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Book Reviews

Introduction to flavonoids — Chemistry & Biochemistry of Organic Natural Products, Vol. 2
By B.A. Bohm. Harwood, Amsterdam, 1999, ISBN 90-5702-353-9. £92.00

This is the second volume in a series of monographs devoted to the chemistry and biochemistry of organic natural products. The book, written by a renowned flavonoid specialist, represents an excellent overview of this very important class of secondary metabolites. It is well organized and the eight chapters are well chosen.

In a brief introduction and historical perspective (Chapter 1) valuable information on the early work on flavonoids is summarized. After a short comment on the vast literature on flavonoid chemistry and occurrence, Chapter 2 gives on 112 pages, a comprehensive survey of the manifold flavonoid structures found in nature, in particular, of the elaboration of the structures and of the detailed examination of each class of flavonoids.

Chapter 3 describes the occurrence and distribution of flavonoids. It especially emphasizes the use of flavonoids as taxonomic markers including case studies with valuable information concerning systematic problems, such as interfamily relationships, species migration and patterns within taxonomic groups as well as within and among populations.

The extraction, purification and identification of flavonoids form the subject of Chapter 4. Detailed information is presented on the various techniques, particularly on chromatographic and spectroscopic methods for flavonoid purification and structural determination. The usefulness of current spectroscopic methods is emphasized by several case studies.

Chapter 5 describes the synthesis and interconversion of flavonoids. A selection of examples is presented demonstrating the major strategies for flavonoid synthesis and interconversion of structural types.

Chapter 6 presents an overview of flavonoid biosynthesis and genetics including recent attempts to understand the various processes at the level of the gene. Although a few steps of the overall pathways still remain speculative, the mainstream of metabolic activity is well understood, and is very carefully presented by the author, giving many details very exactly. The only criticism concerns the isoflavone biosynthesis via free radical mechanism (schema 6.9), where the OH-group in the position 2 is rather derived from a Fe–OH intermediate than water.

Chapter 7 deals with the manifold functions of flavonoids in physiology, biochemistry and ecology of plants. Here, our knowledge is reviewed on the involvement of flavonoids in ultraviolet protection, attraction of pollinators, and fertility and germination, and as oviposition stimulants, defensive agents, phytoalexins and allelopathic compounds.

In the last chapter, the human use of flavonoids is described including their medicinal use, their role as antiviral, antifungal and antibacterial agents and their action as animal hormones. Moreover, some further interesting points are discussed, such as flavonoids and foods with special accounts to widely used beverages (wine, beer, tea), flavonoids in honey and bee pollen, flavonoids and leather tanning, and flavonoids and flower colour.

The book is very well written, occasionally with personal comments which makes the text lively and exciting throughout its length. Moreover, it represents the who is who in flavonoid research beginning with the very roots until recent days. The book is well produced and reasonably priced. It can be strongly recommended to all people interested in the field of flavonoids and should be part of the library of any institution involved in secondary metabolite research.

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