

Polycyclic aromatic hydrocarbons (PAHs) in edible oils by gas chromatography coupled with mass spectroscopy

Abstract

The occurrence of polycyclic aromatic hydrocarbons (PAHs) in nine edible oils of three categories of oil samples, such as soy bean oil, mustard oil and coconut oil, has been studied to determine the contamination degree of this type of oil samples. Eight major carcinogenic polycyclic aromatic hydrocarbons (PAHs), such as naphthalene, anthracene, phenanthrene, fluorene, pyrene, crysene, benzo(a)pyrene and benzo(a)anthracene, were identified and quantified in the extract of edible oils collected from Bangladeshi Markets by gas chromatography and mass spectroscopy. All of the carcinogenic PAHs are not present in the edible oils. A few of the carcinogenic PAHs are present in the oils but it is within the permissible limit. The results for the recoveries of naphthalene, fluorene, phenanthrene, anthracene, pyrene, crysene, benzo(a)anthracene and benzo(a)pyrene were in the range of 56–84%. The limit of detection (LOD) of the GC–MS method, established at signals three times that of the noise for naphthalene, fluorene, phenanthrene, anthracene, pyrene, crysene, benzo(a)anthracene and benzo(a)pyrene, was 2.0–2.5 ng, respectively.