Mahugija et al 2018_Chemosphere.pdf - Adobe Acrobat Reader DC
File Edit View Window Help
Home Tools Mahugija et al 201... ×
869 (1 of 6) 106%

Chemosphere 193 (2018) 869–874

Contents lists available at ScienceDirect

Chemosphere

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

Residues of pesticides and metabolites in chicken kidney, liver and muscle samples from poultry farms in Dar es Salaam and Pwani, Tanzania

John A.M. Mahugija*, Patrick E. Chibura, Esther H.J. Lugwisha

Chemistry Department, University of Dar es Salaam, P.O. Box 35061 Dar es Salaam, Tanzania

HIGHLIGHTS

- Pesticide residues were determined in chicken organs in Tanzania.
- The highest concentrations of the contaminants were found in kidney and liver.
- The concentrations of the pesticide residues exceeded the MRLs in most samples.
- The contamination levels indicate the use of highly contaminated feed at the farms.

ARTICLE INFO

Article history:
Received 4 July 2017
Received in revised form
7 November 2017
Accepted 18 November 2017
Available online 20 November 2017

Handling Editor: Andreas Sjodin

Keywords:
Pesticides
Chicken
Kidney
Liver
Muscle
Tanzania

ABSTRACT

The concentrations of organochlorine and organophosphorus pesticides and metabolites were investigated in chicken kidney, liver and muscle samples obtained from chickens collected from four poultry farms in Dar es Salaam and Pwani regions in Tanzania. The samples were extracted by solid dispersion using cyclohexane:ethyl acetate. The extracts were cleaned by adsorption column chromatography. The analytes were determined using gas chromatography-mass spectrometry (GC–MS). The concentrations of total DDT, total endosulfan and total HCHs in the samples ranged from 0.71 to 26, 0.3 to 7.9 and 0.02 –10.4 mg/kg lipid weight (lw), respectively. The highest concentrations of aldrin, dieldrin, chlorpyrifos, fenitrothion and pirimiphos methyl were 5.5, 4.8, 9.7, 5.6 and 7.8 mg/kg lw, respectively. The highest concentrations of the contaminants were found in the kidney and liver samples. The sites in Dar es Salaam showed the highest concentrations of the compounds. Most of the concentrations were above the maximum residue limits (MRLs) indicating risks and concerns for livestock and public health.

© 2017 Elsevier Ltd. All rights reserved.