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Book review

The Chemistry of Fungi, James R. Hanson, RSC Publishing, Cambridge, UK, 2008. Xi + 221pp., ISBN: 978-0-85404-136-7

The Biology of fungi is well-catered for by publishers but books on fungi from a chemical point of view are relatively few, despite their importance as sources of pharmaceuticals and toxins and as plant pathogens. Whilst there are databases of fungal metabolites such as *Natural Product Reports, Dictionary of Natural Products* and *Handbook of Secondary Fungal Metabolites*, the general chemistry of this important, distinct but morphologically-diverse, kingdom is poorly served. Here, James Hanson not only presents the chemistry, biosynthesis and significance of fungal metabolites but also sets it in a historical perspective of changes in methodology which have occurred since the classical investigations. The subject is introduced in two chapters on the microbiology and chemistry of fungi and then developed in four chapters based on the structures of compounds and their biosynthetic origin, namely, metabolites derived from amino acids, metabolites derived from the citric acid cycle, polyketides and terpenoids. These are followed by four chapters which are based on functions rather than structures namely pigments and odours, the chemistry of fungal diseases of plants, mycotoxins and fungi as reagents. The treatment concentrates on extractable metabolites, their sources, structure determination and biosynthesis. Structural components, such as polysaccharides, and their roles in plant–fungus interactions for example, are mentioned but briefly. The content is far from being a catalogue of structures, which these days may often be determined by the intense but now routine application of spectroscopic methods in a single laboratory. Rather, the discussion of some of the structures is illuminated by precise and enjoyable summaries of individual contributions to more classical studies which, as pointed out, revealed a wealth of chemistry on the way to the final structure. Biosynthesis is a strong theme throughout the book; the topic and methodology are introduced in Chapter 2 and then illustrated by many examples in the subsequent treatments of the different classes of compounds.

Literature references are not cited in the main text but a selection is given under chapter headings at the end of the book. There is also a glossary of (mainly) microbiological terms and an index which includes the names of all the compounds and fungal species.

This book is a welcome addition to the literature of natural product chemistry in general and fungal chemistry in particular; it is well-presented in text and figures and the content is illuminated by an expert appreciation of the methodology and significance of the subject. In an *Epilogue*, the author makes clear the continuing importance of chemistry in deciphering the ecological roles of fungi and suggests also that previously identified metabolites may merit re-examination by contemporary high throughput screening methods. Further opportunities are provided by molecular biological approaches to the manipulation of biosynthetic pathways; such endeavours will require the input of chemists well-versed in just the subject matter presented in this book.

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