

INVESTIGATION OF PESTICIDE RESIDUES AND SOME NATURAL RADIONUCLIDE ACTIVITY CONCENTRATIONS IN MUSSEL AND SOME FISH SAMPLES FROM IZMIR BAY, TURKEY

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Abstract

In this study, the activity concentrations of ²¹⁰Po and ²¹⁰Pb and pesticide residues were determined in mussel samples (*Mytilus galloprovincialis*) and fish samples (*Mullus barbatus*, *Solea solea*, *Engraulis encrasicolus*, *Sardina pilchardus*, and *Mugil cephalus*) collected from Izmir Bay. The highest ²¹⁰Po activity concentrations in anchovy and mussel were measured in winter. The study suggests that the historical organochlorine pesticides pollutants are persistent in this area.

Keywords: *Fishes, Izmir Bay, Mollusca, Pesticides, Radionuclides*

In this study we used the mussel (*Mytilus galloprovincialis*) and fish (*Mullus barbatus*, *S.solea*, *Engraulis encrasicolus*, *Sardina pilchardus*, and *Mugil cephalus*) samples collected seasonally from Izmir Bay (Figure 1) and analyzed for their ²¹⁰Po, ²¹⁰Pb and pesticide content.

Organochlorine Pesticide Residues in Pikeperch, *Stizostedion lucioperca* L., in Beysehir Lake (Central Anatolia). *Environmental Technology*, 23: 391-394.

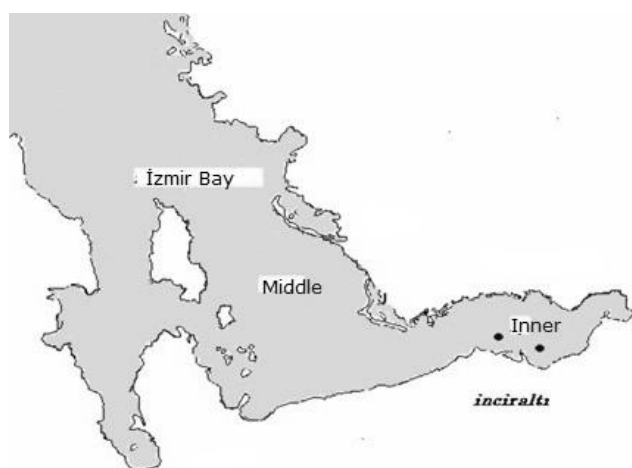


Fig. 1. The sampling stations.

²¹⁰Po and ²¹⁰Pb activity concentrations were measured by using an alpha spectrometry system (Ortec Octete Plus spectrometer). The analyses of environmentally persistent pollutants like polychlorinated biphenyls (PCBs), Organochlorine pesticides (OCP) and dichlorodiphenyltrichloroethane (DDT) and its metabolites in surficial fish and mussel (*Mytilus galloprovincialis*) samples collected from in Izmir were carried out using gas chromatograph and were confirmed with mass spectrometry [1].

The concentration of ²¹⁰Po in fish samples varied from 5.7±4.0 Bqkg⁻¹ to 353.7±45.0 Bq kg⁻¹ dw. The activity concentrations of ²¹⁰Po in mussels (*M. galloprovincialis*) determined to vary between 50±16 Bq kg⁻¹ and 122±26 Bq kg⁻¹ dw. The highest ²¹⁰Po activity concentrations in anchovy and mussel were measured in winter. The concentration of ²¹⁰Pb in fish samples varied from 0.7±0.3 Bq kg⁻¹ to 3.6±3.0 Bq kg⁻¹ dw. The activity concentrations of ²¹⁰Pb in mussels (*M. galloprovincialis*) determined to vary between 1.8±0.4 Bq kg⁻¹ and 4.2±0.4 Bq kg⁻¹ dw.

The median concentrations of the residues in all the samples tested, ranged from 4-4'DDE 0.001 to 0.021 mg/kg. The highest residue levels of pesticides in the winter period anchovies were found in 4-4'DDE 0.021 mg/kg. The study suggests that the historical organochlorine pesticides pollutants are persistent in this area.

References

1 - Aktumsek, A., Kara, H., Nizamlioglu, F., Dinc, I., 2002. Monitoring of