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Measurement of Oxygenated Metabolites of DDTs and PCBs: A Caution

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ABSTRACT

In the past several years we have reported high concentrations of oxygenated metabolites of DDTs and PCBs (DDTols and PCBols) relative to parent compounds in southern California marine sediments, invertebrates and fish (Brown *et. al.,* 1982, 1983, 1985, 1987b; Gossett *et al., 1984a,b).* Several papers described the cytosolic distribution of these metabolites as a means of assessing toxic impact (Brown *et. al.,* 1982, 1983, 1987b; Gossett *et. al.,* 1984a: Jenkins & Brown, 1984).
Measurement of metabolites was based upon an extraction procedure that used NaOH to solubilize any reconjugated metabolites in the aqueous phase (Gingell & Wallcave, 1974; Gold *et al.,* 1981), presumably via saponification of acids and conversion of alcohols to alkoxide (Morrison & Boyd, 1966). Parent compounds were then extracted into hexane and the remaining basic aqueous phase heated to hydrolyze metabolites from biological substances. The pH of the hydrolysate was the reduced to <2 to fully protonate metabolites. Metabolites were then solvent extracted and quantified using gas chromatography with electron capture detection (GC/ECD). External and internal standards coeluted with peaks in samples assigned to the respective metabolites using megabore or capillary DB-5 columns (J&W Scientific). Experiments in which DDT parent compounds were subjected to the conditions of the extraction procedure indicated no significant conversion of these parent compounds to oxygenated metabolites (Gossett *et al.,* 1984). The extraction procedure is described in detail in Brown *et al.* (1982, 1986).