

BOOK REVIEW

SCHOONHOVEN L.M., JERMY T. & VAN LOON J.J.A.: *INSECT-PLANT BIOLOGY. FROM PHYSIOLOGY TO EVOLUTION*. Chapman & Hall, London, 1998, 409 pp., ISBN 0-412-58700-9. Price USD 49.95.

Three renowned scientists have written a new textbook, dedicated to the interactions between plants and insects (herbivorous and pollinators). It aims to categorise numerous new facts from physiology of plants, behavioural and nutritional physiology of insects, community ecology, evolution etc., scattered in multitude sources.

Many insect species are phytophagous and most of them are highly specialised.

Plants are generally remarkably well protected against lethal insect attack. The mechanisms underlying this food specialisation on the insect side and the resistance to invading herbivores on the plant side are the subjects of this book.

Including the Introduction the matter is divided into twelve chapters.

Chapter 2 deals with general aspects of host-plant specialisation. Chapter 3 reviews plant biochemistry as a main factor of plant resistance to insects. Chapter 4 analyses plants as insect food. This chapter describes the role of insect symbionts and provides information about host-plant effects on herbivore susceptibility to pathogens and insecticides, as well as plant-mediated effects of air pollution on insects. The next three chapters concern the host-plant selection problems. Chapter 5 deals with the study of insect searching behaviour, mechanism of odour detection and orientation. Chapter 6 describes contact phase of phytophagous insect with the plant. The role of plant

morphology and biochemistry is evaluated. Chapter 7 presents an evaluation of intraspecific and interspecific variability of insects in host-plant selection and behaviour under various environmental conditions. Chapter 8 describes specific problems of the endocrine system of herbivores able to respond to host-plant signals (insect morphism, diapause, and reproduction). Chapter 9 reviews community aspects of insect-plant association. Chapter 10 is devoted to the evaluation of insect-plant interactions. Chapter 11 describes the process of pollination by insects as a case of mutualism from the point of view of the optimal foraging theory. Chapter 12 evaluates agricultural aspects of insect-plant interactions. The plant may activate its defence system in order to minimise damage. The principal methods of herbivorous pest species control (the use of host-plant resistance, plant-derived insecticides and antifeedants, biological weed control programmes) are discussed. Unfortunately in the section on direct protection (induced plant resistance) the exciting results in the area of genetically manipulated plants have not been included.

The text book is excellent, well balanced in all chapters and well-arranged work. The students will obtain basic information about mechanisms of insect plant-interactions at organism level, as well as ecological and evolutionary aspects in natural and artificial plant communities. It should be recommended not only for students of plant ecology, entomology and plant protection, but also to graduated non-specialists as the first insight in the insect-plant biology.

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