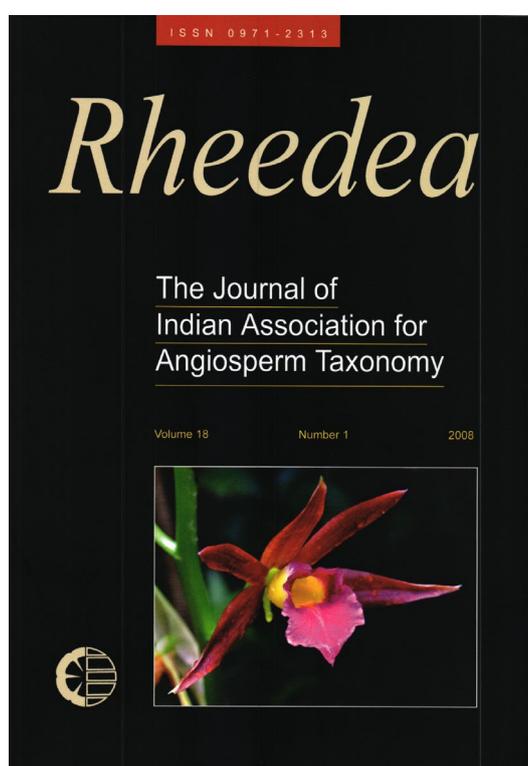




## Book Review: Legumes in India: Applications in Food, Medicine and Industry

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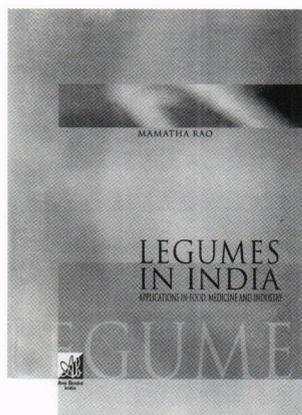
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## Book Reviews

Mamatha Rao 2008

**Legumes in India: Applications in Food, Medicine and Industry**, Ane Books India, New Delhi, ISBN 81-8052-135-4, pages 706. 161 col. figs, tables, Indian Rupees 3995.00



The book "Legumes in India: Applications in Food, Medicine and Industry" is a welcome addition to the monographic studies on important angiosperm taxa. The book, spanning over 706 pages, includes almost all the aspects on legumes. It is divided into two parts. The chapters in the first

part contain economic potential, chemistry, nutritional significance, anti-nutritional factors, toxicants, lectins, lipids, tannins, pigments and dyes, terpenoids and saponins of legumes. The antimicrobial and pesticidal activities and the legumes used in allopathy, ethnomedicine, ayurveda, sidha, unani and homeopathy are narrated next. The role of legume flavonoids in medicine and legumes in management of cancer are the added benefits. The second part of the book contains the information profiles of 719 legume species in India. For each species, botanical name, synonyms, vernacular names, geographical distribution, botanical description, phytochemistry, edibility, medicinal uses, bioactivity, toxicology, clinical studies, uses in alternative systems of medicine, ethnomedicine, medicinal uses outside India and non-medicinal uses are given. Photographs of a number of these plants also are provided.

On the whole, a lot of efforts have gone in the compilation of this voluminous book and the author needs appreciation for this extensive work. It is a welcome addition to any library.

The book is excellent from the point of view of a botanist but for a student of phytochemistry, much

is desired on the treatment on phytochemicals. A few conceptual errors/omissions have crept in in both parts of the book.

- 1 As a book on the chemistry of legumes, I expected detailed discussions on the characteristic compounds of legumes, the isoflavonoids (including pterocarpan, coumestans etc.), neoflavonoids, phytoalexins, lupinane (quinolizidine) alkaloids and a large array of non-protein amino acids. All of them are found missing in the book.
- 2 Flavonoids: These compounds are not "exclusive to higher plants" as reported in page 167. They are present in algae (*Chara*) and the whole of bryophytes and pteridophytes. There are 4000 known flavonoids against 600 reported in the book. Anthocyanins are seen dissolved in cell sap in vacuoles and not in anthocyanoplasts(?) in vacuoles.
- 3 Indole alkaloids: The statement "indole alkaloids are not true alkaloids (pp 12) is wrong. Indole alkaloids are the largest class of true alkaloids possessing a second heterocyclic N atom, 2 carbons removed from  $\alpha$ -position of the indole ring.
- 4 The sentence 'Lipids that are not lipids' in page 158 is confusing. Lipids are a broad term containing saponifiable lipids (fats, oils, waxes etc.) and non-saponifiable lipids (terpenoids—including volatile oils, resins etc.).
- 5 In page 96, consideration of macromolecules such as DNA, RNA and protein as primary metabolites is misleading because they are not directly involved in metabolism. It is their monomers, the nucleotides and amino acids, which are the primary metabolites.
- 6 The enumeration of phytochemicals in individual plants (information profiles—second part) is much unorganized. These compounds are not arranged group wise such as sugars, amino acids, alkaloids, terpenoids etc. and members of each group of compounds are found scattered here and there. In a few cases, group names such as flavonoids, volatile oil, fatty oils, etc. are named as compounds present followed by individual flavonoids, monoterpenes or fatty acids. This treatment causes confusion in readers who look

for biomarkers or active constituents of these plants. A chemist or a biochemist who would like to refer to this book for pursuing research on these plants may not be in position to meaningfully use these unorganised data.

- 7 The detailed explanations on sidha, unani, homoeopathy and chapters 16 and 17 are superfluous and deviate from the central theme of the book.
- 8 Page 169: Catechol included in Flavonoids is not a flavonoid at all.
- 9 Page 169: In anthocyanins it is written that they are replaced by á-cyanin-3 in beet root. But in beet root the red pigments are indolic derivatives,

“Betacyanins”.

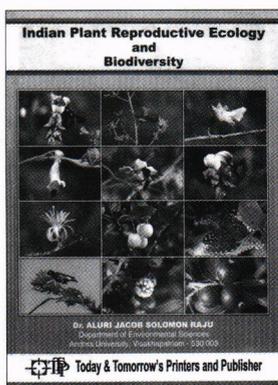
- 10 Page 169: Flavanols are flavan-3-ols and are colourless compounds.
- 11 Page 125: Anthrones are a group of derived anthraquinones and are to be grouped among quinones.

These points, after detailed reference work, may be added as “Errata” and provided along with the book if possible, or else may be corrected when a new edition is brought out. These comments do not, however, reduce the value of this enormous work and again I recommend this book to all libraries.

**M. Daniel** (Vadodara)

A.J. Solomon Raju 2007

**Indian Plant Reproductive Ecology and Biodiversity**, Today and Tomorrow's Printers and Publishers, New Delhi, ISBN 81-7019-441-7 (India), 1-55528-229-1 (USA), pages 383, 45 colour plates, Indian Rupees 2495.00 (US\$ 200.00).



As the author explains in the preface, this book is an attempt to consolidate the available information on reproductive ecology of plants occurring in India. One who goes through this compilation will be surprised to see that out of the 226 taxa worked out so far in India, only 76 species are wild or indigenous and the rest are exotic, cultivated or planted.

Data, in this book, are organised under three major titles: (i) Plant reproductive ecology and biodiversity (pp 1-8), (ii) Family and species wise description of reproductive ecology of Indian plant species (pp 9-266) and (iii) Reproductive ecology of Indian plants—An assessment (pp 267-280). There are three useful

tables (pp 281-304): the first lists out the species investigated for reproductive ecology; the second contains life form, flowering season, time of anthesis, nature of floral sexuality, breeding system and pollinators of species included; the third deals with floral morphological and functional characteristics. The book has 45 colour photoplates and an extensive bibliography containing 427 references (pp 305-326). These are followed by indices to plant and animal names. The work describes (elaborated version of tables 1-3) reproductive ecology of each species based on published literature.

One may wonder why the word biodiversity has crept in in the title of such a work as the word has no relevance in the context of the theme dealt; neither did the author try to make it relevant. The introductory part is too general. It does not explain the importance and discuss the issues of reproductive ecology as expected in a work of this nature. Some portions (components of biodiversity, over exploitation of biological resources etc.) are over stretched. Many points mentioned are not effectively connected to the main theme. Despite these minor flaws, the major part that provides family and species wise description of reproductive ecology is an essential baseline data for anybody who is interested in this field. Moreover, this is the first work