Book Reviews

Mint. The Genus *Mentha*.Edited by Brian M. Lawrence (Journal of Essential Oil Research). Taylor & Francis/CRC Press, Boca Raton, FL. 2007. xiv + 556 pp. 7 × 10 in. $116.96. ISBN 0-8493-0779-1.

This book is Volume 44 in a series titled Industrial Profiles–Medicinal and Aromatic Plants. Topics in this book are relevant to various industries including mint growers, manufacturers of essential oil fragrance, flavor, nutritional product, and personal care product manufacturers.

This book is divided into 14 chapters, which focus on the cultivation and application of mint and mint oils in industrial and commercial use. The contents of each chapter are divided into subsections, which are listed at the beginning of each chapter, adding to the organization and clarity of the book.

Chapter one strives to eliminate the confusion that has long been associated with the genus *Mentha* by putting into focus the classification of 18 species and 11 named hybrids of the genus. The second chapter details the anatomy and physiology of essential oil production in plants and the effect of seasonal variation and biotechnology on mint oil secretion. In subsequent chapters the four main species of economic value (Cornmint, Peppermint, Scotch spearmint, and Pennyroyal) are featured in discussions of cultivation and essential oil production in the United States, India, and China. These chapters also address the chemical composition of commercially important mints, as well as natural and synthetic menthol. The text finishes with a safety assessment of mint oils and their major isolates, as well as an assessment of antimicrobial activity of essential oils and constituents that are particularly useful for food, nutritional, and personal care product industries.

The editor has compiled detailed information on mint agronomy, including planting, irrigation, pest control, fertilization, harvesting, and seasonal variation relative to maximizing mint oil quality. Each of the major economic mint growing areas are compared extensively for their gross annual yield. Included is a complete historical review of distillation practices ranging from crude to modern techniques while focusing on quality and quantities of mint oil yields. The refinement, isolates, and storage of oils for commercial uses complete the production review.

This compilation provides a cumulative review of 150 years of essential oil production. It is a superbly referenced text that benefits from the inclusion of structural formulas, diagrams, flowcharts, tables, and images. This is an excellent reference tool for mint growers, processors, trade groups, chemists, botanical quality assurance specialists, and safety and toxicity professionals.

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The Identification of Medicinal Plants. A Handbook of the Morphology of Botanicals in Commerce. W. Applequist (Missouri Botanical Garden). Missouri Botanical Garden Press, St. Louis. 2006. xxi +209 pp. 8 1/2 × 11 in. $89.95. ISBN 0-532-42154-5.

The morphology of plants is the basis of plant identification, and yet there are few modern English language references that describe the morphology of even the most widely used medicinal plants. The author, an assistant curator at the Missouri Botanical Garden who earned a Ph.D. in plant systematics, has written a reference book that includes detailed morphological descriptions for many of the popular medicinal plants sold in North America and Europe. The book includes a large number of line drawings by Barbara Alongi to aid in the identification of the botanicals of commerce. The arrangement of the plants is alphabetical, by scientific name of the botanical. The American Herbal Products Association standardized common names, and most frequent common names are included in the text, as well as the plant family, taxonomy of the plant genus, brief botanical description, plant parts sold in commerce, key identification features, known adulterants, and the references used for compiling the information.

The book can be used for teaching the morphological characters of Western medicinal plants in a course on medicinal plants or to assist in the identification of plants at the time of collection. There is currently a critical need for botanists trained in plant systematics to author reference materials to aid in the identification of medicinal plants at the time of collection. The identification of the desired species and plant part is most economically and accurately done at the time of collection, before being processed into powders or extracts. Applequist's work is a welcome addition to the medicinal plant reference literature by adding the morphological characteristics to the chemical and analytical identity test methods that are more commonly available.

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Chemistry and Medicines. An Introductory Text. By J. R. Hanson (University of Sussex). Royal Society of Chemistry, Cambridge. 2006. x + 156 pp. 16 × 25 cm. £27.50. ISBN 0-85404-645-3.

Medicinal chemistry is a broad topic comprised of several disciplines including organic and bio-organic chemistry, biology, and molecular biology. Subsequently, courses in medicinal chemistry are typically only offered at the graduate level, given that a certain amount of knowledge in each of these disciplines is required of the students. The aim of this book, however, is "to provide a brief introduction to medicinal chemistry for final year chemistry and biochemistry undergraduates and for chemistry postgraduates". This text does exactly what it intended, in a well-organized and easy to read format. The book contains seven chapters; the first two, Introduction and General Principles of Medicinal Chemistry, provide a brief, yet intensive, overview of the material necessary for the student to understand the subsequent chapters, and the remaining five chapters provide detailed discussions on Neurotransmitters as Targets, Medicinal Chemistry and the Central Nervous System, Local and Circulatory Hormone Targets, Anti-infective Agents, and Cancer Chemotherapy.

In the introductory chapter, the author does a first-rate job of harnessing a colossal amount of background information into 19 pages of easy reading in topics that include the classification of drugs, the stages of drug development, the synthesis of a drug, and the history of medicinal chemistry. This chapter should be required reading for all sophomore organic students, as it readily answers the all too often heard question, "Why do I have to take organic chemistry?"

Chapter 2 is more intensive and continues with background information on important topics such as physicochemical measure-

ments, drug metabolism, oxidation, hydroxylation, drug excretion, and pro-drugs. Physical organic chemists will appreciate introductions to Hansch QSAR analyses, Craig plots, and the Topliss decision tree.

The remaining chapters provide greater detail on their respective titles and cover topics such as antiasthma drugs, treatment of Alzheimer's and Parkinson's diseases, and nonsteroidal anti-inflammatory, antimicrobial, antiviral, and antimitotic agents. Each chapter starts with a summary of what the student should be learning and an introduction to each topic, and then follows with specific examples of the drugs used. The author incorporates generous use of chemical structures, biological illustrations, and biochemical cascades throughout the text. This reviewer applauded the occasional use of arrows to depict reaction mechanisms, although a few minor errors in the placement of arrow origination were noted.

The book ends with a short list of further reading, a glossary of medical/biological terms, and a subject index. The only criticism this reviewer can offer is the lack of references. There are numerous journal-based reviews or in-depth journal articles on the various topics within the text, and since the book is also aimed at chemistry postgraduates, the use of a small number of references may have provided avenues for further investigation by the students. This is a small detail, though, and should not detract from the use of this book as an introductory text.

Overall, this reviewer highly recommends this book for use in an advanced organic course or as a stand-alone introduction to medicinal chemistry.

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