Book Reviews

Flauagan, D. (ed.): Industrial Microbiology and the Advent of Genetic Engineering. San Francisco: Scientific American 1981. 100 pp., 100 figs. Hard bound $ 17.95. – Also: San Francisco, Oxford: W. H. Freeman and Company 1982. 108 pp., 82 figs. Soft bound £ 6.20.

In this volume are collected some excellent lectures which illustrate recent and future developments in the field of industrial microbiology. All of this material first appeared in the September 1981 issue of Scientific American, and reflects the efforts of molecular genetics, microbiology, biochemistry and biotechnology to use the highly publicized achievements of recombinant DNA technology What has not been fully appreciated by all observers of the recent development in molecular biology is that industrial microbiology has served humanity since prebiblic times and that microorganisms have long made an important contribution to the world economy (Demain). The lectures contain information about several aspects of industrial microbiology as regards industrially-used microorganisms (Phaff) and their genetic programming (Hopwood), microbial production of drinks and foods (Rose), hormones, interferons and antibiotics (Aharonowitz and Cohen) and industrial chemicals (Eveleigh), production methods (Gaden) and agricultural microbiology (Brill).

R. Borriss, Gatersleben

Klekowski, E. J. (ed.): Environmental Mutagenesis, Carcinogenesis and Plant Biology. Vol. I and II. New York: Praeger Publ. 1982. Vol. I: xi + 193 pp.; Vol. II: xi + 196 pp.; several figs., several tabs. Hard bound Vol. I £ 18.75; Vol. II £ 18.75.

As a result of the sharp increase in world population and the extreme expansion of agricultural and industrial development, humans are being exposed to an ever-increasing number and concentration of diverse and exotic chemicals as an integral part of their environment. Initially, the primary concern involved the immediate carcinogenic effect of these chemicals as a health problem to the existing population. However, a majority of chemical carcinogens was found also to be mutagens and this added a new and more ominous dimension to the problem since the integrity of human genetic material and the unpredictable and probably deleterious impact on future generations were involved. In the past few years, there has been an increasing but, considering the enormity of the problem, inadequate effort to detect and identify the most toxic pollutants, to assess the carcinogenic and mutagenic effects on plant systems, and to determine if the carcinogenic and mutagenic effects of these chemicals on mammals can be modified by plant metabolic systems. The stated goals of these review articles are to serve as a current reference source on plant-related research in environmental mutagenesis, to relate plant research in this area to human carcinogenesis and mutagenesis, to suggest the various directions and areas of critical research needs, and to act as a stimulus and catalyst for future study.

Two volumes, each containing slightly under 20 pages, are involved with 6 review articles in each volume. The authors have been carefully selected to represent a broad spectrum of disciplines, research activities, and interests. Volume 1 opens with a review of the relationship between plant and mammalian liver enzyme systems to highlight the significance of plants in the human food chain and human carcinogenesis and mutagenesis and to emphasize the stated goals of these volumes. Other review articles including the use of higher plants, fungi, and algae as biological assays, plant metabolism-mutagen-carcinogen relationships, fungal mycotoxin associations and endogenous mutagens found in plants, follow. In general, the reviews are well-written with excellent illustrations and extensive, current literature reviews.

These volumes are highly recommended for advanced students in biological, ecological, and environmental sciences and current research workers in this diverse area. Since plants are at the beginning of the human food chain, information about the importance of plant metabolism of human carcinogens and mutagens and phytoaccumulation of environmental chemicals is critical and has extensive basic as well as applied implications. Hopefully, these volumes will stimulate awareness of this critical problem facing mankind and result in a great expansion of research in this area.

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