is notifying the composition of edible oils and other food commodities for the content of each individual fatty acid.

The main objective of this work was to identify the fatty acid composition of several vegetable oils and fats. Eleven vegetable oils and fats (n=121) were analyzed for its fatty acid composition by gas chromatography (GC-FID) on HP-FFAP and SPB^{TM-1} column, respectively. Among the evaluated oils the higher contents of saturated fatty acids were found in palm kernel oil (76.0% ± 1.95) and coconut fat (90.5% ± 2.95) with predominant presence of lauric acid (C_{12:0}) and myristic acid (C_{14:0}) compared to content of total saturated fatty acids in linseed oil (9.65% ± 1.05), sunflower seed oil (8.8% ± 0.8) and safflower oil (7.2% ± 0.73). The result showed that the sunflower oil, safflower oil and linseed oil contain the highest percentage of long chain mono and polyunsaturated fatty acids: oleic acid (C_{18:1}), linoleic acid (C_{18:2}) and linolenic acid (C_{18:3}). Two varieties of canola oil, high linolenic (44.0% ± 2.02, n=21) and high oleic acid (59.5% ± 1.907, n=20) were found. The highest P/S index (Polyunsaturated/Saturated index) was found for safflower oil (10.55) and the lowest P/S indexes were found for palm kernel oil (0.016) and coconut fat (0.005).

The fatty acid composition of safflower and sunflower oil contains a healthy mixture of all the types of saturated and unsaturated fatty acid. The value of P/S index which is associated to the impact in the human health is also high for safflower (10.55) and sunflower oil (6.76), which makes them the most suitable edible oils for mass consumption.

Key words: Fatty acid, Lauric acid, Myristic acid, Oleic acid, Linoleic acid, Linolenic acid, P/S index, Gas chromatography.