Mahugija&Njale 2018_JFCA.pdf - Adobe Acrobat Reader DC
File Edit View Window Help
Home Tools Mahugija&Njale 20... ×
39 (1 of 8) 100%

Journal of Food Composition and Analysis 73 (2018) 39–46

Contents lists available at ScienceDirect

Journal of Food Composition and Analysis

journal homepage: www.elsevier.com/locate/jfca

Levels of polycyclic aromatic hydrocarbons (PAHs) in smoked and sun-dried fish samples from areas in Lake Victoria in Mwanza, Tanzania

John Andrew Marco Mahugija[a,*], Emmanuel Njale[b]

[a] Chemistry Department, University of Dar es Salaam, P.O. Box 35061 Dar es Salaam, Tanzania
[b] Mwalimu Julius K. Nyerere University of Agriculture and Technology, P.O. Box 976 Musoma, Tanzania

ARTICLE INFO

Chemical compounds studied in this article:
Acenaphthylene
Anthracene
Benzo[a]anthracene
Benzo[b]fluoranthene
Benzo[k]fluoranthene
Benzo[a]pyrene
Benzo[ghi]perylene
Chrysene
Dibenz[a,h]anthracene
Indeno[1,2,3-cd]pyrene
Fluorene
Phenanthrene
Pyrene

Keywords:
Food analysis
Food composition
PAHs
Levels
Smoked fish
Sun-dried fish
Lake Victoria
Tanzania

ABSTRACT

This study investigated the concentrations of 13 polycyclic aromatic hydrocarbons (PAHs) in smoked and sun-dried fish samples of three species (*Synodontis victoriae*, *Haplochromis* spp and *Lates niloticus*) from areas in Lake Victoria in Mwanza region, Tanzania. The PAHs in cleaned extracts were determined using gas chromatography-mass spectrometry (GC–MS). The concentrations of total PAHs in sun-dried fish samples were up to 0.13 mg/kg in *S. victoria* and *Haplochromis* spp and ranged from 0.08 to 0.3 mg/kg in *L. niloticus*. The concentrations of total PAHs in smoked fish samples ranged from 12.1 to 31.4, 21.8 to 27.4 and 19.5 to 33.9 mg/kg in *S. victoriae*, *Haplochromis* spp and *L. niloticus*, respectively. The concentrations of benzo[a]pyrene in all the smoked fish samples exceeded the European Union (EU) maximum permissible level (0.002 mg/kg) and the sum of the concentrations of benzo[a]pyrene, benz[a]anthracene, benzo[b]fluoranthene and chrysene in all the smoked fish samples exceeded the EU maximum permissible level (0.012 mg/kg), but were generally below these limits in the sun-dried fish samples. The concentrations of the PAHs in smoked fish samples were significantly greater than in the sun-dried samples.