

**Organochlorine residue content in Red Mullet (*Mullus barbatus*) from the Greek Seas**

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Organochlorine compounds, such as PCBs, DDTs, HCHs, along with technical impurities and metabolites belong to the most persistent and toxic pollutants in the environment, and accumulate in adipose tissues of marine organisms. In order to study the extent of the damage caused to fish in various locations of the Greek Seas and detect differences between them, their concentrations were determined in the flesh of red mullet, a quite abundant and commercially important fish species of the Greek Seas.

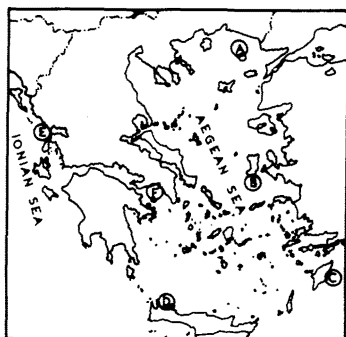


Fig. 1 : Map showing location of sampling stations

(A : Alexandroupolis,  
B : Chios,  
C : Rhodes  
D : Canea,  
E : Preveza  
F : Aegina).

Samples were collected at six locations (Fig. 1) from 1988 to 1991. Organochlorine concentrations were determined according to the procedure proposed by SATSMADJIS *et al.*, (1988). GC analysis was performed by a GC equipped with a 63 Ni electron capture detector and a fused Silica DB-1 Megabore Column 30 m long (i.d. 0.53 mm) operating isothermally at 217°C.

The higher mean concentration of total PCBs (112.95 ppb) was found off Aegina Island (area F) and the lowest (4.4 ppb) off Rhodes Island (area C) (Fig. 2). The latter area, located in the southwestern Aegean Sea, exhibited also the lowest PCBs value during the 1986-1988 survey (GEORGAKOPOULOS-GREGORIADES and VASSILOPOULOU, 1990). The observed difference between the present PCBs value in area F and that in 1986-1988 could be possibly attributed to different sampling location; in 1986-1988 sampling took place in the SW part of Aegina Isle, whereas in 1989-1991 in the NE part of the island which is in the proximity of the Athens central sewage outfall. Areas F and C presented respectively the highest (8.05 ppb) and the lowest (3.3 ppb) DDTs values.

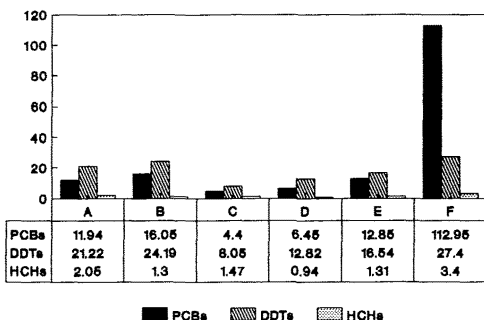


Fig. 2 : Mean concentrations of PCBs, DDTs, HCHs (ppb on a wet weight basis) in the flesh of red mullet in the six locations of the Greek seas

In all cases, the main component of DDTs was p,p'-DDE (Fig. 3), due to its higher persistence in relation to the other DDT metabolites (OLSSON, 1977). HCHs ranged from 3.4 ppb (area F) to 0.94 ppb (area D).

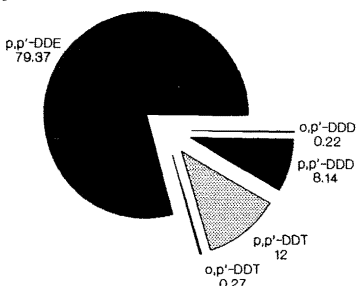


Fig.3 : Proportion % of the DDT metabolites in the flesh of red mullet.

The fact that the ratio PCBs/DDTs is less than 1 at the areas A, B, C, D, E possibly indicates that atmospheric transport is the main source of pollution, while at area F being 4.12, reveals the industrial origin of pollution, which was expected since the latter site is geographically close to the city of Athens and to the industrial zone of Elefsis.

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