Finally, the emerging role of circulating miRNAs as putative early biomarkers of susceptibility to disease as well as dietary exposures is also explored by Ross and Davis. Recent studies suggest that dietary components can modulate the expression of miRNAs that are associated with diseases such as hypertension, CVD, liver diseases and even cancer. There is also a great deal of speculation that miRNA could influence the gut microbiome, and this is interesting especially since modern high-throughput sequencing technologies are rapidly helping us understand the importance of the gut microbiome in human health and disease[6]. The composition of the gut microbiome can be modified by nutritional interventions, and the role of breast milk oligosaccharides in influencing the neonatal microbiome is elucidated by Smilowitz *et al*. The emerging science of glycomics is revealing how specific human milk oligosaccharides help in the selective enrichment of bifidobacteria in the GI tract of breastfed infants, which promotes intestinal barrier and immunological development and function.

The role of micronutrients in various aspects of health and disease continues to be an area of interest for nutritionists as well as pharmacologists. In this volume, three important micronutrients are discussed. Groves *et al*. have highlighted the alarming increase in global incidence of vitamin D deficiency, and its association with a range of neuropsychiatric and neurodegenerative diseases. This is worrying, especially considering the availability and affordability of vitamin D supplementation, and is something that healthcare work and research should focus on immediately. Iron deficiency anaemia continues to plague the world and is especially an issue during pregnancy. But the inter-relationship between iron and copper is only now emerging. Gulec and Collins have succinctly provided a mechanistic understanding of the iron–copper interplay, especially related to how copper influences iron homeostasis.

Finally, particularly in the context of the recent uproar over the quality and claims of some of the popular food products in the Indian market, the last chapter of this volume by Finley *et al.* appears to be topical, and gives some useful information about the regulatory issues regarding the production and marketing of such products in the US. Rules regarding ingredient and nutrient content claims and especially food advertising are clearly delineated, such that the consumer is protected to the maximum extent.

On the whole this volume is an interesting and informative mix of articles that provide sufficient food for thought and plenty of ideas for further research.

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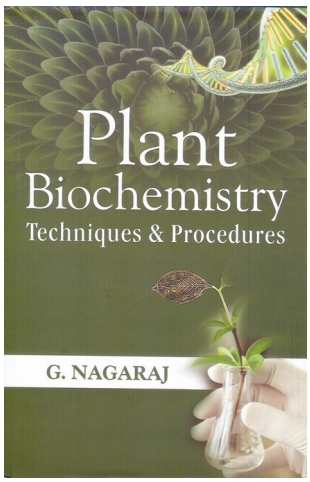

Plant Biochemistry: Techniques and Procedures. G. Nagaraj. New India Publishing Agency, 101, Vikas Surya Plaza, CU Block, LSC Market, Pitam Pura, New Delhi 110 034. 2015. xv + 491 pages. Price: Rs 2700.

Biochemistry amongst the life sciences encompasses a wide range of topics and effectively makes use of myriad of techniques. Plants serve as the source of food, feed, fibre and a variety of chemicals used in health and food industry. The analytical techniques used in plant biochemistry can be broadly divided into two categories. The first category includes techniques that are used in research to get a better understanding of quantitative and qualitative changes in the biological processes and biochemical compounds occurring in plants. The second category consists of techniques that are involved in routine analysis of a variety of constituents present in plants in the food, agriculture, industrial and pharmaceutical sectors. Although the author of this book does not mention specifically, this book apparently belongs to the latter category. The book is divided in two parts, analytical techniques, and analytical methods and procedures. While the first part provides a superficial description of some of the techniques, the second part is a collection of protocols for the estimation of a variety of biochemicals like carbohydrates, lipids, amino acids, proteins, nucleic acids, vitamins, toxins and anti-nutritional factors. No information has been included on the design of experiments and statistical procedures useful for analytical plant biochemistry. Chapters on several important techniques have been described in just 2–4 pages. In several places, the title of the chapter and the subject discussed in it do not match. The descriptions are often sketchy, full of inaccurate information and faulty language.

The author does not specify any target group of readers; however, in the preface he indicates that this book will be useful to students, researchers and scientists in the plant sciences. While it is true that it is impossible to cover all the areas of plant biochemical techniques in a single book, any book on biochemical techniques to be useful and relevant to students/researchers of today should have included some of the basic techniques employed in molecular biology, genomic and proteomics, like recombinant DNA technology, cloning, expression vectors used to produce proteins, fusion proteins used to purify specific proteins, DNA–protein and protein–protein interactions, etc. None of these modern methods is described in the book.

Further, the book has been written in a completely callous style.

The following points exemplify my observations:

(i) Chapter 7, part I on ion exchange chromatography (two pages, pp. 25–26) does not even find a mention of DEAE or CM-cellulose.

(ii) Chapter 8, part I, (pp. 27–30) entitled, 'Gel-filtration chromatography' does not talk about size exclusion chromatography or any of the matrix used in gel filtration chromatography. Surprisingly, the chapter describes polyacrylamide gel electrophoresis (PAGE) and SDS-PAGE, and does not even mention Sephadex or Biogel.

(iii) In the chapter entitled 'Amplification and sequencing of nucleic acids' (chapter 29, part I), shockingly, the nucleic acid sequencing part has been described and completed in just one sentence: 'As the function of nucleic acid is determined by the sequences of the bases within the molecule, the sequencing plays an important role in nucleic acid analysis' (p. 127). Surprisingly, no additional information is provided, neither the principles are described nor any protocols given.

(iv) Chapter 5 on enzymes protocol describes estimation of ~15 random plant enzymes, without assigning any reason for their selection. Between these, the assay procedure for salivary amylase has included plant enzymes, again without any mention of the utility of this enzyme. In the same chapter, the method for assay and purification of alcohol dehydrogenase has been described without providing any *raison d'être*.

(v) The author has not kept track of the changes/modifications that have been introduced in recent times in several procedures. For example, CTAB (cetyltrimethyl ammonium bromide, also known as hexadecyltrimethylammonium bromide) which is most commonly used for plant genomic DNA isolation for the last 25 years, does not find a mention. Similarly, the procedure using Trizol, which is common for the extraction of plant RNA, is also not described.

(vi) In the chapter on amino acids and proteins, suddenly a part appears on casein content of milk and describes gravimetric estimation of casein (p. 245). This part is followed by ammonium sulphate fractionation of proteins (p. 246), without any mention of how much ammonium sulphate has to be added to achieve the desired saturation or the most common ammonium sulphate saturation table/chart.

The lack of professionalism from the author and the publisher is also reflected by the fact that figures in the books are not numbered and most of the figures have been provided without any proper caption or legend.

Overall to me the book appears to be a random collection of a few assorted techniques, which the author might have used or would have become familiar with during his scientifically active years. Some of the information provided on classical techniques are too sketchy. Since the book completely overlooks all modern techniques, it would not be useful in any way to the modern-day students and researchers.

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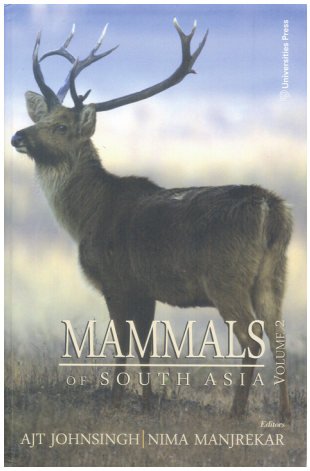
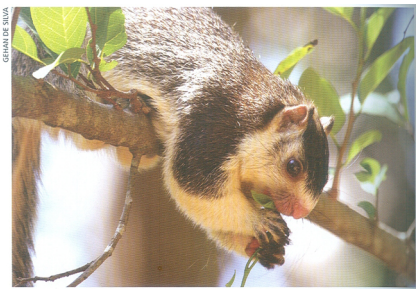


Mammals of South Asia, Volume II. A. J. T. Johnsingh and Nima Manjrekar (eds). Universities Press (India) Private Limited, 3-6-747/1/A & 3-6-754/1, Himayatnagar, Hyderabad 500 029. 2015. lxxv + 739 pages. Price: Rs 1750.

South Asia comprising of India, Sri Lanka, Bangladesh, Pakistan, Nepal, Bhutan, Afghanistan and Myanmar, has a wide array of habitats. As a result, diverse groups of mammals inhabit the region. Globally, this region has the highest human densities and its natural areas are under constant threat, making it one of most important regions for biodiversity conservation. The last two decades have witnessed numerous studies on ecology and conservation, especially on charismatic large mammals. With the advancement of research techniques and robust analytical methods, scientific studies on several elusive species have been made possible. Information from these studies has been summarized and presented in *Mammals of South Asia (Volumes I and II)*, edited by A. J. T. Johnsingh and Nima Manjrekar, two of India's well-known wildlife biologists. While the first volume was released in 2013, the second volume was brought out in April 2015. This review is on Volume II of the book which deals with five orders – Cetacea (dolphins and whales), Proboscidea (elephants), Perissodactyla (equids, rhinoceros and tapirs), Artiodactyla (pigs, deer, chevrotains and bovids), Rodentia (squirrels, porcupine and muroid rodents), and a separate chapter on lesser known mammals. There is also a chapter on diseases and parasites affecting mammals. Beautiful colour pictures, contributed by several wildlife photographers and field biologists are provided in three sections that follow the sequence of chapters in the volume.

At the outset, the superb cover photograph of the majestic barasingha aptly represents major contents of this volume. The book begins with a Foreword by the eminent biologist George B. Schaller, followed by an Introduction written by Johnsingh and P. O. Nameer, describing evolutionary history of mammals, delineating various mammalian orders, which are mainly confined to the region, and their zoogeography. What follows is a marvelous compendium of information put together by several experts. All of the chapters follow similar format with minor variations depending on the available information, and conclude with a



Grizzled giant squirrel (*Ratufa macroura dandolena*) feeding on the tender leaves of *Ficus glomerata*, Sri Lanka.