Book Reviews

Chemistry & Pharmacology of Natural Products: Saponins. K. Hostettmann and A. Marston. Cambridge University Press, New York, NY. 1995. xii + 548 pp. 15 × 22.5 cm. ISBN 0-521-32970-1. $120.00.

This monograph provides a comprehensive, up-to-date, and timely review of saponins. These glycosides of triterpenes, steroids, or steroid alkaloids are commonly found in higher plants and in the marine phylum Echinodermata. The seven chapters of this volume are preceded by a helpful glossary to guide the reader through the abbreviations employed (primarily in the description of oligosaccharides) and acronyms used to denote various two-dimensional nuclear magnetic resonance experiments and mass spectrometric techniques.

Following an introductory Chapter 1 which contains brief sections devoted to definitions, biosynthesis, aglycone classes, nomenclature, and stereochemistry, is an extensive Chapter 2 reviewing the occurrence and distribution of the three main classes of saponins. Isolation and analysis is the subject of the third chapter, and Chapter 4, devoted to structure determination, explores traditional cleavage reactions prior to an extensive and well-illustrated account of nuclear magnetic resonance, mass spectrometric, and other methods. The discussion covers applications of some seven different mass spectrometric techniques and over a dozen high-field two-dimensional nuclear magnetic resonance experiments.

Two chapters are devoted to pharmacological and biological properties of triterpene and steroid saponins and include sections on antimicrobial, cytotoxic, antitumor, piscicidal, molluscicidal, insecticidal, anthelmintic, expectorant, diuretic, cardiovascular, antiinflammatory, anti ulcer, spermicidal analgesic, antipyetic, sedative, antifertility antihepatotoxic, and other activities. Of special note is Chapter 7, summarizing commercially important saponin-containing preparations and products, which explores historical and current uses of saponin-producing plants and includes information on applications as corticoid precursors, emollients, flavoring agents, expectorants, foaming agents, adaptogens, and others. The appendices contain tabular compilations of plants containing characterized triterpene saponins and of triterpene and spirostanol saponin structures.

This authoritative book contains the structures of over 1300 saponins and provides over 1800 references and is thus an excellent source of information for those interested in the biological and pharmacological properties of natural products and an indispensable reference and guide to researchers active in the saponin, steroid, and triterpenoid fields.

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