



## Carbohydrate Polymers

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## **Book Reviews**

J.N. Wintgens (Ed.), Coffee: Growing, Processing, Sustainable Production, Weinheim, Germany: Wiley-VCH, 2004, xl +976 pp., £205.00, ISBN 3-527-30731-1

This volume begins with the history of the coffee tree and of coffee, which is closely related to the growth of great empires and trade, first under the influence of the Arabs at the end of the first millennium, then the Turks in the 15th century, and finally, European colonisers since the 18th century.

In the growing of the coffee crop, two main species of coffee tree are cultivated on a worldwide scale, namely *Coffea arabica* and *C. canephora var, robusta*. However, the taxonomic classification of the genus *Coffea* has become increasingly complex due to many new species discovered in West Africa, Central Africa, Madagascar and East Africa.

Initially, potential productivity depends on the variety or the clone selected. Development, however, can only be favourable if the new plants adapt well to local agroclimatic conditions, if they are resistant to local parasites, and if the cultivation methods chosen are adapted to the variety in question.

As a result of increasing demand for coffee and associated rising prices paid for the crop, the incentive to exploit every avenue for increasing coffee yields was extensively developed. This volume also explains the most serious consequences of the drop in coffee prices, due to the economic crisis occurring between 1997 and 2002, where coffee growers lost money on their activity. Coffee farmer have to choose between maximising yields of lower quality coffee, which may prove unsuitable in the long term, ultimately causing damage to the environment, and accepting 'Sustainable Production' with lower yields using environmentally friendly cultivation practices which involve lower input levels.

This is an interesting volume providing detailed information on the origin of such luxury products and the main problems requiring resolution for their market sustenance. It is an essential guidebook for coffee growers, processors, traders, and researchers.

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M. Wichtl (Ed.), Herbal Drugs and Phytopharmaceuticals, Third Edition, Medpharm Scientific Publishers, Stuttgart, Germany, 2004 (xliii+704 pp., \$223.96, ISBN 3-88763-100-5; CRC Press, Boca Raton, FL, USA (ISBN 0-8493-1961-7).

The medicinal use of plant parts is an ancient practice, and the use of herbal teas is primarily empirical. Historically, most drugs were plant-based with the exception of a few, which came from animal and mineral sources. Synthetic drugs first appeared on the market at the end of the 19<sup>th</sup> century. Despite tremendous progress in the development of new synthetic drugs during the 20<sup>th</sup> century, plant-based drugs have never totally lost their importance in the treatment of illnesses. The pharmaceutical industry and academic institutions have made considerable contributions to progress in medicinal plant research. Even though plant-based remedies have special legal status in many countries, they can in many cases be considered equal to synthetic drugs in terms of their quality, safety and efficacy standards.

This book contains monographs on 212 herbal drugs that are used either for the preparation of teas or as components of herbal mixtures, and some that are used frequently or exclusively as raw materials for the production of phytopharmaceuticals. The heading of each monograph contains both Latin and English names and the pharmacopoeias in which the drug is officially cited. The alphabetical listing is based on the Latin name. The individual monographs are clearly organised and contain the following sections: illustrations and descriptions, pharmacopoeia names (German standard licenses), plant source, synonyms, origin, constituents, indications, side effects, making the tea, German standard license, tea preparations, phytomedicines, authentication, TLC identification, adulteration, storage and associated literature. Every monograph in this book includes a section entitled 'Tea Preparations' wherein the reader will find information regarding the typical delivery forms of herbal drugs and herbal tea formulas found in the European pharmacy.

In conclusion, this is a monograph for herbal tea formulas, and is highly recommended to all individuals with interests in herbal drugs used for tea preparation and in the production of phytopharmaceuticals.

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## M. Kotelyanskii, D.N. Theodorou (Eds.), Simulation Methods for Polymers, Marcel Dekker, Inc., New York, USA, 2004 (xv+602 pp., £111.00, ISBN 0-824-70247-6).

The large variety of chemical constitutions and molecular architectures of polymeric materials is responsible for the diverse range of properties they exhibit. A great number of contemporary technological applications rely on the peculiar mechanical properties of polymers. Furthermore, there is a shift of emphasis from process to product design, which is intimately related to material behaviour. With the current trend toward nanotechnology, the scientist or engineer is often called on to develop new, often hierarchical material structures with key characteristics in the 0.1–10 nm length scale, so as to benefit from the unique mechanical, electronic, magnetic, optical, or other properties that emerge at this scale. Materials that develop such structures through self-assembly processes, or modify their structure in response to environmental conditions, are frequently sought.

This volume begins with an introductory chapter covering the basic elements of polymer physics and providing a brief overview of equilibrium and non-equilibrium statistical mechanics. The remainder of the volume is composed of nine parts. The first part focuses on the calculation of single-chain properties in various environments. The second part addresses lattice-based Monte Carlo simulations. During the third section molecular dynamics simulations are discussed. The fourth chapter presents information about configurational bias techniques for simulation of complex fluids. The next two sections focus on simulations of charged polymer systems and methods for the calculation of free energy and chemical potential, and for the simulation of phase equilibria, respectively. Part seven discusses the modeling and simulation of polymer crystals. The penultimate section discusses the simulation of bulk amorphous polymers and their properties, and finally, the last part is devoted to bridging length-and-time-scales through multistage modeling, whose importance has already been stressed above and brought forth in some of the earlier sections.

This book is intended to help students and research practitioners in academia and industry to become active players in the fascinating and rapidly expanding field of modeling and simulation of polymeric materials.

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S. Yannan, Dictionary of Food Compounds with CD-ROM: Additives, Flavors, and Ingredients, Chapman & Hall, CRC, Boca Raton, FL, USA 2004 (xvii+1763 pp., £239.20, ISBN 1-58488-416-9)

For some years, those involved in food chemistry and technology have felt the need for a comprehensive and well-organised reference source documenting the whole range of substances on which they may need information during their day-to-day work. In that way, the Dictionary of Food Compounds (DFC) includes all compounds or group of compounds of interest or potential interest to the food industry in its widest connotation.

The resulting *Dictionary of Food Compounds* is available both in hard copy and electronically as a CD-ROM product. Each has its own advantages. There is nothing to rival the ease of consulting a book version for quick queries and for browsing to get an overall view of the whole field. On the other hand, the electronic version is searchable by chemical structure as well as text and, for obvious reasons, is more easily updated so that users can get a rapid summary of new development in the science.

The printed DFC contains a number of derivatives that are not of direct food interest, but are included because they have been used for chemical characterisation of the main entry compounds. However, their number is strictly limited. In contrast, the version of an entry on the CD-ROM, where space is not a limitation, is a full version as is present on the Chapman & Hall Chemical Database and may include many more derivatives not thought to be of current food interest.

This volume is specifically composed of an introduction, a Dictionary of Food Compounds from A to Z (which forms the bulk of the volume), a name index, and, finally a type of Compound Index. It is highly recommended to individuals involved in all areas of food science and technology, including food toxicity, and crop/product production.

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