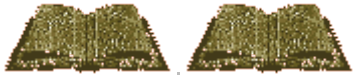
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Book Reviews: Technical Books Section

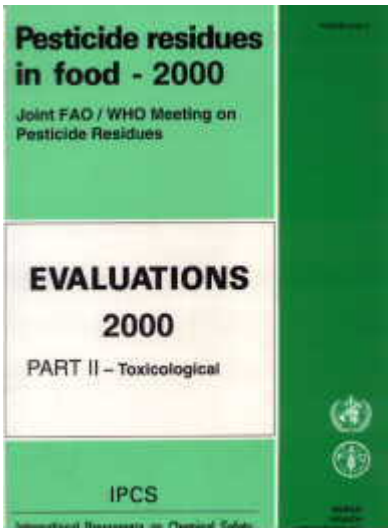
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Pesticide Residues in Food-2000

Pesticide Residues in Food-2000, Joint FAO/WHO Meeting on Pesticide Residues: Evaluations 2000, Part II: Toxicological, International Programme on Chemical Safety (IPCS)
World Health Organization, Avenue Appia 20, 1211 Geneva 27, Switzerland, Publication Date 2001, x + 272 pages, ISBN 92 4 1665 16 5: Price Sw.fr. 70.00; in developing countries: Sw.fr. 49.00

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The book under review is 88th in a series of toxicological volumes published by the *World Health Organization*, comprising monographs on pesticide residues in food, beginning with the first one released in 1962. These monographs summarizing the safety data on pesticides that have the potential of leaving residues in food commodities, represent the collective research work of eminent experts.

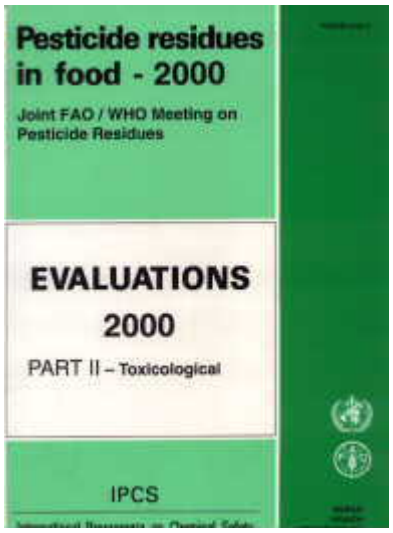
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The preparatory work for these toxicological evaluations of pesticide residues is carried out by the WHO Expert Group on Pesticide Residues, which is subsequently considered by the FAO/WHO Joint Meeting on Pesticide Residues in Food and the Environment (JMPR). The JMPR is actively supported by the International Programme on Chemical Safety (IPCS) within the framework of the Inter-Organization Programme for the Sound Management of Chemicals. The IPCS was established in 1980, and represents a joint venture of the United Nations Environment Programme (UNEP), the International Labour Organization (ILO), and the World Health Organization (WHO). The main objectives of the IPCS are to establish the scientific basis for assessing the risk to human health and the environment from exposure to chemicals, through international peer-review processes as a prerequisite for the promotion of chemical safety, and to provide technical assistance in strengthening national capacities for the sound management of chemicals.

The book under review summarizes the safety data on 8 pesticides (wrongly mentioned as 11 on the back cover) that have the potential to leave residues in food commodities. They include chlorpropham, DDT, deltamethrin, dodine, fenitrothion, fipronil, imazalil, and thiodicarb. The data summarized in the monographs were used to establish the acceptable daily intake (ADI) and acute reference dose (RfD) for these pesticides. The former is arrived at on the basis of evaluation of biochemical aspects (absorption, distribution, and excretion), and toxicological studies (acute and chronic toxicities, as well as carcinogenicity, genotoxicity, and reproductive toxicity).

The discussion with reference to the toxicity profile of each of the 8 pesticides covered in this volume is exhaustive and well referenced. Of particular interest is the information on DDT (dichlorodiphenyltrichloroethane), a pesticide that was extensively used in India and elsewhere till a few years ago, when its tendency to persist in the environment as a toxic contaminant was first realized. Though the use of DDT for agricultural purposes is no longer recommended, there are sufficient indications to its continued surreptitious use in India, owing perhaps to a lack of effective monitoring. The long-term implications of such violations can be surmised from the fact that even

in those countries where DDT has been effectively banned for the last several years, it still represents a significant source of food contamination. Such is the tenacity of DDT to persist in the environment.



" .. Of particular interest is the information on DDT (dichlorodiphenyltrichloroethane), a pesticide that was extensively used in India and elsewhere till a few years ago, when its tendency to persist in the environment as a toxic contaminant was first realized... "

This volume considers new toxicological data with reference to DDT that have been published since the last JMPR converted the ADI for this pesticide (along with several others which are no more used in agricultural practice) to a provisional tolerable daily intake (PTDI). While some animal studies indicate adverse health effects on chronic exposure, there is no convincing evidence to link DDT with human ill health. Available data on humans do not show causal relationships for carcinogenicity in any organ system or significant adverse health effects after repeated exposure to concentrations up to 0.25 mg/kg bw per day. While this is heartening news, there can be no room for complacency, since predictions about the impact of chemicals on human health can never be foolproof. Also, there are indications of increased risk for pancreatic cancer among farmers subjected to heavy, prolonged exposure.

The other pesticide of particular interest from the Indian point of view that has been discussed in this volume is deltamethrin, a pyrethroid that is currently extensively being used in this country. WHO has classified deltamethrin as "moderately hazardous," but instances of adverse effects due to exposure are largely confined to dermal manifestations such as paresthesias and dysesthesias, and respiratory irritation with rhinitis and aggravation of asthma. Acute intoxication due to suicidal ingestion is fortunately rare and is not attended with high mortality as in the case of some other pesticides.

The information with reference to the other pesticides discussed serves to keep toxicologists and clinicians updated on the toxicities of these compounds. This is particularly important in the case of common culprits (especially in the Indian sub-continent) such as fenitrothion and thiodicarb. The remaining chemicals dealt with (chlopropham, dodine, fipronil, and imazalil) are relatively uncommon. An exhaustive list of recent references at the end of each chapter greatly enhances the utility of the book, besides underlining the authenticity of information presented.

The book itself is attractively designed and produced with good quality printing. It is reasonably priced for developing countries, being subsidized to a little over half the actual cost. It should serve as a valuable information source (on the pesticides dealt with), for government and food regulatory officers, industrial testing laboratories, toxicological laboratories, medical colleges, hospital physicians, clinical toxicologists, and all those who deal directly or indirectly with pesticides.



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Dr.V.V.Pillay has been in the vanguard of the movement among medical professionals in India to develop the neglected field of Toxicology. He has published extensively in both the scientific and lay press on matters relating to Toxicology, as well as his chosen discipline - Forensic Medicine. Dr.Pillay has authored 6 books on Forensic Medicine and Toxicology, and has received an award for one of them (Modern Medical Toxicology), generally considered to be a trend setter among books on the subject in India. He has reviewed several books on Toxicology for the Internet Journal of Forensic Medicine and Toxicology. Dr.Pillay received a scroll of honour in appreciation of work done in the field of Toxicology from the Medicolegal Society, All India Institute of Medical Sciences, New Delhi. He has established a state-of-the-art Poison Control Centre, recognized by the World Health Organization at the institute where he is currently employed (AIMS, Cochin). Among his most sought-after publications is a 700 page reference work on Toxicology.

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