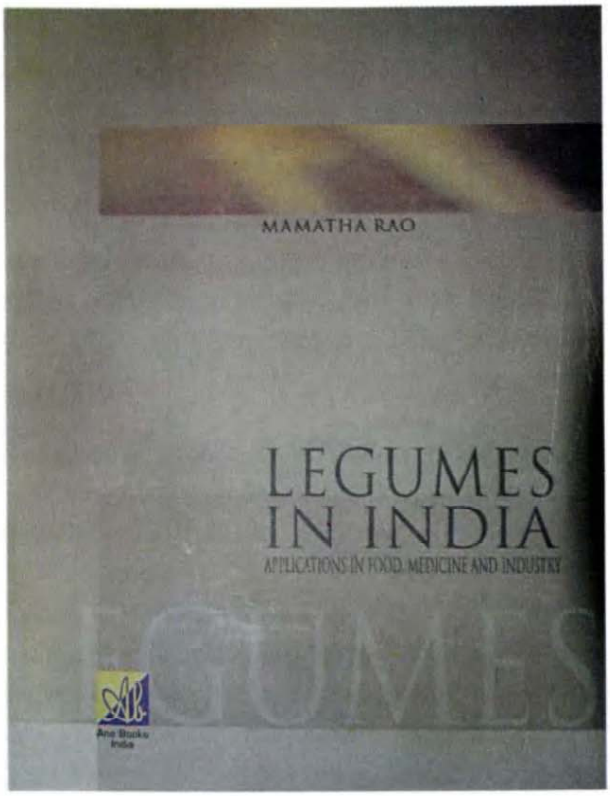
BOOK REVIEW

LEGUMES IN INDIA – APPLICATIONS IN FOOD, MEDICINE AND INDUSTRY - Miss Mamatha Rao, Published by Ane Books India, 4821, Parwana Bhawan, 24 Ansari road, Darya Ganj, New Delhi-110 002. 2008. 705 pp. Price : Rs.3995.00.



The book on **Legumes in India – Applications in Food, Medicine and Industry** by Mrs. Mamatha Rao of Bangalore University is indeed an impressive effort deliberating exclusively on the legume bioresources in the country. Two unrelated hallmark features (seed proteins - vicilin and legumin and nitrogen fixation) set legumes distinctive from other plant groups. The group is represented by 179 genera and 1152 species in India. Indisputably, the economic potential of these species has not been wholly realized, leaving a possibility for researchers to look for their virtues and so also the naturally occurring diverse chemical compounds, those have application potential in the focused areas of the book. The present publication is an attempt to compile available data, recognize gap areas and need to pursue research in the needed gap areas to realize the full potential of these species. The book has 23 chapters under part I. The objective/purpose of every chapter has been clearly stated prior to presenting the relevant data that has made the book more attracted. The first two chapters (Introduction & the Legumes), could have been integrated under one, introduce the group, project the value and significance and also the scope of the work. The second chapter is dealt with the taxonomic treatment, systematic position and distinguishing features between legume families. Red-listed legume species have been included to focus them for conservation. Certain sections are truly interesting; one such is the list of venerated species, relating them to cultures, festivals and Gods with ample notes on religious significance of each of them. Species recognized to symbolize planets, zodiac signs, and birth stars were given. Such a backdrop not only brings in awareness but prompts one to conserve them. Chapter 3 has dealt with the economic uses, and of the 1150 species recorded from India, the author has chosen only 721 of them (Caesalpiniaceae: 125 spp.; Fabaceae: 504 spp. and Mimosaceae: 92 spp.). 18 recognized and popular applications were used in the evaluation of economic potential. The values touched upon include legumes as food, medicine, manure, oils (fatty oils and essential oils), fibers, gums and resins (exudates), tannins (to color fabrics and process hides), dyes, timber, ornamentals, beverages (in preparing them), hosts for lac insect (*Laccifer lacca* Kerr.), in paper industry (as a source of pulp), soap-making (as a source of saponins) and pesticides (glycosides, tannins, terpenoids etc.). The importance of each family for specific uses was given based on the number of species recognized for specific use and the total number of species considered under that family. Many species have multiple uses, the larger the number of uses of certain species, the greater is its economic importance. Frequency index was given based on number of uses of a species against the total number of identified uses. A table (pp. 35 – 62) with details of all 721 species was given separately for the three families signifying their importance with reference to the cited applications. The relative economic importance of different legume families with reference to category of use was also given. This was followed aptly by synonymy of various species cited in the economic potential, to bring in clarity with reference to

names. The author has dealt legume crops (chapter 4) under 7 groups, namely, edible oils, fodder and forage, fiber, pulses, green manure, pastures and vegetable crops and, has further elaborated on cultivars and land races of specific species. Pictures of the seeds *Cajanus cajan, Cicer aeritinum, Glycine max, Lablab purpureus, Macrotyloma uniflorum, Phaseolus vulgaris, Canavalia gladiata* and some others were given to provide a glimpse of the enormous genetic diversity in some edible legume crops. Transgenic varieties of certain species and the virtues they have for adoption were also discussed. The chemistry of legumes (chapter 5) presents a glance of chemical composition, both inorganic and organic compounds such as, nitrogen and phenolic compounds, terpenoids, organic acids etc. Nutritional significance (chapter 6) based on edible portions, moisture, protein, fat, minerals, fibers, carbohydrates, amino acids, vitamins and some inorganic elements was given for c. 100 species. Anti-nutritional factors and toxicants in edible legumes were discussed in chapters 7 & 8 respectively. Deservedly, chapter 9 has dealt with lectins for they being curative tools and chemical markers and presents chemical characterization of seed lectins in 33 species. Chapter 10 has dealt with lipids (oils, fats and waxes), chapter 11 on tannins (useful in medicine and industry) and, Chapter 12 on pigments and dyes. Legumes as source of saponins, used in traditional and modern medicine and also in industrial applications (chapter 14) and, antimicrobial and pesticidal activity (chapter15) were given. A total of 96 uses of various legume species have been identified in ethnomedicine (chapter 17). Species used in indigenous practices such as Ayurveda, Siddha and Unani ((chapters 18-20), and in Homeopathy (chapter 21) were given separately. Compilation of medicinal use of legumes in alternative system of medicine is useful to practioners and to the pharmaceutical industry, the latter can take up studies to identify/isolate the active principles, verify and relate them to claims, and study biosafety and clinical aspects to develop drugs. Chapter 22 deals with legume flavanoids in medicine and chapter 23 is devoted to cancer issues and legume applications. The data documented on Indian legumes in the above chapters is truly voluminous.

Part II presents the information profiles (botanical name, synonyms, common names, vernacular names, geographical distribution, botanical description, phytochemistry, edibility, medicinal use, bioactivity, toxicology, ethnomedicine, non medicinal uses, and source of information on medicinal uses) of legume species of India. 45 species of Caesalpiniaceae, 198 species of Fabaceae and 46 species of Mimosaceae were given with such information. This appears as an appendage but not truly integrated into the chapters presented under part I. The author seem to have preferred not losing out any data in spite of it being not amalgamated into earlier chapters. In summary, the data on economic potential (chapter 3), the information on diverse chemical compounds, their application in different contexts (chapters 5-20), and the species profiles in part II of the book in combination provide an insight into the existing wealth and emerging diversity in economic potential of the Indian legumes. The publication decisively contributes towards a well focused and systematic research on the Indian legumes in the coming years so to enhance their utility. The book has good reference value and people involved in legume research should own a copy.

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