



**Herbal Drug Technology.** S. S. Agrawal and M. Paridhavi. Universities Press (India) Private Limited, 3-6-754/1 Himayatnagar, Hyderabad 500 029. 2012. ix + 816 pp. Price not mentioned.

The book under review is written for undergraduate and postgraduate students of Ayurveda, Unani and Siddha systems of medicine. Compared to the first edition, the present one covers additional aspects of herbal science and includes topics like herbal cosmetics, nutraceuticals, chemotaxonomy, role of literature search in medicinal plant research and patenting of herbal drugs.

Herbal drug technology is a tool for converting botanical materials into therapeutically useful products and medicines. Today, herbal products obtained by integrating modern scientific techniques and traditional knowledge are gaining increased applications in drug discovery and development and there is increasing global demand for herbal drugs.

In this book, the Indian system of medicine, herbal therapeutics, crude drugs and medicinal botany, plant taxonomy and fundamental histology are some of the areas that have been covered. A discussion on the establishment of *in vitro* laboratories and *in vitro* culture of medicinal plants, nutritional requirements, processing techniques is also presented. Importance of bioprospecting for the anti-cancer, anti-diabetic, anti-anginal, anti-fertility, anti-thyroid and such other drugs is described.

The book, organized in 16 chapters, is an attempt to cover all recent scientific innovations in the field of herbal science. It highlights the fact that India is the hub of herbal medicine industry in Asia, which is dependent largely on plant materials collected from the wild. It may be noted that India is one amongst those

nations which possess a historical track record of having made significant global contribution by virtue of their traditional knowledge of the medicinal plants. It is pertinent to note that WHO has been encouraging the use of herbal drugs.

Illustrative examples of plants used for medicines are the highlight of the book. Basic principles of Ayurveda, Siddha, Unani, Homeopathy, Yoga and Naturopathy are discussed in detail. The history of herbal therapeutics covering medicinal practices in Mesopotamia, Judea, the Americas, Greece and Europe in the middle ages and its renaissance in post-Middle Ages is traced. Information on different species of plants and ethnobotanical and ethno-biological studies is discussed. An attempt is made to delineate biological sources, chemical constituents and medical attributes of plant species used in various systems of medicine for different diseases. Taxonomy of medicinal plants, primitive and modern phases of chemotaxonomy, morphological and histological variability are discussed. Techniques and procedures of tissue culture using root, shoot tip, leaf, flowers, ovaries, ovules, seed, nucellus, embryo, anther, pollen and callus cultures are described. Extraction, isolation and analysis of phytopharmaceuticals and screening methods used for herbal drugs are elucidated. The process of separation of various compounds like antibiotics, terpenes, alkaloids, plant pigments, etc. is presented. The importance of standardization and problems involved in standardization of herbal drugs are discussed.

The procedures for evaluating the quality and purity of drugs by means of various parameters like morphological, microscopic, physical, chemical and biological observations are detailed. Preliminary and chemical tests of organized and unorganized drugs are described. Application of adsorption chromatography, column chromatography, high performance liquid chromatography and spectroscopy in plant drug analysis, including the advantages and limitations of each method are discussed. A comparative study of Ayurvedic dosage with that in other systems is dealt with in some detail. Historical and present status of herbal cosmetics, the raw materials used and the formulation of the cosmetic herbs are described. Development in the area of 'nutraceuticals' (food that have medicinal and health benefits) which

plays an important role in prevention as well as cure is also covered in the book. Modern facilities available for literature search on medicinal plants, including the electronic databases and search techniques and the issue of trade-related aspects and Intellectual Property Rights in the field of Ayurveda and traditional medicines add to the value of the book. A glossary of botanical and medical terms is helpful to the reader.

The botanical aspects of medicinal plants are covered in a manner that is helpful to students and researchers working on medicinal plants. With a few flaws such as not italicizing latin names, and somewhat poor reproduction of photographs of plants, the book will find a place in the libraries of colleges, universities and research institutes.

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**Annual Review of Nutrition, 2012.**

Robert J. Cousins, Dennis M. Bier and Barbara A. Bowman (eds). Annual Reviews, 4139 El Camino Way, P.O. Box 10139, Palo Alto, California 94303-0139, USA. Vol. 32. 450 pp. Price: US\$ 83.

The *Annual Review of Nutrition* has always provided information on the latest developments in the field of nutrition and the present volume aims to do the same effectively. The review articles are related largely to issues regarding obesity and non-communicable diseases. The present state of knowledge in nutrition has been well covered, including questions raised on what needs to be done in future.

The first biographical article on M. C. Nesheim transitioning from his work as an animal nutritionist to that of a human nutritionist and his career spanning six decades reflects the evolution of the science of nutrition during this period.

The series of articles are well-written, especially certain topics such as the article by Hall on 'Modelling metabolic adaptations and energy regulation in humans'. The reader is simply and logically explained step-by-step the rationale be-

hind the mathematical modelling, thus making the complicated seem uncomplicated. This also provides the basis for the other reviews starting with mechanisms of inflammatory responses, bone metabolism and cancer survival and metabolism of lipo-protein lipase in obesity. Not only lean body mass and fat mass, but that bone mass and mineral density are also important emphasizes the need for formulating obesity prevention studies where bone mineral density is also evaluated. The prevention of childhood obesity is indeed a priority with rising rates of overweight and obesity all over the world. Although the population-based prevention strategies that have been successfully used are documented, a mention about strategies that were not successful should also have been included so that planners do not make similar mistakes.

The pathophysiological role of inflammation in metabolic pathways linked to obesity, alcoholic liver disease, magnesium deficiency and the regulatory role of HDL and resolvins in inflammation underscores the importance of studying the role of inflammation in several disease conditions. The role of visfatin and resolvins in signalling pathways and in health and disease has been well discussed.

Cornelis and Hu describe the challenges faced in linking genes and the environment in the development of type-2 diabetes. However, the article on diabetes in Asians indicates that it is behavioural change through lifestyle modifications that have been reasonably successful in preventing the onset of diabetes.

Micronutrient supplementation has mostly been shown to have a better impact when an individual is micronutrient-deficient and caution in supplementation

in micronutrient-replete individuals is essential. The need for caution is further enhanced if cancer could be prevented or promoted by micronutrient supplementation, as reviewed by Mayne *et al.* Although definitive proof of vitamin-D supplementation on obstetric and neonatal outcomes is not evident, in general supplementation trials need to be carefully planned and executed.

This volume deals with diverse topics of current interest and will help expand the knowledge of public health professionals, nutritionists as well as medical professionals and students.

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