

Reviews

Microbial degradation of environmental pollutants

Preface

I. General aspects

T. Leisinger: Microorganisms and xenobiotic compounds

A.M. Cook, H. Grossenbacher and R. Hütter: Isolation and cultivation of microbes with biodegradative potential

D. Haas: Genetic aspects of biodegradation by pseudomonads

K. Motosugi and K. Soda: Microbial degradation of synthetic organochlorine compounds

J.-M. Bollag and M.J. Loll: Incorporation of xenobiotics into soil humus

R.K. Finn: Use of specialized microbial strains in the treatment of industrial waste and in soil decontamination

L.M. Johnson and H.W. Talbot: Detoxification of pesticides by microbial enzymes

II. Microbial degradation of chemical waste, an alternative to physical methods of waste disposal

O. Ghisalba: Chemical wastes and their biodegradation – an overview

O. Ghisalba and M. Küenzi: Biodegradation and utilization of monomethyl sulfate by specialized methylotrophs

O. Ghisalba and M. Küenzi: Biodegradation and utilization of quaternary alkylammonium compounds by specialized methylotrophs

G. Stucki, U. Krebsler and T. Leisinger: Bacterial growth on 1,2-dichloroethane

Editorial remark. Today, we are well aware that an ecological balance can exist only then, when all natural and industrial waste products can be converted back to useable raw materials or natural products (such as water, oxygen, nitrogen or carbon dioxide). The present multi-author review, 'Microbial degradation of environmental pollutants', underscores the necessity to think in these terms of biological cycles and attempts to demonstrate the economic advantages – and describe certain limitations involved – in employing microorganisms. We hope the survey will encourage industries, and environmental protection agencies and organizations to give greater weight to the use of microorganisms in their environmental protection strategies. The advantage inherent in allowing life cycles to function naturally proves itself time and again.

We wish to extend our particular thanks to Professor T. Leisinger of the Institute for Microbiology, ETH, Zurich who, as review coordinator, was responsible for designing and editing this important and timely study.

H.M.