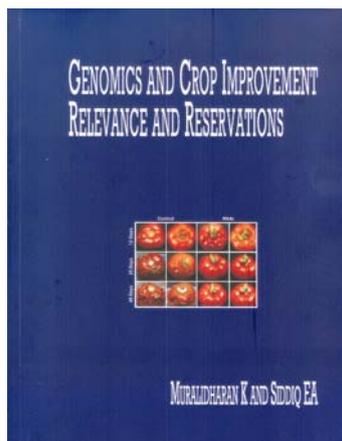


Calamus lacciferus, fruit beaked in *Calamus viminalis*, fruit turning black when ripe in *Phoenix loureiroi* var. *pedunculata*, radially spreading leaf blade lobes in *Rhapis excelsa*, stem clothed with delicate black fibres in Formosa palm (*Arenga engleri*), stem strongly marked with spiral ridges and furrows in Gebang palm (*Corypha utan*), long and gracefully arching leaves of bottle palm (*Hyophorbe lagenicaulis*), simple forked leaves of metallic palm (*Chamaedorea metallica*), and ringed stem and red leaves in sealing-wax palm (*Cyrtostachys renda*). Bhat also provides details such as preferred habitat, common name, economic importance for each species and additionally the country of origin in the case of exotic species. A useful glossary of botanical terms that explains the meaning of scores of technical terms used follows. The book concludes with references and indices of scientific and common names.

This book, no doubt, has a great reference value. The endeavour of bringing out a good reference document on the palms of Karnataka, a precious component of the state's flora, seems to have been achieved with this publication. The readers will find that Bhat not only writes with great authority, but also with clarity – one that very few botanists would have been qualified to do. The book design and layout are also aesthetically appealing and it is moderately priced. This guide will help recognize every palm one is likely to come across in our cities and/or in the wild. It should be in the collection of every student of botany, as well as ecologist and conservationists. Aakrithi Prints need to be complimented for the impressive design and printing of the book. I would not, of course, conclude without offering a suggestion or two that might make a second edition more informative. A map marked with location of collections made for indigenous palms and canes would have been a valuable addition, for it helps in their conservation and sustainable exploitation.

K. SANKARA RAO

Centre for Ecological Sciences,
Indian Institute of Science,
Bangalore 560 012, India
e-mail: bharadwaj@ces.iisc.ernet.in



Genomics and Crop Improvement: Relevance and Reservations. K. Muralidharan and E. A. Siddiq (eds). Institute of Biotechnology, Acharya N. G. Ranga Agricultural University, Rajendranagar, Hyderabad 500 030. 2011. x + 438 pp. Price not mentioned.

The last 20 years have seen a spurt in the quantum and quality of crop improvement research in the country using molecular biology tools and techniques. This change was probably triggered in the early 90s by liberal grants from international organizations like the Rockefeller Foundation, for crop biotechnology research and capacity building. Even after the international donors disappeared from the scene the pace has not slackened, thanks to the increasing support from our Government, most significantly through the Department of Biotechnology (DBT).

The major outcomes of this two-decade old thrust on molecular approaches for crop genetic enhancement are more-or-less captured in this book, which is a collection of articles discussed at a national symposium organized a few years ago. The editors, Muralidharan and Siddiq, have done well to group these articles under major topics like genetic resources, yield, stress tolerance and quality improvement. There are two articles on genetic resources – one on the sequencing and genotyping technologies and resources for improving semi-arid tropics legume crops, and the other on strategies for genetic enhancement of rice leveraging the whole genome sequence now available from several rice lines. The former gives a fair glimpse of the facilities and competence that is available at the Centre for Excellence in Genomics (CEG) at the International

Crop Research Institute for Semi-Arid Tropics (ICRISAT), Hyderabad, a centre extensively supported by DBT. This centre is mandated to provide genotyping services to researchers all over the country, and therefore the information in this article would be particularly useful to scientists at other centres who are engaged in marker aided selection (MAS) and other genomic technologies for crop improvement.

The seven articles grouped under the general title 'Yield', deal with diverse research programmes ranging from the use of quantitative trait loci (QTLs) for yield and yield components to transgenic approaches for protecting yields under abiotic stresses by the ectopic expression of proteins involved with the unwinding of nucleic acids. The exploitation of hybrid vigour or heterosis to boost yields in the hybrid varieties of crop plants is an age-old strategy to increase crop productivity. The challenge, however, has been to fix the hybrid vigour through generations so that the need to cross specific parents in every seed production cycle is obviated. One of the approaches towards this end has been to induce apomixes (seed formation without sexual fusion) in the vigorous hybrids; however, this has met with limited success so far. A conceptual note on engineering apomixes for fixing hybrid vigour by Imran Siddiqui, Centre for Cellular and Molecular Biology (CCMB), Hyderabad, whose group has recently published some seminal papers on the formation of gametes without the normal reduction division, is included in this section.

A majority of the articles in this book deal with the development of stress



Polished seeds of primary transgenics (*T₁*) showing yellow endosperm of golden rice due to integrated carotenoid pathway. White seeds represent the non-integration of the carotenoid gene due to meiotic segregation. (Datta *et al.*, 2006.)

BOOK REVIEWS

tolerance in crop plants; disease, insect pests and abiotic stresses. The work being carried out by almost all the major research groups in the country engaged in developing tolerance to biotic stresses like fungal, bacterial and viral diseases, sap-sucking and lepidopteran insect pests are represented in these articles. Abiotic stresses like drought and salinity, which are more intractable, are dealt with in seven of these articles. Both MAS and transgenic approaches to defend the plants against these stresses have been described. From these reports it appears that many genetically improved crop lines have been developed using both MAS and transgenic approaches, leaving one wondering as to why the rate of deployment of these technologies in the farmer's field is not commensurate with their development in the research institutions.

The articles on quality enhancement deal with three main aspects; the understanding and improvement of organoleptic quality parameters of basmati rice, the enhancement of processing and nutritional quality in a few crops, and increasing the shelf-life of fruits and vegetables. At least two out of the seven articles in this section are more in the nature of a conceptual note rather than a research report. The last section of the book consists of eight abstracts on different topics; other than adding to the pages, these do not seem to have much value.

Generally, the authors of individual articles have given an overview of their own research programmes, which is appropriately embedded inside an extensive review of the current global status of research in the area. While the articles themselves may not have been rigorously peer-reviewed, the authors have not held

back from citing their own peer-reviewed publications, wherever available, to lend authenticity to the data and their conclusions.

After going through the entire book, the title, appears somewhat incongruous. 'Relevance', can be found in some sections, but not 'reservation'. In spite of a few minor shortcomings, this book would be a worthy acquisition for anyone interested in a status-check on the plant molecular biology research in the country.

K. K. NARAYANAN

*Metahelix Life Sciences Limited,
3, KIADB 4th Phase,
Bommasandra,
Bangalore 560 099, India
e-mail: narayanan@meta-helix.com*

Addendum

Book review: 'Biodiversity of Sikkim: Exploring and Conserving a Global Hotspot'

J. S. Singh [*Curr. Sci.*, 2012, **102**, 1212–1213]

References were omitted from the hard copy of this publication for sake of reducing the already heavy and bulky size.

However, in order to ensure easy and cost-free availability of this book, it has also been simultaneously released online, where all the chapters can be downloaded along with the full list of references. The book is available in the official website of the Sikkim Forest Department (<http://www.sikenvis.nic.in/Biodiversity-of-Sikkim.htm>).