

Reynolds L M. Polychlorobiphenyls (PCB's) and their interference with pesticide residue analysis. *Bull. Environ. Contam. Toxicol.* 4:128-43, 1969. [Ontario Res. Foundation, Sheridan Park, Ontario, Canada]

The problem of PCB interference with gas liquid chromatography-electron capture (GLC/EC) analysis of organochlorine pesticide residues, because of similarities in structures and properties, is discussed. A simple method involving separation and cleanup on an adsorption column to allow quantitation of the organochlorine pesticides and PCBs is described. [The SC[®] indicates that this paper has been cited over 120 times since 1969.]

Lincoln M. Reynolds
Pesticide and Trace Analytical Laboratory
Department of Applied Chemistry
Ontario Research Foundation
Sheridan Park Research Community
Mississauga, Ontario L5K 1 B3
Canada

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"It is unbelievable that this paper generated so much interest. Originally, I had no intention to publish it since it was merely a part of our ongoing residue method improvement for the determination of DDT and other organochlorine pesticides in wildlife. However, after presenting it at the First Eastern Canadian Seminar on Pesticide Residue Analysis, November 18-19, 1968 at Guelph, Ontario, Canada, the interest shown convinced me that it was worthwhile publishing.

"A commentary on this paper is really a discussion of the unfolding of the PCB problem, currently the number one environmental topic. Since 1964 our laboratory has regularly conducted residue analyses for the Canadian Wildlife Service (CWS). We, along with other wildlife residue chemists in Europe and the US, consistently observed a number of unidentified peaks (UIPs) on our gas chromatograms during analyses for DDT and other organochlorine pesticide residues. This was particularly evident with birds of prey, i.e., those at the top of the food chain. During these early years we knew there was a problem because some of

our GLC/EC results were higher than those obtained by TLC. However, without the use of a mass spectrometer, we were forced to merely note the presence of UIPs.

"Then in 1966 I was fortunate to be invited by Tony Keith of CWS to attend an OECD meeting in Scotland as a Canadian chemist representative to discuss the presence of 'Unintended Residues in the Environment' and to present wildlife monitoring data carried out by the individual OECD countries.

"It was at this meeting that Soren Jensen of Sweden disclosed that he had characterized the UIPs as PCBs by use of a mass spectrometer. This was the spark that led to tremendous effort in different countries to overcome the interference of PCB with organochlorine pesticide residue analyses—especially with fish and wildlife samples.

"My publication resulted from this work and the frequency of citation may be due to the following: (a) It was the first paper from a residue standpoint to trace the history, properties, and uses of PCBs. (b) As far as I am aware, it was the first to point out the PCB interference problem and the possible inaccuracies of earlier reported residue data, (c) It offered a simple method, using materials and instrumentation in everyday use, to obviate the interference and allow separate quantitation of pesticides and PCBs.

"There is no doubt that many people contributed to the 'Unfolding of the PCB Problem.' I believe that Jensen and Alan Holden of Scotland were among the most important contributors.¹⁻³

"As far as this publication is concerned, I received good all-round support: excellent technical assistance from Terry Cooper and other members of my Pesticide Laboratory Group; generous financial support from the Province of Ontario (Ministry of Industry & Tourism) and the CWS (Tony Keith was tremendous to me); and general support and encouragement from Sid Reid, my department director.

"PCBs, although now banned in most countries, are currently the major global contaminant of interest. We have continued to update our methodology on the analyses of PCBs and organochlorine pesticides."^{4,5}

1. Report of a new chemical hazard. *New Sci.* 32:612, 1966.
2. **Holden A V.** International cooperative study of organochlorine pesticide residues in terrestrial and aquatic wildlife. *Pestic. Monit. J.* 4:117-35, 1970.
- 3..... International cooperative study of organochlorine and mercury residues in wildlife. *Pestic. Monit. J.* 7:37-52, 1973.
4. **Reynolds L M.** Pesticide residue analysis in the presence of polychlorobiphenyls (PCBs). *Residue Rev.* 34:27-57. 1971.
5. **Reynolds L M & Cooper T.** Analysis of organochlorine residues in fish. *Water Quality Parameters. ASTM STP 573.* Philadelphia: American Society for Testing and Materials, 1975. p. 196-205.