genes emerges as pivotal in haploid to diploid transition.

Tumour tissue consists of multiple clones in different proportions with among-clone genetic differences (d) on the order of 10^{-7} to 10^{-5} per nucleotide. For reference, in natural populations d would be 10^{-1} to 10^{-3}. Wu *et al.* have applied molecular population genetic theory to understand the evolution of tumours, with a rather ambitious title for their review, 'The ecology and evolution of cancer: the ultra-microevolutionary process'. To make their case, they rely heavily on a single measure of distinguishing neutrality from positive/negative selection – the ratio between non-synonymous and synonymous mutations (K_a/K_s). They could not have been more emphatic about the interpretation of this statistic. Using a single-gene approach they show that contrary to the earlier conclusion that there is no net selection in the genes in a tumour, there is in fact considerable heterogeneity among individual genes. Although majority of genes are evolving neutrally, a substantial proportion and a small subset are indeed under negative and positive selection respectively. These proportions are more than what is expected by chance in case of negative selection and less in case of positive selection. Their inference is based on simulations assuming neutrality. However, no measure to conclude the statistical significance of their observation is provided.

The three-way interaction among *Plasmodium*, mosquitoes and humans has attracted some of the smartest minds in genetics from Francisco Ayala to Daniel Hartl. This volume contains an article by Molina-Cruz *et al.* detailing our current understanding on the origin and spread of *Plasmodium* in relation to their mosquito vectors, and Hartl is one of the authors in it. Molina-Cruz *et al.* argue that humans received *P. falciparum* from gorillas in a single host-jumping event and when humans migrated out of Africa, they carried the malaria parasite with them. However, as their mosquito host did not migrate with them, the parasite had to rely on local mosquito vectors to complete its life cycle, leading to complex local co-evolution between the parasite and its respective mosquito host(s) in that region. They also highlight the role of the parasite immune gene *Pfs47* in the avoidance of detection by the mosquito immune system.

Geneticists have for long been accused of being ultra-reductionist, and two reviews in this volume by Wong *et al.*, as well as Droujinine and Perrimon, attempting a holistic approach, are welcome in this regard. The components of different genetic networks interact among themselves, and understanding them is the domain of combinatorial genetics. Wong *et al.* review the emerging technologies that are being implemented in understanding such interactions. On the other hand, Droujinine and Perrimon focus on the communication between different organs. They provide a comparative description of the different factors involved in the communication among functionally similar organs in humans and *Drosophila*. Remarkably, many of these factors are conserved between the two species.

Other highlights in this volume include articles by Bevilacqua *et al.* on the recent developments in the techniques to decipher RNA secondary structure; Quadrana and Colot on how DNA methylation profiles are inherited in plants from one generation to the next; Grath and Prsch discussing differences in gene expression between the sexes, and how and why male biased genes often evolve faster, and Naylor and Deursen on chromosomal instability and its involvement in ageing and cancer. Interested readers can access all the articles in this volume at http://www.annualreviews.org/toc/genet/current

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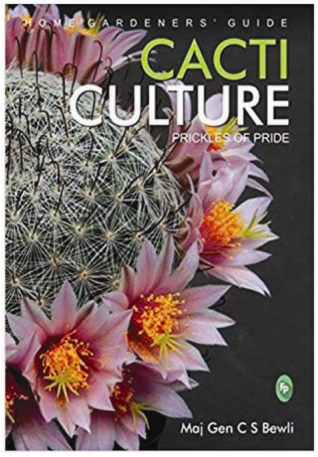
SAIKAT CHAKRABORTY

National Institute of Biomedical Genomics,
Kalyani 741 251, India
e-mail: sc6@nibmg.ac.in



Cacti Culture: Prickles of Pride. Maj Gen C. S. Bewli. Fingerprint Life, 113/A, Darya Ganj, New Delhi 110 002, India. Price: Rs 595, pp. 248; www.fingerprint-publishing.com.

This monograph offers critical details of culturing cacti and the prerequisites, such as soil composition, moisture and duration of light regimes in an enclosed environment. The literature documents many unique species of this xerophytic flora which have evolved with a variety of adaptations. The plant that is no longer restricted to America and is under global demand for cultivation under varied climatic conditions is imposing challenges to the growers. The book while remarkably addressing the challenges in growing cacti away from their native habitat, also reflects the great interest and experience of the author over the years.

The book addresses all challenges of cacti cultivation in the context of the Indian sub-continent. Importantly in India, the ambient temperature ranges from an excess of 47°C to a minimum of 0°C. Also, there are incessant rains during monsoon. To overcome such harsh climate regimes, cacti can be grown under controlled greenhouse conditions to take care of direct sunlight, excessive drainage and fluctuations in temperature. The author has mastered the technique of cacti propagation involving seed-cutting, grafting and tissue culture.

The book discusses the practical information required for cacti cultivation in an easy language. Mesmerizing photographs unravel the beauty of nature. The text gives a holistic view on cacti cultivation and factors that influence their growth like watering, lighting, fertilization and soil mineral composition. For

the self-sterile *Astrophytum*, *Gymnocalycium* and *Lophophora*, there was the need for physical transfer of pollen to recipient flowers. Under Indian climate, the optimal conditions for cacti propagation prevail between spring and autumn, with the ambient temperature in the range 20–30°C. Growing cacti from seed is time-consuming (5–7 years); however, the situation can be improved, if old seedlings could be grafted on well-growing stocks. Among the fertilizers N, P and K form the most important components in addition to calcium, magnesium and sulphur, and micronutrients such as Fe, Zn, Mo, Cu and Cl. The natural fertilizers include bone meal, dung manure, leaf mould, oil cakes and vermicompost. One can easily get trained in the use of insecticides and fungicides to overcome the common pests like mealy bugs, red spider mites, scales and nematodes and fungal rots that attack the cacti.

The slow-growing cacti are also a source of pharmaceuticals and human food that could be exploited for the welfare of society. The book presents the economical benefits and provides entrepreneurial ideas on cacti propagation, commercialization and cuisine, which are commendable.

The creative display of cacti and succulents in dish gardens, hanging baskets and windowsills adding to the aesthetic beauty of a place is admirable. The enlarged high-resolution photographs are captivating.

The author argues against the myth that thorn-bearing plants bring bad luck in case they are grown in and around the house, citing examples of rose and bougainvillea. While discussing cacti taxonomy and physiology he also mentions about the art of grafting in a unique poetic way.

Overall, such prickly plants attract the bees, butterflies and also the human eye. The author deserves praise for his exemplary endeavour.

R. N. KHARWAR[1,*]
RICHA RAGHUWANSHI[2]

[1]*Department of Botany, Institute of Science, and*
[2]*Department of Botany, Mahila Mahavidyalaya, Banaras Hindu University, Varanasi 221 005, India*
**e-mail: rnkharwar@yahoo.com*