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## Polycyclic aromatic hydrocarbons (PAHs) and organochlorinated pesticides (OCPs) in yellowtail (*Seriola lalandi*) from three spatially distinct locations: Levels, sources and fish size effect

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Polycyclic aromatic hydrocarbons (PAHs) and organochlorinated pesticides (OCPs) such as dichlorodiphenyltrichloroethane (DDT), endosulfan and benzenhexachloride (BHC) were evaluated in yellowtail (*Seriola lalandi*) fish species. These hazardous compounds were studied in fish sampled from three locations: Port Elizabeth, Yzerfontein and Struis Bay. The aim of the study was to investigate the profiles, levels and sources of PAHs and pesticides in yellowtail from the selected locations in relation to fish size and lipid content. Significant variations ( $p < 0.05$ ) were observed in the levels of PAHs measured in fish sampled from the three locations. Fish from Port Elizabeth had the highest PAHs concentrations ( $533.95 \pm 34.36$ ) followed by Yzerfontein ( $221.40 \pm 33.03$ ) and Struis Bay ( $88.97 \pm 2.83$ )  $\mu\text{g}/\text{kg}$  wet weight. Benzo(a)pyrene (as PAHs biomarker) exceeded the recommended EU limit ( $2 \mu\text{g}/\text{kg}$ ) in samples from Port Elizabeth and Yzerfontein whereas samples from Struis Bay did not exceed. DDT was detected only in samples from Port Elizabeth and Yzerfontein with mean total concentrations ( $7.48 \pm 5.18$  and  $11.14 \pm 1.44$ , respectively) not significantly different. Fish size (weight) correlated positively with lipid content ( $0.65$ ;  $p < 0.01$ ) and a stronger positive correlation with PAHs ( $0.83$ ;  $p < 0.01$ ). PAHs input source in fish from Port Elizabeth reflected a mixture of petrogenic and pyrogenic whereas, Yzerfontein and Struis Bay showed input source as petrogenic. In conclusion, consumption of large sized fish in locations with high PAHs burden can predispose consumers to health risk. Further investigation into human dietary exposure with the species is recommended.

### Biography

Chukwumalume Rufina C has completed her PhD in Food Science from Stellenbosch University, South Africa. She is a Programme Officer in 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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