DDT in Babies' Milk Formula

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Dichlorophenyltrichloroethane (DDT) and its derivatives are widely distributed throughout the environment. These compounds have been isolated from a number of human sources. Human placentas containing p,p'DDT and p,p'DDE have been reported by McLEOD *et al.* (1971). RADOMSKI *et al.* (1971) recorded concentration levels of p,p'DDT, p,p'DDE, dieldrin and β-BHC in Argentinian new-born infants; English breast-fed babies have been shown to contain about 0.017 mg DDT compounds per Kg of body weight LEFROTH (1968). The amount of DDT in human milk has been determined in many countries, with concentrations ranging from 0 to over 0.5 ppm (HAGYARD *et al.* 1973).

Little work has been done on the isolation and concentrations of DDT compounds found in baby formula milk. This note reports levels of these compounds in two proprietary brands of baby milk powder.

Materials and Methods

Samples of baby milk powder were purchased from a supermarket in Blantyre, Malawi.

10 g of the powdered milk was extracted in a two stage extraction procedure:

a) eight hours extraction with 100 ml distilled 40-60° petroleum spirit

b) eight hours extraction with 100 ml, 5% diethyl ether in 40-60° petroleum spirit.

The extraction was carried out in a Soxhlett extraction apparatus, the extracts being kept dry by incorporating 10 g of anhydrous sodium sulphate in the extraction thimble. Extract clean-up was effected during extraction *in situ* using 10 g of a Ramsay Patterson prepared silica gel (100 mesh). Both clean extracts were concentrated to 10 ml on a rotary evaporator.

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Pesticides were initially detected by thin layer chromatography using benzene or 1% acetone in benzene as solvent. Spots were visualised by spraying with 0.5% o-tolidine and exposure to U.V. light.

Identification and estimation of pesticides was carried out on a Perkin - Elmer F-II gas chromatogram A 1 metre glass column packed with 11% OV-17 and QF - 1 (mixed phase) on 80/100 mesh Gaschrom-Q was used. Nitrogen was carrier gas at a flow rate of 100 ml per minute and 30 p.s.i. Detection was by electron capture detector of 1 millicurie ionisation source.

Results

No chlorinated hydrocarbon pesticides were detected in the 5% diethyl ether-petroleum spirit extract.

DDT's and breakdown products were found in the straight petroleum spirit extract as shown in the table below.

TABLE

Pesticide	Levels in ppm	
	Brand A	Brand B
o,p'DDE	0.02	0.03
p,p'DDE	0.04	0.07
o,p'DDT	0.01	0.01
p,p'DDT	0.03	0.03
Total as DDT	0.10	0.14

The results show that levels of DDT compounds in the samples tested were no higher than values reported for mothers' milk. It seems therefore, that babies fed on formula milk are exposed to the same toxic hazards as breast fed babies.

References

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