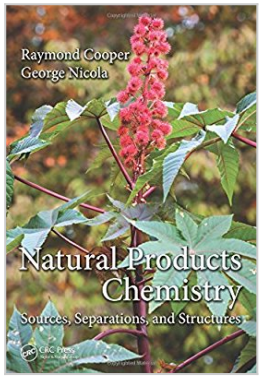

Natural Products Chemistry: Sources, Separations and Structures

By Raymond Cooper, George Nicola

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Notoriously cumbersome to isolate and challenging to synthesize, the path of natural products to viable drugs is an arduous journey. Yet compounds isolated from nature may possess fascinating structures, biological profiles and pharmaceutical potential far greater than anything made by man. **Natural Products Chemistry: Sources, Separations and Structures** presents a practical guide to sourcing, isolating, and discovering new compounds from nature many of which become pharmaceutical drugs. This book emphasizes the challenges and advantages of products acquired from nature, compared to those obtained from combinatorial chemistry.

A basic introduction, the book describes the whole cycle from farm to final compound, backed up by case studies drawn from industry and research applications. It broadens the scope of applications and draws upon examples from various sources. Natural products chemistry, as taught today, draws its examples mainly from marine chemistry or plant chemistry; however, there is also a fascinating and rich world of fermented (microbial and algal) products leading to complex structures. Thus, the book draws upon examples from the microbial world and from insects too. Therefore, this is a source of bioactive metabolites, not traditionally available in academic settings, more the mainstay of the pharmaceutical industry.

Providing a roadmap of the process of collecting a compound from nature, isolating the active ingredient, and determining the chemical structure, this book provides a unique approach to the world of natural products.

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Editorial Review

Review

"**Natural Products Chemistry** is a great basic overview of pharmacognosy that will be useful for undergraduate classes or introductory graduate work in this field. The text is written in a straightforward and accessible manner, aptly lending itself to use both in classes and in labs. In this regard, the book accomplishes its goals of introducing the varied field of pharmacognosy and establishing the discipline as vibrant, diverse, and constantly applicable and necessary to human society. I certainly would recommend its use in universities, medical schools, and pharmacy programs."
?Amy C. Keller, PhD, University of Colorado School of Medicine, Aurora, Colorado, in *HerbalGram*

"Ce livre consacré à la chimie des produits naturels est destiné à un public désirant connaitre les bases dans ce domaine. Il est divisé en quatre parties comportant chacune de deux à cinq chapitres. À la fin de chaque chapitre, des questions permettent de résumer les points importants. L'ouvrage débute par les fondamentaux sur l'étude des produits naturels : leurs sources d'approvisionnement, les systems d'extraction et de purification, les méthodes de détermination des structures chimiques. Dans une deuxième partie, une présentation non exhaustive des grandes classes de produits naturels est faite : les sucres, les lipides, mais aussi d'importantes familles de dérivés comme les prostaglandines ou les leukotriènes, les composés phénoliques, enfin les composés comportant de l'azote (acides aminés, peptides, protéines, acides nucléiques, en passant par les alcaloïdes). Dans une troisième partie, différents composés naturels sont présentés sous l'angle de leur utilization en santé humaine. Il s'agit là d'exemples précis de molécules avec souvent un bref aperçu historique sous la forme d'encarts. Les auteurs mentionnent certains alcaloïdes à activités euphoriques connus du grand public (morphine, héroïne, cocaïne), des molécules à activités anti-infectieuses (pénicilline, érythromycine), des terpénoïdes anticancéreux et antimalariques (Taxol®, artémisine), et enfin des caroténoïdes et vitamines présents dans l'alimentation. La dernière partie insiste sur d'autres exemples de produits naturels de notre alimentation qui sont bénéfiques. Le livre se termine par un panorama de substances qui sont des poisons violents. Cet ouvrage de vulgarisation doit permettre une familiarisation à la diversité et à l'importance des produits naturels dans le monde modern en ciblant leur importance en santé humaine. La représentation des structures chimiques et de certains schémas n'est pas homogène. L'information dans certains cas est manquante, mal représentée (par exemple la stéréochimie) ou la lisibilité douteuse. On notera aussi les difficultés de la classification par classe de substances et activité biologique, en remarquant dans le chapitre sur les terpènes un paragraphe consacré aux molécules antimalariques où il est mentionné la quinine qui n'est pas un terpène. Les questions en fin de chaque chapitre sont intéressantes pour la réflexion du lecteur ; dans un objectif pédagogique, il aurait été bien de trouver leurs réponses en fin d'ouvrage. En conclusion, ce livre fait rapidement le tour des grandes classes de produits naturels en mettant l'accent sur leurs méthodes d'accès et d'identification. Il pourra être utile aux étudiants pour compléter un cours."
?François-Didier Boyer, in *Livres et Media of l'actualité chimique*

About the Author

Drs. Cooper and Nicola were introduced to each other by CRC Press editor Hilary Rowe during a natural products conference. Inspired to pursue his passion for natural products by his former high school chemistry teacher, Dr. Cooper credits his longevity in the field to the great people and teams he has had the good

fortune and privilege of working with. He says that one of the most rewarding aspects of his work has been the satisfaction that comes from being part of a team that is able to bring new products of natural product origin to market.

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