Chlorinated hydrocarbons in a Mediterranean monk seal (*Monachus monachus*)

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Marine mammals form ideal repositories for chlorinated hydrocarbons because they are long-lived, having a relatively long exposure time and their lipid depot reserves are very extensive in proportion to their size (GUSKIN, 1982). The fact that they occupy high trophic levels in marine ecosystems results to high chlorinated hydrocarbon concentrations in their flesh and organs (REIJNDERS, 1990).

This study reports on the PCBs, DDTs and HCHs concentrations in several tissues of a mediterranean monk seal, washed out dead at Santorini Island in March 1990. The specimen was an adult male (VI+ years old) having a curvilinear length of 218 cm and a total length of 239 cm (SCHEFFER, 1967). Samples were taken from the muscle, the blubber, the kidney, the liver, the spleen, the heart, the brain and the lung. Each sample was wrapped in aluminum foil and preserved in deep freeze. GC analysis was performed according to SATSMADJIS *et al.*, (1988) on a GC (Varian 3700) equiped with a 63 Ni electron capture detector and a fused silica Megabore column DB-1 30 m long.

Higher PCBs and DDTs values coincided with the blubber (Table 1), observation being in good agreement with the positive relation existing between chlorinated hydrocarbons and lipids in marine organisms (STOUT, 1980). The most contaminated organs were the liver and the spleen. The brain, although having a high amount of lipids, displayed relatively low chlorinated hydrocarbon concentrations. This is mainly attributed to the fact that most of its lipidic compounds are either phospholipids or total cholesterol (KALOGEROPOULOS, pers. com.). Among DDTs, p,p'-DDE exhibited higher values (Fig. 1), due to its higher persistence in relation to the other DDT metabolites (OLSSON 1977).

Table 1. Concentration of PCBs, DDTs, HCHs (ppb on a wet weigt basis) and lipids (%) in various tissues of the mediterranean monk seal collected at Santorini Island in 1990.

	Lipids	PCBs	DDTs	HCHs
Blubber	86.9	15223.3	17163.8	26.7
Muscle	0.7	109.5	174.7	0.9
Kidney	1.5	111.2	166.8	1.0
Liver	2.4	539.9	529.1	1.2
Spleen	2.6	349.5	503.7	1.1
Heart	1.0	47.1	103.7	0.4
Brain	10.8	159.9	160.5	2.2
Lung	0.8	48.0	59.6	0.8

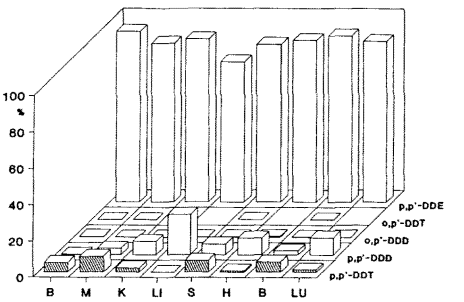

Fig. 1 : Proportion (%) of the DDT metabolites in the various tissues of the mediterranean monk seal. (B=Blubber, M=Muscle, X=Kidney, LI=Liver, S=Spleen, H=Heart, B=Brain, LU=Lung)

Further studies are required in order to collect data on chlorinated hydrocarbon concentrations in mediterranean monk seal, a species endangered with extinction, since these, pollutants affect its ability to resist various diseases and cause failure to reproductive activity (HELLE *et al.*, 1976a & b).

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