

CS Publications News

SPECIAL PUBLICATION No. 28

Recent Advances in the Chemistry of β -Lactam Antibiotics

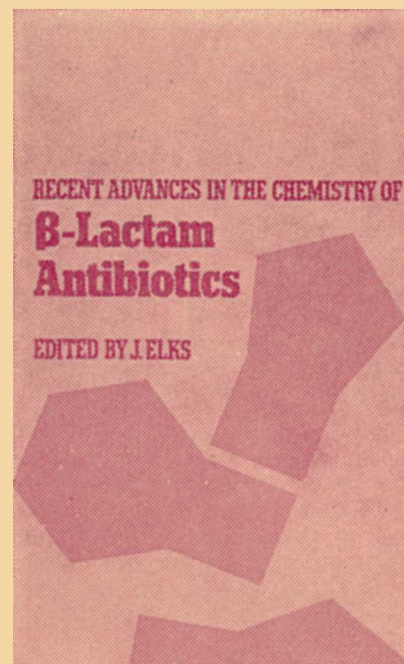
Edited by J. Elks

More than thirty years after the introduction of penicillin G into clinical practice, the β -lactams remain much the most widely used group of antibiotics.

Until a few years ago the chemistry of the β -lactam antibiotics was limited to changes on the periphery of the intact penam or cephem nucleus. Methods have now been developed for the cleavage of the thiazolidine ring of penicillins, modification or replacement of the residue attached to the β -lactam ring, and subsequent re-cyclisation to give a new penicillin, a cephalosporin, or a fused β -lactam system unknown in Nature. By such partially synthetic, as well as by new totally synthetic methods, a greatly increased range of structures is being produced, with the probability that some, at least, will possess valuable biological properties.

The Symposium on "Recent Advances in the Chemistry of β -Lactam Antibiotics" held in Cambridge in June 1976, reflected most of these lines of research and so provided a timely review of this rapidly unfolding topic. By the same token, this volume should provide some useful signposts to future developments.

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SPECIAL PUBLICATION No. 29

Herbicides and Fungicides Factors affecting their activity

Edited by N. R. McFARLANE, *Shell Research Ltd.*

A wider understanding of the factors affecting the biological activity of herbicides and fungicides provides complex challenges. This volume provides a historical and current perspective of the general areas, including future problems and opportunities, mode of action of some well-known fungicides and their use in practice, criteria affecting efficiency of penetration and translocation of some herbicides. It then goes on to deal with important current experimentation including the influence of adjuvants and humidity, the action of 2,4-dichlorophenoxyacetic acid, inorganic glasses for the slow release of fungicides and herbicides, and spiro lactone fungicides related to benzoquinones. The final papers cover theoretical aspects including partition coefficients and systemic activity and the concept of optimal lipophilicity.

Paperbound 156pp $8\frac{1}{2}'' \times 5\frac{1}{2}''$ £7.50 (C.S. Members £5.50)

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ACS SYMPOSIA

No. 30 Cancer Chemotherapy

Edited by Alan C. Sartorelli

During the past decade, the use of chemical agents in the treatment of disseminated cancer of man has resulted in a significant cure rate.

Five papers represent a sampling of the current approaches to development of antitumour drugs. The α -(N)-heterocyclic carb-oxaldehyde thiosemicarbazones inhibit both synthesis of DNA and cell replication. Adriamycin has a wide spectrum of anti-cancer activity, particularly on solid tumours. But, the rate-limiting toxicity of this drug is still a challenge to medicinal chemists. The alkylating agents, an old, highly active group, are studied for their anticipated higher reducing potential of hypoxic cells of solid tumours. Value of the nitrosoureas lies in their possession of both alkylating and carbamoylating properties.

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No 32. Industrial and Laboratory Pyrolyses

Edited by Lyle F. Albright and Billy L. Crynes

Several developments within the last few years have emphasized the need to better understand the chemistry of pyrolysis and thermal cracking processes themselves.

Increased attention is being given to conservation of energy during pyrolysis, and consideration is being given to the use of non-petroleum feedstocks.

Four groups of papers describe the following: the chemistry and mechanism of pyrolysis of various light hydrocarbons; design considerations for commercial plants; pilot plants and commercial units for pyrolysis of various hydrocarbons; and pyrolyses of various compounds present in coal-derived liquids, oil shale, waste products, and miscellaneous organic materials.

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No. 33 Controlled Release Polymeric Formulations

Edited by D. R. Paul and F. W. Harris

This state-of-the-art summary emphasizes the role of the polymer as a rate controlling device, container, or carrier for the agent to be released.

In conventional methods a substance is administered to a system by nonspecific, periodic application. This method results in a cyclic sharp rise and gradual fall in dosage and may even produce undesired side effects either to the target area of the system or the immediate environment. Through the controlled release method the active agent is administered at a rate that maintains its concentration within optimum limits and directs the agent to the target area.

As well as covering medical applications, a number of papers discuss the control of pests such as snails, weeds, marine fouling organisms, roaches, and flies.

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No. 35 Actinides in the Environment

Edited by Arnold M. Friedman

This compilation, the first of its kind, presents the current state of knowledge about the behaviour of actinides, especially plutonium and americium, in our environment.

Environmentalists, nuclear power planners, and nuclear waste planners will value this timely and unprecedented collection of actinide research, delivered in a brief, direct fashion by experts from the world's most advanced nuclear laboratories.

They provide a comprehensive look at biological pathways and chemical reactions of the actinides, including an excellent nine-point summary of actinide behaviour in the environment. Furthermore, interesting aspects of waste management and geological storage are studied, and the migration of actinides in rocks, soils, ground water, and biosystems is investigated.

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No. 36 Clinical Chemistry

Edited by Donald T. Forman and
Richard W. Mattoon

This volume presents topics that have a clinical chemical basis but which are also of interest to specialists in such clinical areas as pediatrics, endocrinology, and hematology. Individual chapters delve into the problems of the etiology of disease and diagnosis as well as describe technical advances which can be applied more practically in the near future than they are now.

Specifically, 10 chapters cover separation and characterization of hemoglobins, measurement of calciotropic hormones, competitive protein binding assays, prenatal detection of genetic diseases, neonatology blood gas abnormalities, clinical enzymology, modern liquid chromatography, trace metals in biological fluids, and drug interference in laboratory testing.

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No. 37 Pesticide Chemistry in the 20th Century

Edited by Jack R. Plimmer

This book surveys pesticide chemistry over the past 75 years, its contents contain:

Chlorinated Insecticides—Retrospect and Prospect; The Progression of Resistance Mechanisms. *Herbicides*: Development of the American Herbicide Industry; Mode of Action; The Environmental Chemistry of Herbicides. *Fungicides*: Fungicides—Past, Present, and Future; Metallo-Organic Fungicides; The Sulphenimide Fungicides; The Development of Agricultural Antibiotics. *Instant Growth and Behaviour Regulators*: Hormonal Control of Insect Development; Insect Pheromones; Benzoylphenyl Ureas; Fourth Generation Insecticides. *Plant Regulators*: Post Harvest Responses; Growth Regulators in Flowering and Fruit Development.

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Printed in Great Britain by Richard Clay (The Chaucer Press), Ltd.,
Bungay, Suffolk