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Polycyclic aromatic hydrocarbons (PAHs) and organic pesticide residues in yellowfin tuna (*Thunnus albacares*) light and dark muscles

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The occurrence of toxic and carcinogenic contaminants in agro commodities in levels above tolerable limits have been issue of health concern globally. Of much concern is the low research output on this topical issue in developing countries especially within African continent. The aim of this study therefore, was to investigate the occurrence, profiles and levels of selected hazardous compounds: sixteen priority polycyclic aromatic hydrocarbons (PAHs) and organochlorine pesticides (OCPs) such as dichlorodiphenyltrichloroethane (DDT), benzenhexachloride (BHC) and other OCPs in commonly consumed and commercially important marine species, yellowfin tuna (*Thunnus albacares*) dark (TDM) and light (TLM) muscles. Extraction of contaminants was done with QuEChERS modified method and analysed with GC-MS/MS. Target contaminants were detected in both muscles, however, the mean concentration of total DDT was significantly higher ($p < 0.05$) in TLM ($229.09 \pm 2.04 \mu\text{g/kg ww}$), than in TDM ($4.47 \pm 1.64 \mu\text{g/kg}$); while mean concentration of total PAHs, BHC and other OCPs were higher ($p < 0.05$) in TDM ($636.61 \pm 36.03 \mu\text{g/kg}$, $4.23 \pm 0.54 \mu\text{g/kg}$ and $12.12 \pm 2.90 \mu\text{g/kg}$ respectively) than TLM ($369.41 \pm 64.72 \mu\text{g/kg}$, $1.39 \pm 0.13 \mu\text{g/kg}$ and $5.36 \pm 0.9 \mu\text{g/kg}$). Concentrations of DDT, BHC and other OCPs in both muscles were below European Union (EU) maximum residue levels. However, benzo(a)pyrene, PAHs indicator, exceeded the EU recommended maximum level in both TDM and TLM. In view of the associated health hazards with these chemicals and their persistence in the environment, levels in the yellowfin tuna are of concern to consumers and warrants further investigation and monitoring.

Biography

Rufina Chukwumalume has completed her PhD from Stellenbosch University, South Africa in Food Science. She is the Head, Product Development Division under Coordination of Technical Research Programme in Agricultural Research Council of Nigeria. She has some publications as conference proceedings and some articles under review for publications.

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