

Literature

Bernays, E. A. (ed.) 1992: Insect-Plant Interaction. Vol. IV. 248 pp., 37 black-and-white illustrations, 18 tables. Size 17.5 × 25.5 cm, bound. — C. R. C. Press, Boca Raton, Ann Arbor, London, Tokyo. ISBN 0-8493-4124-8. Price GBP 72. 50.

The interaction between herbivorous insects and their host plants is old and dates back to the dawn of time when the first insect started to feed on a plant. During the process of evolution, plants have evolved various defence strategies, like structural obstacles or chemical substances deterring the feeding insects. The herbivorous insects, in turn, evolved means of overcoming these mechanical and chemical barriers. This arms race is still continuing. On the other hand, some plants are dependent on insects for their reproduction, needing them for the pollination of their flowers. This often occurs in a way that gives the insect a nutritional reward in exchange for the deed performed. The series "Insect-Plant Interaction" reviews the complicated evolutionary aspects of this problem.

The content of this volume consists of six contributions by nine authorities in the field. The first chapter, by J. L. Bronstein, deals with seed predators as mutualists, which is exemplified with the interactions between wasps of the genus *Ceratosolen* pollinating various *Ficus* species. First, the general natural history is described for the two counterparts involved in this conflict. Then, the interactions of the conflict between the wasp and the fig are studied, *inter alia* with respect to wasp fecundity, the effect on *Ficus* populations and the dispersal of *Ficus* seeds. The second chapter, by E. A. Bernays, deals with plant sterols and their importance to herbivores using them as precursors in steroid hormone biosynthesis. Studies on different insect orders are reviewed, viz., Orthoptera, Hemiptera, Hymenoptera, Lepidoptera, Coleoptera and Diptera. Briefly, the dietary need of sterols for insects is outlined, the availability of sterols in different plants and the effect on host plant selection.

The role of chemoreceptors in insect feeding is treated by L.M. Schoonhoven, W.M. Blaney and M.S.J. Simmonds. The neural coding of feeding deterrents are first described, followed by a review of different types of neural responses. Then the correlation between chemoreceptor activity *vs.* feeding behaviour is described, as well as an ecological approach to the subject. The extrafloral

nectary-mediated interactions between insects and plants is described by S. Koptur, who first outlines nectar, nectaries and extrafloral nectaries. Then the effect on nectar and insects, and *vice versa*, is reviewed with emphasis on nutritional level. The interaction between insects and plants is exemplified by pollinations and the various roles ants have in protecting and guarding the plants from predators.

Ni. Wink describes the quinolized alkaloids in the plant-insect interaction, their biosynthesis, storage, accumulation and degradations, and their role in the plant's defence towards the insects. Other roles of the quinolized alkaloids are briefly outlined; for example, in allelopathy, antiviral activities and antimicrobial. G. L. Waring and N. S. Cobb finally deal with different aspects of plant stress and its effect on herbivorous population dynamics. The herbivorous responses to nutritional stress in plants are focused on the shortage of nutrients like nitrogen, phosphorous and potassium; and on water stress in plants.

An appendix, consisting of 27 pages, summarizes the current knowledge on the topic. Each chapter has its own list of references, and altogether the book contains some 1200 cited works. An index on plants and animals concludes the book.

The various chapters are detailed and very interesting, giving a broad coverage of their respective fields. Unfortunately, the chapter on sterols, by Bernays, only consists of 13 pages and seems too short. The illustrations, mainly diagrams and chemical structure formulae, are of good quality. Perhaps some illustrations on the animals and the plants *per se* would have been appropriate and appreciated by the reader. The references suffer from the fact that the last page of the articles is not mentioned (only first page is given) — hopefully complete references will be given in future volumes. The book is a bit dear in respect to the number of pages, however the content of information is huge and therefore the price should not deter people working with insect-plant interactions from obtaining this book.

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