Studies in Natural Products Chemistry

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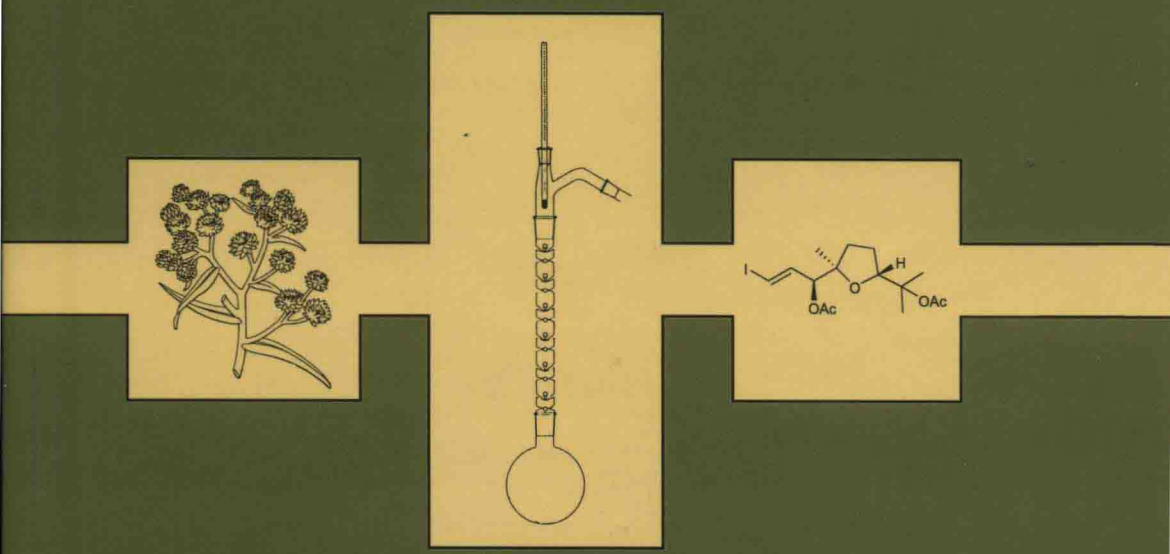
Editor



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Preface

The present book represents the 45th volume of this long-standing series that has become the most comprehensive encyclopedic treatise in the field of natural products.

In Chapter 1, Kobayashi reviews the use of cellulose from bagasse wastes to fabricate hydrogel films with flexible and bioactive properties that can be used in tissue engineering. Different applications of cellulose fiber nanostructures of the hydrogel films are discussed. Marcotullio et al. discuss the important biological activities of *Cannabis* and the efforts aimed to the discovery of natural and nonnatural selective cannabinoids in Chapter 2. In the next chapter, the new applications of electrochemistry that provide information about the pharmacological activity of natural products are reviewed by Doménech-Carbó et al. These include the electrochemical testing of specific pharmacological activity by electrochemical screening, in situ evaluation of drug–substrate interactions, and electrochemical mimicry of selected biological redox processes to observe correlations between molecular structure, redox properties, and pharmacological activity. In Chapter 4, recent advances in structural elucidation of saponins by NMR and MS are discussed by Scognamiglio et al.

Phytoecdysteroids belong to a large family of ecdysteroids that comprises more than 250 representatives. The pharmacological effects of these compounds in vertebrates and humans are discussed by Bajguz et al. in Chapter 5. Drimane-related merosesquiterpenoids are complex natural products that occur frequently in lower organisms and rarely in higher plants. The classification, biosynthesis, and bioactivity of these compounds are discussed by Zhan et al. in Chapter 6. In Chapter 7, the recent advances in researches on the structure–activity relationships of secondary plant metabolites with antimicrobial, free radical-scavenging activities and inhibitory properties against selected enzymes are presented by Załuski et al. Marine polyacetylenic compounds exhibit a variety of biological activities including antimicrobial, antifouling, cytotoxic, antiviral, and anti-inflammatory activities. They therefore offer interesting molecular models for the development of new pharmaceuticals. This area is reviewed in the next chapter by Nathalie et al.

In Chapter 9, Saleem has presented the isolation, characterization, and biological studies of more than 500 natural products from marine-derived fungi, published during 2006–2012. In the next chapter, Ozturk et al. review the polysaccharides, terpenoids, steroids, phenolics, and alkaloids isolated from

mushroom species along with their biological activities. In Chapter 11, Sil et al. assess the potential of natural products in the field of organ pathophysiology. In the final chapter, Ahmad and Salim present the chemical, biological, and pharmacological properties of oxindole alkaloids from *Uncaria* species along with their potential for drug development.

I am confident that the readers will find the present volume of great interest.

I would like to thank Ms Taqdees Malik and Ms Humaira Hashmi for their assistance in the preparation of this volume. I am also grateful to Mr Mahmood Alam for editorial assistance.

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