

BOOK REVIEWS

ume I. All the authors are fairly experienced and have done a wonderful job in each chapter and have given an insight into the various aspects of biotechnology of food fermentation. But, it might be appropriate to mention that many of these articles should have been linked to make a meaningful approach for reading by the editors in their preface.

Volume II, which is labelled as 'applied', covers a wide range of products such as the oriental fermented foods, fruit-based fermented foods, fruit and cereal-based beverages, meat products, cereal products as well as production and application of baker's yeast along with production of certain additives by fermentation. Production of even gums, and amino acids and vitamins are all fairly covered and the topic of biomethanation is also addressed. Even though the second volume is supposed to address the applied aspects, the engineering part of fermentation is not fully dealt with. A couple of articles on it would have made the book more comprehensive for reading and advanced information.

Also, a few articles indicating the biochemical mechanisms, comprehensive biochemistry and microbial growth and also the total genetic approach and value addition that can take place by both protein engineering and genetic modification of the cell, would have been appropriate.

Overall, the two volumes certainly cover a large amount of work that has been done in the Indian context and are really a treasure for any biotechnologist and food fermentation scientist.

The editors have to be complimented for trying to put all these in the form of a book which comprises nearly 32 articles backed up by a good index and references under each article and also many tables and figures. I am sure this will be an asset to any library or individual in the subject area of specialization in food fermentation.

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Breeding Field Crops. Chopra, V. L. (ed.). Oxford & IBH Publishing Co Pvt Ltd, 66 Janpath, New Delhi 110 001. 2001. 580 pp. Price: Rs 450.

With the introduction of new technologies, plant breeding has taken a new dimension in food production and consumption. Plant genes can be recombined through sexual crossing, mutated with radiation or inserted through molecular techniques. Among these, the classical methods of shuffling and recombining genes through sexual crossing are the major ones to generate new plant varieties. This position is unlikely to change in the near future till plant genomes are mapped, and large-scale transfer of DNA through parasexual methods becomes a routine practice.

The book under review brings together the vast amount of information on the classical methods of plant breeding. It is a timely and welcome addition to the textbooks for the postgraduate students as well as a source of reference for the plant breeders and geneticists in India and elsewhere. The contributing authors have put together detailed information on the origin, evolution, taxonomy and breeding systems and release of crop varieties of fourteen major crops of the Indian subcontinent. The book covers five major cereal crops – rice, wheat, maize, sorghum and pearl millet and three pulse crops – pigeonpea, chickpea, and mungbeans. Other chapters include oilseed brassicas, soybean, sunflower, groundnut, cotton and sugarcane (the only one in the book propagated from vegetative parts). There is good uniformity in the description of the problems of breeding, and use of germplasm and methodology for solving them in various crops. All contributing authors have drawn heavily from the work of researchers in India that has often been unavailable to the international plant breeders.

A few chapters lack mention of the key contributions by the pioneer plant breeders in India. For example, the contribution by the leading wheat breeder D. S. Athwal who released the very first semi-dwarf wheat variety 'Kalyan Sonu' much ahead of the rest of India, has been ignored. He also saw the practical value of the semi-dwarf wheat

varieties in the crop rotation pattern of North India. While the C591 wheat variety prized for its grain and chapati-making quality, bred by late Ram Dhan Singh is mentioned, its role in wheat production over several decades is not sufficiently emphasized. Nor is there any reference to research on alloplasmic lines by S. S. Mann at N. Dakota. There are misspellings, including that in the list of contributors. Some of the terminology used is also misleading, for example 'top-crossing' for breeding Basmati rice! It is also a pity that an important crop such as potato was omitted, since India is the fourth biggest producer of potato in the world. Some authors in the book, however, have omitted many of the important contributions from the rest of the subcontinent, namely Pakistan and Bangladesh which grow the same crops and share similar problems. For example, reference to NIAB-78, a mutation-derived cotton variety, is missing, which has been a major success story in Pakistan. A book title *Breeding Field Crops in India* would have been more appropriate.

The editor V. L. Chopra has personal knowledge of the advances in plant breeding research in India during the past 50 years. He is well aware of the outstanding contributions of the pioneer wheat breeders such as Ram Dhan Singh and D. S. Athwal in India, and of Amir Khan in cotton in Pakistan. There is a need to include information on their singular contributions in a more transparent manner in the subsequent editions of the book. Adding a glossary of basic terms would also enhance the value of the book. Overall, the book is an excellent text, and an essential aid for teaching about the improvement of major crops in the subcontinent. Priced at Rs 450, it is within the reach of every student and researcher of plant breeding and genetics in India.

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