

# Reviews of Environmental Contamination and Toxicology

VOLUME 110

# Reviews of Environmental Contamination and Toxicology

Continuation of Residue Reviews

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## Foreword

Global attention in scientific, industrial, and governmental communities to traces of toxic chemicals in foodstuffs and in both abiotic and biotic environments has justified the present triumvirate of specialized publications in this field: comprehensive reviews, rapidly published progress reports, and archival documentations. These three publications are integrated and scheduled to provide in international communication the coherency essential for nonduplicative and current progress in a field as dynamic and complex as environmental contamination and toxicology. Until now there has been no journal or other publication series reserved exclusively for the diversified literature on "toxic" chemicals in our foods, our feeds, our geographical surroundings, our domestic animals, our wildlife, and ourselves. Around the world immense efforts and many talents have been mobilized to technical and other evaluations of natures, locales, magnitudes, fates, and toxicology of the persisting residues of these chemicals loosed upon the world. Among the sequelae of this broad new emphasis has been an inescapable need for an articulated set of authoritative publications where one could expect to find the latest important world literature produced by this emerging area of science together with documentation of pertinent ancillary legislation.

The research director and the legislative or administrative adviser do not have the time even to scan the large number of technical publications that might contain articles important to current responsibility; these individuals need the background provided by detailed reviews plus an assured awareness of newly developing information, all with minimum time for literature searching. Similarly, the scientist assigned or attracted to a new problem has the requirements of gleaning all literature pertinent to his task, publishing quickly new developments or important new experimental details to inform others of findings that might alter their own efforts, and eventually publishing all his supporting data and conclusions for archival purposes.

The end result of this concern over these chores and responsibilities and with uniform, encompassing, and timely publication outlets in the field of environmental contamination and toxicology is the Springer-Verlag (Heidelberg and New York) triumvirate:

*Reviews of Environmental Contamination and Toxicology* (Vol. 1 in 1962 as *Residue Reviews* through Vol. 97 in 1986) for basically detailed review articles concerned with any aspects of chemical contaminants, including

pesticides, in the total environment with their toxicological considerations and consequences.

*Bulletin of Environmental Contamination and Toxicology* (Vol. 1 in 1966) for rapid publication of short reports of significant advances and discoveries in the fields of air, soil, water, and food contamination and pollution as well as methodology and other disciplines concerned with the introduction, presence, and effects of toxicants in the total environment.

*Archives of Environmental Contamination and Toxicology* (Vol. 1 in 1973) for important complete articles emphasizing and describing original experimental or theoretical research work pertaining to the scientific aspects of chemical contaminants in the environment.

Manuscripts for *Reviews* and the *Archives* are in identical formats and are subject to review, by workers in the field, for adequacy and value; manuscripts for the *Bulletin* are also reviewed but are published by photo-offset to provide the latest results without delay. The individual editors of these three publications comprise the joint Coordinating Board of Editors with referral within the Board of manuscripts submitted to one publication but deemed by major emphasis or length more suitable for one of the others.

Coordinating Board of Editors

## Preface

Despite attempts by the media to convince us our surroundings are under continual chemical assault and not faring well, there is abundant evidence that most chemicals are degraded or dissipated in our not-so-fragile environment. Yet, we must content with leaking underground fuel tanks, movement of nitrates and nitrites into our groundwater reservoirs, increasing air pollution in our large cities, and seemingly frequent contamination of our food and animal feeds with pesticides, industrial chemicals, and bacterial toxins.

Without continuing surveillance and intelligent controls, some of these chemicals could at times conceivably endanger the environment, wildlife, and the public health. Ensuring safety-in-use of the many chemicals involved in our highly industrialized culture is a dynamic challenge, for the old established materials are continually being displaced by newly developed molecules more acceptable to environmentalists, toxicologists, and federal and state regulatory agencies.

These matters are of genuine concern to increasing numbers of governmental agencies and legislative bodies around the world, for some of these chemicals have resulted in a few mishaps from improper use. Adequate safety-in-use evaluations of any of these chemicals persisting into our air, drinking water, and food-stuffs are not simple matters, and they incorporate the considered judgments of many individuals highly trained in a variety of complex biological, chemical, food technological, medical, pharmacological, and toxicological disciplines.

It is hoped that *Reviews of Environmental Contamination and Toxicology* will continue to serve as an integrating factor both in focusing attention upon those matters requiring further study and in collating for variously trained readers present knowledge in specific important areas involved with chemical contaminants in the total environment. This and previous volumes of "Reviews" illustrate these objectives. Because manuscripts are published in the order in which they are received in final form, it may seem that some important aspects of analytical chemistry, bioaccumulation, biochemistry, human and animal medicine, legislation, pharmacology, physiology, regulation, and toxicology are being neglected. To the contrary, these apparent omissions are recognized, and some pertinent manuscripts are in preparation. However, the field is so large and the interests in it are so varied that the editor and the Editorial Board earnestly solicit suggestions of topics and authors to help make this international book-series even more useful and informative.

*Reviews of Environmental Contamination and Toxicology* attempts to provide concise, critical reviews of timely advances, philosophy, and significant areas of

accomplished or needed endeavor in the total field of foreign chemicals in any segment of the environment, as well as toxicological implications. These reviews are either general or specific, but properly they may lie in the domains of analytical chemistry and its methodology, biochemistry, human and animal medicine, legislation, pharmacology, physiology, regulation, and toxicology. Certain affairs in the realm of food technology concerned specifically with pesticide and other food-additive problems are also appropriate subject matter.

The justification for the preparation of any review for this book-series is that it deals with some aspect of the many real problems arising from the presence of any "foreign" chemicals in our surroundings. Thus, manuscripts may encompass those matters in any country. Added plant or animal pest-control chemicals or their metabolites that may persist into food and animal feeds are within this scope. The so-called food additives (substances deliberately added to foods for flavor, odor, appearance, and preservation, as well as those inadvertently added during manufacture, packing, distribution, and storage) are also considered suitable review material. In addition, chemical contaminant in any manner to air, water, soil, or plant or animal life are within this purview and these objectives.

Manuscripts are normally contributed by invitation but suggested topics are welcome. Preliminary communication with the editor is recommended before volunteered reviews are submitted in manuscript form.

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G.W.W.

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