Abstract

Evaluation of the stability of fatty acid content of natural lipid and frying oils available on the Iranian market during frying

Sisakhtnezhad, S.1; Sheikhol-Islami, A.2; Kiani, A.3; Mohammadi, B.4; Darzi-Ramandi, M.5; Parvin, N.5; Bahrami G.6

1. B.SC in Cellular and Molecular Biology, Center for Medical Biology Research, Kermanshah University of Medical Sciences.
2. Pharmacologist, Center for Medical Biology Research, Kermanshah University of Medical Sciences.
3. Ph.D Student of Toxicology, School of Pharmacy, Shaheed Beheshti University of Medical Sciences.
4. B.S. in Chemistry, Center for Medical Biology Research, Kermanshah University of Medical Sciences.
5. Medical Doctor (GP)
6. Associate Professor of Pharmacology, Center for Medical Biology Research, Kermanshah University of Medical Sciences.

Introduction: Frying is one of the most popular cooking methods. However, harmful substances are created during the frying process, with the stability of oil negatively affected. This study evaluates the stability of fatty acid content of several cooking and frying oils available on the Iranian market during the process of frying.

Materials and methods: Samples from 5 different frying oils and 12 samples of oils for cooking (natural lipids) were collected. All the frying oils as well as 6 samples of oils for cooking were subjected to fatty acid analysis using high performance liquid chromatography (HPLC). Frying performance of all the samples was chemically analyzed before and after the frying. Data were analyzed using a descriptive methods.

Results: The highest amount of trans fatty acids (up to 26.3% of total fatty acids) was found in some frying oils. The maximum and minimum of the sum of trans and saturated fatty acids were 33.7% and 5.9%, respectively. Chemical parameters of oils degradation were increased for the over-used frying oils. The parameters also went up for the cooking oils after the frying.

Discussion: This study shows a low stability of the frying oils available on the Iranian market making them unsafe for over using for the frying purposes. In addition cooking oils are not recommended for frying at all.

Key words: Oil, Frying, HPLC, Oxidation.


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