

عنوان مقاله:

Monitoring Polycyclic Aromatic Hydrocarbons in Edible Vegetable Oils Consumed in Iran

محل انتشار:

مجله علوم و فناوری کشاورزی، دوره 26، شماره 4 (سال: 1403)

تعداد صفحات اصل مقاله: 15

نویسندگان:

Z. Piravi-Vanak - Food Technology and Agricultural Products Research Center, Standard Research Institute (SRI), Karaj, Islamic Republic of Iran

S. Nanvazadeh - Oilseed Cultivation Development Company, Tehran, Islamic Republic of Iran

F. Shavakhi - Department of Food Science, Agricultural Engineering Research Institute, Agricultural Research, Education and Extension Organization (AREEO), Karaj, Islamic Republic of Iran

Z. Taghvaei - Food Technology and Agricultural Products Research Center, Standard Research Institute (SRI), Karaj, Islamic Republic of Iran

خلاصه مقاله:

Concentrations and profiles of 15 Environmental Protection Agency (EPA) priority Polycyclic Aromatic Hydrocarbons (PAH) of six different edible oils consumed in Iran markets (oils of olive, sesame, coconut, sunflower, frying and blend oil) were studied. The evaluated edible oils in the present study have not previously been analyzed concerning their contents of PAH compounds. PAHs of 207 edible oil samples were determined and quantified by High-Performance Liquid Chromatography with Spectrofluorometric Detector (HPLC/FLD). The results revealed that the highest content of total PAHs was in coconut oil group ( $46.8 \mu\text{g kg}^{-1}$ ), followed by blend oil ( $22.48 \mu\text{g kg}^{-1}$ ), frying oil ( $20.67 \mu\text{g kg}^{-1}$ ), sesame oil ( $19.92 \mu\text{g kg}^{-1}$ ), olive oil ( $18.4 \mu\text{g kg}^{-1}$ ) and sunflower oil ( $17.6 \mu\text{g kg}^{-1}$ ). The light PAHs (Naphthalene, Acenaphthene, Phenanthrene, Anthracene, and Fluorene) had the highest portion of PAHs concentration. Benzo[a]pyrene and PAH<sub>4</sub> contents (Benz[a]anthracene+Chrysene+Benzo[b]fluoranthene+Benzo[a]pyrene) were  $ND-1.32 \mu\text{g kg}^{-1}$  and  $0.14-9.2 \mu\text{g kg}^{-1}$ , respectively; coconut oil had the highest content. In general, the highest values of Benzo[a]pyrene and PAH<sub>4</sub> were not higher than the maximum allowable values of 2 and 10 in any sample, respectively. However, due to the significant content of total PAHs in some vegetable oils, such as coconut oil, it is necessary to determine the limits and evaluate it in the national standard and regulations of the country.

کلمات کلیدی:

Edible oil, HPLC/FLD method, Iranian oil market, PAH

لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/2023188>

