

Book review

JOSEPH ROTEM:

The genus *Alternaria*. Biology, Epidemiology and Pathogenicity.

— 326 pp., 44 figs., APS Press, St. Paul, Minnesota, USA, 1994. — 99 US\$ (the book is in the library of the Society).

In this monograph biological and environmental processes are discussed of one of the most studied and most distributed groups of fungi causing damage to various diseases of our economic as well as wild vascular plants. It is surprising that up to now 3.532 papers referring to various *Alternaria* species have been published. These papers were devoted to damage caused by *Alternaria* species on 2.283 host plants belonging mostly to Solanaceae, Brassicaceae, Cucurbitaceae, cotton, wheat, tobacco, sunflower etc. In total 4.192 papers concerning *Alternaria* pathogenes and diseases were published on specific topics like occurrence, resistance, epidemiology, taxonomy, seed pathology, post-harvest diseases in storage and shipping etc. The above mentioned numbers present the quantitative assessment of the economic importance of diseases and disorders caused by *Alternaria* sp. div. The book counts 12 chapters. First the taxonomy of the genus *Alternaria* and its infrageneric classification are discussed. What can be understood by formae speciales and strains including pathotypes, races and biotypes. Chapter 3 gives information on factors affecting susceptibility of various hosts to diseases caused by their specific *Alternaria* pathogens. Increased susceptibility was caused by starvation, drought, infestation by insects, wounds inflicted by non-specific agents and weakening due to production of excessive yield or advancing age. The concept of low-sugar diseases is also discussed. Chapters 4 and 5 describe sporulation and infection, respectively. In most *Alternaria*—host systems the sporulation cycle includes two wet nights with a dry day in between. *Alternaria* pathogens infect in a wide range of temperatures and overcome unfavourably dry conditions by infecting during several short periods of moisture rather than one long period. Chapter 6 turns again to the host and describes the physiological aspects of pathogenesis. Non-host-specific and host-specific toxins are described including their role in the evolution of pathogenic species. Also the action of defense mechanisms is described, such as saprophytic leaf microflora, phytoalexins etc. Information on the biochemistry of diseased plants is provided. Chapter 7 deals with the process of survival and overwintering. Data obtained in a laboratory can not be transferred to the field. The edaphic, biotic and weather conditions of overwintering in debris are discussed. Chapter 8 refers to phenomena of spore dispersal. The influence of weather on epidemics is discussed in Chapter 9. The following chapters are devoted to the possibilities of forecasting *Alternaria* disease and epidemics and methods to predict yield losses together with construction models ranging from simple criteria to sophisticated simulators. Problems of resistance and breeding are discussed in Chapter 12. The achievements of new breeding methods and selection with the use of cytoplasmic, somaclonal, radiological and toxicological techniques are also discussed. Chapter 13 compares the knowledge of four typical *Alternaria* pathogens on their respective hosts, viz. *A. solani* on potato and tomato, *A. macrospora* on cotton, *A. carthami* on sunflower and *A. triticina* on wheat.

A total of 40 pages of cited literature and index (11 p.) is added. The monograph will be useful not only for plant pathologists at universities and major plant pathological institutes but also in agricultural research institutes. Last but not least this book is important and useful for various mycologists interested in fungi taxonomy and systematics. The monograph is very inciting by searching for new views and ideas concerning the species concept and by evaluating species variability in all possible aspects.

Zdeněk Urban

Book review

UWE BRAUN:

The powdery mildews (Erysiphales) of Europe.

- 337 p., 112 figs., Gustav Fischer Verlag, Stuttgart, 1995. — 148 DM (the book is in the library of the Society).

This monograph of the European powdery mildews is based on the earlier world monograph of this group of biotrophic parasites by Braun (1987) — A monograph of the Erysiphales (powdery mildews), Beiheft zur Nova Hedwigia 89: 1-700. Since this book appeared ten years ago various important local mycofloras and papers on powdery mildews have been published. These have been taken into account in the preparation of the present book. The chapters in the general section contain short surveys of all aspects of the Erysiphales and have been taken partly from Braun (1987), partly rewritten. These concern morphology and anatomy of anamorphs and teleomorphs, ascocarp development, important criteria in taxonomy and delimitation of the order, position of the Erysiphales in the fungal classification, taxonomy and phylogeny, fossil powdery mildews and species concept. The special part includes, besides notes on the delimitation of Europe (mostly taken after *Flora Europaea*), abbreviations and exsiccata, special keys based on host families, keys to genera, detailed descriptions of all genera and species (including anamorphs) with keys to the species, full illustrations of all European species, a list of doubtful and excluded taxa, and references.

It is hoped that this book will be useful to mycologists, plant pathologists, parasitologists, horticulturalist researchers, agriculturalists, botanists and biologists interested in powdery mildews in pure and applied research.

The book was intended to become a part of the monumental series "Cryptogamic Flora of Europe" to be published by Fischer Verlag under the editorship of W. Jülich. Unfortunately for reasons of the editor's working on other subjects this valuable project will be not carried out.

Zdeněk Urban

Book review

MILLS D., KUNOH H., KEEN N. T. AND MAYAMA S. EDS.:

Molecular aspects of pathogenicity and resistance: requirement for signal transduction.

- 312 p., 12 halftones, 79 photographs, 67 drawings. — APS Press, St. Paul, Minnesota, USA, 1996-62 US\$ (the book is in the library of the Society).

The book contains papers given at the seventh seminar of a series held from 1966 when a cooperative scientific programme between the US and Japan began to provide a regular forum to critically discuss and review the progress on molecular and physiological aspects of plant / pathogen interactions. This successful seminar series has been convened in approximately five-year intervals for three decades.

The seventh seminar was held September 24 through October 1, 1995, at Tsu-city, Mie Prefecture, Japan. The chapters of this volume reveal the significant progress in establishing cell signaling as an important component in host-pathogen interactions.

Besides two summarizing overviews concerning endeavour of the US-Japan seminar series about host-parasite interaction and cytological aspects to interactions mentioned, twenty contributions are gathered in the following five thematic groups: Fungal plant genic interactions; Signal transduction in fungal morphogenesis; Bacterial and fungal sensing of plant signals; Plant disease resistance genes in signal transduction pathways; Signaling in response to bacterial and fungal phytotoxins. In addition, 14 poster abstracts are reproduced.

The book will be very useful in all institutes and laboratories which are engaged in the theoretical but also the practical study of and research in plant pathology.

Zdeněk Urban

Book review

ERWIN D. C. AND RIBEIRO O. K.:

Phytophthora diseases worldwide.

- 592 p., 82 halftones, 62 color photographs, 52 drawings, 94 tables, APS Press, St. Paul, Minnesota, USA, 1996-180 US\$ (the book is in the library of the Society).

One hundred fifty years after the Irish potato famine, it seems almost uncanny that the genus *Phytophthora* should be making headlines again. We have learned much about *Phytophthora* during the intervening 150 years, and this book provides an excellent summary of and guide to that literature. Chapters 1-7 describe generalities about the genus and provide useful hints for those who work with members of the genus. We found these chapters to be intriguing because of the new information we learned and because of the many challenges remaining. Chapters 8-66 are compilations of information about individual species. Each chapter provides specific information and the citations necessary to pursue specific questions. Although these chapters collate and summarize a vast body of information, it is still clear that there are many gaps in our knowledge about the genus. Thus, the book not only provides background and answers, it also provides challenges.

The evolutionary relationships of the genus have become increasingly clear during the past two decades, and these are well described in the first part of the book.

The genus *Phytophthora* is important in a variety of respects, and so is this book. The book provides useful information for those experienced and inexperienced. It also is a useful source of many facts and a tremendously useful guide to the literature of the genus. The book will serve as a valuable resource in the office and in the laboratory. It contains background information so that the beginner can gain an overview of the genus. It provides very practical information for those working with *Phytophthora*, and it challenges the specialist with unanswered questions.

Even the recent availability of molecular biology techniques does not entirely remove the barriers to successful investigation. Nonetheless, molecular biology has contributed to our understanding, and the many citations in this book clearly demonstrate that contribution and enhance the value of this volume.

Zdeněk Urban

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Figs. 1-13. Several members of the Czech Scientific Society for Mycology who participated in the Society's ceremonial meeting held in Prague on October 18, 1996 to commemorate the 50th anniversary of the founding of the Society and in the mycological trip to the Bohemian Karst on October 19. (More details could be found in the journal *Mycologické Listy* 60, 1997)

Photo by J. Holec, J. Klán



1 Left to right: Jaroslav Klán, Zdeněk Pouzar; **2** Mirko Svrček; **3** Left to right: Ladislav Hruška, Ludmila Marvanová, Rostislav Fellner, Alena Kubátová, ?, Josef Slavíček; **4** Front row left to right: Alois Černý, Mrs. Černá, Jaroslav Klán, Second row left to right: Rostislav Fellner, Josef Slavíček, Jaroslav Landa, Ludmila Marvanová, Josef Herink, Alena Kubátová, Bronislav Hlůza, František Kotlaba; **5** Jan Špaček; **6** František Kotlaba; **7** Pavel Lizoň.



8 Left to right: Ludmila Marvanová, Libuše Kotilová, Jiří Baier, Zdeněk Urban; **9** Left to right: Ludmila Marvanová, Josef Herink, Jaroslav Landa, Alena Kubátová, Bronislav Hlůza, Jiří Hlaváček; **10** Left to right: Jiří Baier, Josef Šutara, Ladislav Hruška; **11** Left to right: Vladimír Antonín, Josef Šutara, Pavel Lizoň; **12** Left to right: Zdeněk Pouzar, Jiří Baier, Alena Kubátová, Rostislav Fellner, Mrs. Černá, Jaroslav Klán, Petr Hrouda, Alois Černý; **13** Left to right: Zdeněk Pouzar, František Kotlaba.