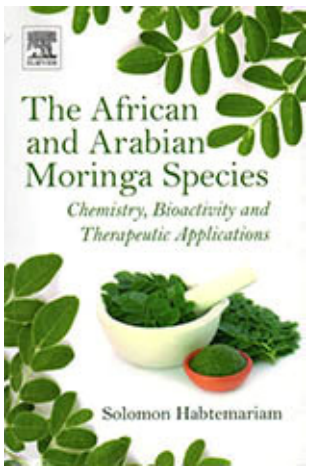
should be remembered that even USA does not have 'hundreds of MITs'. The result of such quick expansion of the IIT–NIT system has been a gradual setting of mediocrity in them, which may dictate the future quality of these 'hundreds of IITs and NITs'.

On the whole this book is interesting and the author needs to be congratulated. The reviewer believes that it will motivate the concerned authorities to take necessary corrective steps.

AMITABHA GHOSH

Science and Technology Block,
Indian Institute of Engineering Science and Technology,
Shibpur, P.O. Botanic Garden,
Howrah 711 103, India
e-mail: amitabha@iitk.ac.in



The African and Arabian Moringa Species: Chemistry, Bioactivity and Therapeutic Applications. Solomon Habtemariam. Elseiver, Amsterdam, The Netherlands. 2017. 214 pages. Price: US$ 225. ISBN 78-0-08-102286-3.

Moringa species grow in arid and semi-arid areas with mean annual rainfall below 100 cm. They are usually fast-growing and reach maturity in a couple of years. The species are greatly valued for their traditional uses, socio-economic significance and therapeutic applications. Apart from being used as salad/vegetable, many species are effective in the cure of obesity, diabetes, cancer and other diseases. Further, seeds of *Moringa stenopetala* (Baker.f.) Cufod., the African Moringa, are used in cleansing turbid water in Ethiopia. For these varied and veritable attributes and at different degrees of authenticity/efficacy, a focused publication on these 'miracle plants' is in fact called for and a book of this kind is truly welcome.

Moringaceae, represented by the monotypic genus, *Moringa* was revised by Verdcourt in mid 1980s for tropical East Africa. The taxonomy and diagnostics of these species fluctuate around bipinnate/tripinnate leaves, varied shades of flower colours, and the shape of seeds and presence/absence of wings on them. Verdcourt exhaustively dealt with their taxonomy under three sections, namely, *Moringa* (eight species), *Donadsonia* (three species) and *Dysmoringa* (one species). Solomon Habtemariam, the author of this book, and a leading researcher on drug discoveries from natural sources has reproduced this review in summary relevant to the subject in the first chapter of the publication.

The entire focus of the book is on *M. stenopetala*, distributed in Ethiopia and Kenya and *M. perigrina* (Forssk.) Fiori, distributed along the Red Sea coast from northern Somalia to Egypt and within the Arabian Peninsula from the Persian Gulf to the Red Sea coast. Both the chosen species are extremely valued and exploited for their multiple uses. *M. stenopetala* produces pale yellow or pale green, densely villous flowers in huge panicles and is allied to an Indian species, *M. oleifera* Lam. *M. oleifera*, native to the southern foothills of the Himalaya in northwestern India, is widely cultivated for leaves, flowers and young fruits, and is a fast-growing and drought-resistant species. The seeds of *M. oleifera* are smaller in comparison to those of *M. stenopetala*. Multiple uses and also potentialities of *Moringa* species in general and *M. stenopetala* in particular have been dealt with in great detail in chapter 2.

Section II consists of three chapters focusing entirely on the chemical profiling of this species that includes seed oils and non-oil components (glucosinolates, GSL-derived compounds and flavonoids). Section III addresses the chemistry behind the multiple reported uses of *M. stenopetala* for its antioxidant, anti-microbial, anti-diabetic and anti-cancer properties. Anti-microbial effects have been dealt with in chapter 8, the effects on diabetes and associated diseases in chapter 9, and potential effects on anti-cancer in chapter 10. Emphasis has been given to the correlation between medicinal chemistry and pharmacology/biological activity from the plant at molecular level. The last chapter (#11) in this section is devoted to explaining the flocculation phenomenon and how water purification takes place using seeds of *M. stenopetala*.

The other species, *M. perigrina* has been characterized (chemical and pharmacological profiles) in similar lines in chapter 12 of section IV. The last chapter (# 13) deals with nine other endemic African species, i.e. *Moringa arborea* Verdc., *M. borziana* Mattei, *M. drouhardii* Jum., *M. hildebrandtii* Engl., *M. longituba* Engl., *M. ovalifolia* Dinter & Berger, *M. pygmaea* Verdc., *M. rivae* Chiov. and *M. ruspoliana* Engl.

The focus of the book is extremely relevant today as only a small fraction of the known plant wealth has been put to use for medicinal, nutritional or other requirements. Species diversity and genetic diversity are viewed as a measure of chemical diversity and different species are expected to generate a range of proteins and secondary metabolites which

Moringa drouhardii growing in Florida from a seed of Madagascar origin.

would give leverage to counter disease and nutritional issues in burgeoning human populations. The book is well structured and lists the potential applications of *Moringa* species using chemical and pharmacological profiles. We could spot certain omissions/errors in the first chapter (p. 5): Under section *Moringa* it has been stated that 'this description was made to include', to refer to circumscription; similarly *comb. & stat. nov.* is appended to section *Donadsonia*; authorities of plant names are italicized (not conventional) and there are misspelt botanical terms for perigynous (pergynous) and hypogynous (hypoglynous). These omissions have no bearing on the focused content of the publication and can be corrected in a future edition. The numerous published works of the author cited at the end of each chapter add valued authenticity to the book. The author deserves to be congratulated for bringing out a truly informative and useful book on the subject. It would serve as a good reference for herbalists, agriculture/pharmacy students, and researchers/scientists in drug research in the years to come.

M. SANJAPPA[1,*]
P. VENU[2]

[1]*Mahatma Gandhi Botanical Garden, University of Agricultural Sciences, GKVK, Bengaluru 560 065, India*
[2]*Environment Protection Training and Research Institute, Gachibowli, Hyderabad 500 048, India*
**e-mail: sanjappam@ymail.com*

PERSONAL NEWS

Lalji Singh (1947–2017)

The recent unfortunate demise of Prof. Lalji Singh, also known as the 'Father of DNA Fingerprinting in India' on 10 December 2017 in Varanasi, at the age of 70 years, has created a void among the biotechnology fraternity spread all over the country. Singh was an excellent scientist, a talented administrator, institution-builder and a social worker. He followed the maxim 'simple living and high thinking', which advocates that a person should lead his life with minimum wants, but one's thinking should be high to serve the people with great deeds. He was born on 5 July 1947 in a small village named Kalwari in Jaunpur district, Uttar Pradesh, India. His father Suryanarayan Singh was a farmer and Mukhiya (Head) of the village. Singh completed his primary and secondary school education at Kalwari and Pratapganj villages respectively. He obtained his B Sc degree in Zoology and Cytogenetics in 1964 from Banaras Hindu University (BHU), Varanasi, followed by an M Sc degree with gold medal for having secured first rank in the merit order. In 1971, he was awarded his doctoral degree at BHU, for his work on the 'Evolution of karyotypes in snakes' under the guidance of S. P. Ray Chaudhuri. A summary of his findings was published in *Chromosoma*[1].

Singh's direct and indirect contributions to science are countless; however, his major achievements include the setting up of several institutions and laboratories in India, starting with the Centre for DNA Fingerprinting and Diagnostics (CDFD) in 1995, National Facility for Transgenic and Gene Knockout Mice, Society for Mitochondrial Research and Medicine, Advanced Laboratory for Structural Biology Research, a center for undertaking research aimed at conservation of endangered species (LaCONES)

in 1998, biosafety level (BSL)-II and BSL-III facilities for undertaking research on infectious diseases, Genome Foundation in 2004, and a dedicated centre for translational research on regenerative medicine (CRF), etc. which have catered to the needs of Indian citizens and nourished the minds of budding biotechnologists of the Indian subcontinent.

Singh's contribution in the field of molecular basis of sex determination: During the initial days of his research career at the Institute of Animal Genetics, University of Edinburg, UK, Singh focused on sex chromosome associated satellite DNA, particularly female specific satellite IV DNA. Singh *et al.*[2] studied the molecular significance of heterochromatin in sex chromosomes of snakes and reported the conserved nature of satellite DNA sequences of W chromosome during evolution. Singh returned to India in 1987 and started his career as a senior scientist at Centre for Cellular and Molecular Biology (CCMB), Hyderabad and became its Director in 1998. CCMB was Singh's main centre of action and contemplation for more than 24 years, enabling him to collaborate with Kumarsamy Thangaraj, A. Govardhana Reddy and Ganeshhwer Chaubey and publish more than 200 papers (almost 90% of total publications)[3].

Pioneer in DNA fingerprinting technology in India: Singh *et al.*[4] developed a Bkm-derived probe for DNA fingerprinting to study the genetic variability and evolutionary relationship in various eukaryotes. The group identified and isolated Bkm sequence (mainly consisting of tandem repeats of tetranucleotide GATA) from the genomic DNA of female Indian banded krait that later on was widely used as an effective probe for genetic fingerprinting. This probe has