PESTICIDE ANALYSIS

PRESENCE OF POLYCHLORINATED BIPHENYLS AT RESIDUE ANALYSIS OF BIOLOGICAL SAMPLES.

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(Synopsis)

At analysis of samples from the Swedish wild-life fauna by means of gas chromatography, using both electron capture detector and micro coulometric detector, a large number of unknown but chlorine containing compounds have been detected together with the ordinary pesticides. Massspectra of some of these compounds obtained at a combined gas chromatograph mass spectrometer (LKB-9000) indicate that most of the unknown compounds are polychlorinated biphenyls, potentiated somewhat in nature towards those of higher degree of chlorination.

A large number of samples have been examined, and polychlorinated biphenyls are found especially in fish and in sea birds but also in needles of conifers and in some samples of human depot fat. Two hundred samples of soil and water did not contain detectable amounts of chlorinated biphenyls nor did twenty samples of terrestrial mammals.

By the use of a nitration method most of the ordinary pesticides can be removed from extracts, leaving the polychlorinated biphenyl unaffected. Using this method, it has been shown that two of the major peaks of the chlorinated biphenyls overlap the two peaks of ppDDT and opDDT respectively. This is found true for SF-96 columns, most frequently used for the quantitative residue analyses reported in literature; not in case of QF-1 columns.

Fig. 1.
Gaschromatogram demonstrating results at residue analysis of purified extract from a sea eagle. Column 4 % SF 96; EC-detector.