

Organochlorine and Organophosphorus Pesticide Residues in Fish Samples from Lake Chad, Baga, North Eastern Nigeria

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Abstract : The aim of this study was to determine the levels of some organochlorine (o, p-DDE, p,p'-DDD, o,p'-DDD, p,p'-DDT, p,p'-DDT, α -BHC, γ -BHC, lindane, Endosulfan sulphate, dieldrin and aldrin and organophosphorus (Dichlorvos, Diazinon, Chlorpyrifos, fenitrothion and Fenitrothion) pesticide residues in the gills, liver, stomach, kidney and flesh of four fish species (Tilapia zilli, Clarias anguillaris, Heterotis niloticus and Oreochromis niloticus) between the periods of September 2010 to October, 2011. Samples were collected from Kwana Turare in Lake Chad, Baga, Borno State, Nigeria. Extraction of the fish samples and de-fattening of the fish sample extracts were performed using standard procedures. Analysis of the fish samples for pesticide residues were carried out using Shimadzu GC/MS (GC - 17A), equipped with fluorescence detector. Large differences in the levels of pesticide residues were observed between tissues within each fish. The concentrations of all the organophosphorus pesticides were higher in the organs of Oreochromis niloticus, while Heterotis niloticus shows the lowest. For organochlorine pesticides, the organs of Tilapia zilli showed the highest concentrations, while Heterotis niloticus shows the lowest. The highest pesticide concentrations were observed in gills and liver tissues of all the species of fish study, while the lowest concentrations were observed in flesh. Based on the above results, it can therefore be concluded that the concentrations of pesticide in the four fish species study did exceed the permissible limits set by FAO and FEPA.

Keywords : organochlorine, organophosphorus, pesticides, accumulation, fish, lake chad

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