

think of stress induced mutability in any system.

The article by Li and Ding talks about RNA silencing and more importantly the mechanism of viral counter-defense against the RNA silencing mediated immunity or the viral suppressors of RNA silencing (VSRs) operating in various plant and animal systems. The chapter by Downs, on understanding microbial metabolism is another important inclusion in this volume. The author highlights the complications in studying various metabolic pathways, and how inadequate it is to study the pathways in isolation (because of interconnections between the various pathways wherein a defect at any step could lead to establishment of an altogether new equilibrium between the metabolites). The author discusses various methods and the importance of microbial genetics in the systems biology approach of studying the metabolic pathways in an integrated manner. More often than not in several methods, small changes in expression levels (below a certain threshold) are ignored. However, a small flux changes in the level of a metabolite can be amplified because of interlinking of various pathways. Last but not the least, a chapter on bacterial typing using the modern means of sequences of multiple loci (multilocus sequence typing, MLST) written by Maiden discusses the importance of this new method in varied aspects of microbial evolution, epidemiology, pathology, etc.

Overall, I find that this particular volume has more than something for everyone and in the process of reviewing it, I learnt a lot from it. I certainly intend to come back to refer to many of these articles for preparing my lectures or to simply use them as ready reference for research. Contents of the key references have been highlighted in the margins. The definitions of various technical terms on the page margins are very useful. Though in an effort of this kind, occasionally but understandably there may be some errors (e.g. on page 212, eIF has been defined as elongation initiation factor rather than eukaryotic initiation factor).

UMESH VARSHNEY

*Department of Microbiology and Cell Biology,  
Indian Institute of Science,  
Bangalore 560 012, India  
e-mail: varshney@mcbl.iisc.ernet.in*

---

**Plant Micronutrients.** C. P. Sharma (ed.). Science Publishers, Enfield, USA. 2006. 265 pp. Price not mentioned.

---

The book under review is among the very few books in this field written by Indian authors. Even though it uses the language of a review, it combines some features of an advanced textbook as well as reference book and is appropriate for researchers, teachers and postgraduate students dealing with plant nutrition, soil biology, plant biology, agriculture, etc.

The book has been aptly divided into two parts for the convenience of readers. The first part of the book deals with the role of micronutrients in plants and the response of plants to their deficiencies. This part is most useful to readers interested in the biological aspects of plant micronutrients, ranging from physiology to molecular biology. The second part of the book focuses on the causes, detection, treatment and thus overall management of micronutrient deficiency in plants, which is of higher relevance to those dealing with related agricultural sciences. The book has been well laid out and printed on high quality paper as per international standards of production, with plenty of tables, charts and figures which are well designed for easy understanding of the subject. The chapters contain plenty of citations to both old and new references, helpful for the further study of interested readers. The references from all the chapters have been provided at the end of a book in a comprehensive bibliography, which should be a rich resource in itself. Besides, a fairly comprehensive subject index has also been provided for the convenience of the readers to locate specific information. The last chapter on amelioration of deficiencies with micronutrient amendments and the use of micronutrient-efficient genotypes would be of particular value to those looking for practical solutions, which would have been further enhanced, had these aspects been elaborated further. So also its use as a textbook if the number of illustrations were increased in order to make the study more explicit.

A drawback of the book is that it does not provide any details regarding the prevalence, intensity and geographical spread of micronutrient deficiency in the crops or soils of India or elsewhere in the world. Such information, especially if accompanied by maps and other illustra-

tions would have further enriched the applied value of the book for further research, extension and policy in agriculture, as well as expanded the range of its readership. Considering the availability of books on plant micronutrients from other authors from abroad, a focus on Indian crops and on Indian agricultural soils would have been particularly relevant and timely for us here in India. This is because of the growing concerns over micronutrient deficiencies in Indian soils and their adverse impact on agricultural productivity in many parts of the country, especially in the intensively cropped regions.

PRIYANKA SHARMA  
NANDULA RAGHURAM\*

*School of Biotechnology,  
GGS Indraprastha University,  
Kashmere Gate,  
Delhi 110 006, India  
\*e-mail: raghuram98@hotmail.com*

---



---

**Principles of Pharmacology.** H. K. Sharma and K. K. Sharma. Paras Medical Publishers, Hyderabad, India, 1st edition. 2007. 977 pp. Price: Rs 795. ISBN 81-8191-176-8.

---

There is a scarcity of good Indian textbooks in most areas of medical sciences. The sporadic attempts in most cases have a poor readership response because they mimic the traditional western approach and the poor quality of illustrations, printing, etc. are further disincentives. Foreign textbooks, besides being expensive, do not give adequate coverage to subjects relevant to Indian needs and priorities.

The situation in pharmacology has been somewhat better. The first textbook of what was then known as *Materia Medica* appeared in the beginning of the last century. This, Ghosh's book, was subsequently edited by two different editors and two versions appeared in the sixties. However, it has little following now. The explosive growth in pharmacology has led to publication of several single or multi-author textbooks of pharmacology during the last few decades. Most of them, however, follow the traditional western approach primarily based on details of individual drugs and scanty details of Indian initiatives or regulatory milieu. The quality of publications has improved

## BOOK REVIEWS

---

during the last decade with books going for double colour printing or providing references for future reading, etc.

Drug therapy, one of the most dynamic medical specialties is in a state of constant flux. The balanced information about therapeutic utility and status of a drug is of much more use to medical students and practitioners rather than factual data about an individual drug *per se*. The present practice of polypharmacy also makes it obligatory for them to be well informed about the side effects of prescribed drugs and drug-drug interactions.

The book under review, written by two experienced teachers of pharmacology, is a welcome departure from the classical pattern of textbooks. It is perhaps the first textbook of pharmacology to utilize multi-colour printing and use of different colour borders for different chapters. The book is profusely illustrated with diagrams and tables. Multicoloured illustrations and tables make reading more enjoyable and facilitate comprehension. The subject arrangement is good, starting with a brief review of basic principles followed by a summary of pharmacodynamic and pharmacokinetic data and ending with therapeutic applications. A disease-based approach has been used for selected clinical conditions requiring concomitant or sequential use of several categories of drugs. The language is sim-

ple, the information concise and in most cases adequate.

The book also has some other novel features. Each chapter ends with 'Future Prospects'. This highlights the current research trends and in some cases provides information about drugs in the pipeline. The section on General Pharmacology also includes subjects generally covered in most textbooks. It describes the procedure for new drug development. It discusses the concept of orphan drugs and award of INN (International non-proprietary names) by WHO to selected new drugs. The concluding section of the book has special chapters on use of drugs in patients at the two extremes of age, i.e. the paediatric and geriatric population. In addition, there are chapters on recent developments like drugs affecting the erectile function, nitric oxide, immunomodulators, etc. The appendix has listed all the important topics.

The book has covered the Indian contributions in adequate detail. The new drugs developed in India like Centchroman, Abtaquin,  $\alpha$ - $\beta$  arteether, etc. have been included. The Indian regulatory requirements for new drugs have been mentioned. The essential drugs scenario at the national and state level has also been reviewed and discussed.

The book is well produced and is devoid of printer's devils. A few points,

however, should be attended to in the next edition. The ICMR Ethical Guidelines and Helsinki Declaration should have been referred to while discussing ethical considerations in clinical trial of drugs. In some chapters the doses of important drugs like diuretics, vasopressin and analogues, calcium channel blockers, barbiturates, etc. have not been given. Some of the tables also need attention. For example, table 39.2 mentions parenteral doses of the listed drugs while some of them are used only by the oral route. The authors have provided a bibliography of general reference books at the end of the volume. It would be useful, particularly to postgraduate students and research workers, if some references for more detailed information are given at the end of each chapter.

The authors and publisher need to be complemented on publication of this excellent treatise. The book is primarily meant for undergraduate students and those preparing for competitive examinations. It should be useful to postgraduate students, general practitioners and specialty clinicians also as a reference book.

B. N. DHAWAN

3, Rama Krishna Marg,  
Lucknow 226 007, India  
e-mail: bndhawan@hotmail.com