

Book review

ANNE E. DESJARDINS

Fusarium Mycotoxins. Chemistry, Genetics and Biology.

APS Press, 2006, 260 p., 27 black and white images. – ISBN 0-89054-335-1. The book is available in library of the Czech Scientific Society for Mycology.

Anne E. Desjardins is a prominent expert and researcher in the area of toxigenic *Fusarium* microfungi and *Fusarium* mycotoxins in the USA and the rest of the world. She develops with her colleagues strategies to minimise the *Fusarium* toxins produced by crop-infecting fungi in the field and in storage that reduce the quality and yield of the commodity. In mycological literature there is continuing interest in the group of toxigenic *Fusarium* microfungi and mycotoxins.

This comprehensive book presents 25 years of her work in *Fusarium* research. The topic, concept and contents of the book can be considered an extraordinarily interesting and up-to-date review of recent progress in the area of *Fusarium* mycotoxins. The book explores the chemistry, genetics, and biology of *Fusarium* mycotoxins, including an in-depth discussion of the molecular genetics of trichothecene and fumonisin biosynthesis. It covers major (e.g. trichothecenes [T-2 toxin DON], zearalenone, fumonisins) and minor *Fusarium* mycotoxins and other biologically active metabolites that can be harmful to both human and animal health. Past and present research is covered, providing both a historical concept on the topic, as well as guidelines for further research. Descriptions of *Fusarium* species assist in their visual identification, while complete profiles will help to assess their risk and also give a background to geographic trends.

The publication offers a thorough overview of *Fusarium* research from 1809 to the present. Each chapter is followed by the most recent references. Historical case studies of mycotoxicoses (e.g. alimentary toxic aleukia, akakabi-byo, swine estrogenic syndrome, equine leukoencephalomalacia) and controversies (e.g. the yellow rain controversy) document the relevance of *Fusarium* mycotoxins (trichothecenes, zearalenone, fumonisins) to human and animal health. A thorough review of the molecular genetics of both trichothecene and fumonisin biosynthesis, presenting more than 15 years of molecular biological research in an accessible form, is also included. Genetic nomenclature has been standardised. Part one also reviews the natural occurrence and toxicity of agriculturally important mycotoxins, with historical case studies of suspected mycotoxicoses in humans and animals. These chapters further contain updates on the molecular genetics of additional mycotoxins and the importance of mycotoxins in plant diseases.

This useful reference presents concise descriptions of mycotoxin-producing *Fusarium* species, as defined by the most recent concepts of fungal species biology and evolution. Each species' report includes a risk assessment based on its mycotoxin profile, occurrence in food and feed crops, and association with human and animal mycotoxicoses. Data on species distribution, mycotoxin profiles, and animal toxicity facilitate risk assessment for food and feed safety.

This concise book will be an excellent resource for mycologists, plant pathologists, fungal geneticists, molecular microbiologists, toxicologists, veterinary scientists, health regulatory agencies, biological chemists, food technologists, cereal chemists, human nutritionists, agronomists, plant breeders, advanced students in these fields and other professionals concerned with mycotoxin risk assessment and control of *Fusarium* mycotoxins in food and feeds.

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