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POLYCHLORINATED BIPHENYL RESIDUES

As part of a routine survey for pesticide residues in imported foodstuffs[1] we recently extracted samples of ground Cashew nuts. One of these samples, when analysed by gas-liquid chromatography, appeared to contain polychlorinated biphenyls of the 40% chlorine mixture. By direct comparison of peaks this sample contained about 10 ppm. The sample was the only one of a group received from the same shipment of nuts to contain these contaminants and investigation revealed that this one was packed in a different manner for transport to the laboratory. The sample had been received packed in a 6in x 3in diameter lacquered cardboard drum. A further supply of empty drums was obtained and one of these was set up and extracted with n-hexane and submitted to gas-liquid chromatographic analysis. The extract from the drum contained an identical series of peaks to the extract of Cashew nuts, the concentration in the drum was estimated at 200 ppm. The compounds have RT values corresponding to polychlorinated biphenyls on thin-layer media. Mass Spectrometry confirmed the presence of chlorinated biphenyls in the extract. The particular make of drum is currently finding a large number of uses, among which is the packaging of empty gelatin capsules as used in this laboratory for toxicological feeding. Analysis has shown that no polychlorinated biphenyls were detectable in the capsules. Subsequently we have analysed extracts of cardboard from other drums and most samples appear to contain polychlorinated biphenyls in varying concentrations. The ratio of the peak heights in some extracts is however considerably different to that of peaks in a standard polychlorinated biphenyl preparation.

We would like to draw the attention of fellow residue analysts to our finding which emphasises the need with which contamination can be acquired by samples before analysis. Since cardboard has not hitherto been suspected of certain contamination great care should be taken to ensure that food and wildlife samples submitted to laboratories for residue analysis are packed in containers which will not themselves impart residues to the samples and thereby lead to erroneous findings.

1. Thompson, R.H., Hill, E.C. and Richmick, P.S. Pest. Sci. In the press.

Pest Information Control Laboratory
Rook Rise South
Tolworth
Surbiton
Surrey

S Bailey
P J Curtis
P B Richmick

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