

BOOK REVIEW

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Advances in Medicinal Plant Research by Surya N. Acharya and James E. Thomas (Editors); **Publisher:** Research Signpost, Trivandrum, Kerala, India; **Date of Publication:** February 15, 2007; **Pages** 554; **Format:** Hardcover; **ISBN:** 81-7736-255-0; **Price:** US \$ 258.00

The book entitled “*ADVANCES IN MEDICINAL PLANT RESEARCH*” is a collection of research and review articles from authors involved in diverse aspects of medicinal plants research representing four continents North America, Europe, Australia and Asia. In the words of the two well respected editors of this book from Canada, **Dr S. N. Acharya** (Agriculture and Agri-Food Canada) and **Dr J. E. Thomas** (University of Lethbridge).....*there is a shift in paradigm when it comes to human health from cure to prevention. We want to live a healthy life and try our best to prevent sickness instead of solely relying on pharmaceuticals for curing an illness after the fact. The idea for this book came from the realization that most plant-based nutraceutical products are sold without proper research based information..... Much of the research published on the medicinal value of plants does not take into account variability generated from genetic differences among plants and their interaction with the environment.....Many contributing authors of this book have highlighted the need for evidence-based scientific studies to support health and nutraceutical claims relating to the use of medicinal plants and their extracts. It is only through critical research efforts that we can provide strong endorsements for medicinal plant use and ensure consumer confidence in the industry..... Production of dependable medicinal produce can only be attained if we pay close attention to these research-based principles.*

This volume provides a comprehensive coverage of a number of important medicinal plants/crops and the research into their nutritional, biochemical, pharmaceutical, nutraceutical and agronomic aspects across the globe. The current volume is strongly relevant to the African continent since Africa is the home and the might biodiversity powerhouse of different species rare and endemic medicinal plants many of which are not well known and are grossly under explored. Several of the medicinal plants such Echinacea and fenugreek being discussed in this volume are currently being intensively explored and studied for their nutraceutical properties and are being targeted for the emerging functional food industry of the west. These plants not only have pharmaceutical properties; but now they are explored as natural food supplements to help and add nutritional values to the use and consumption of some medicinal plants as food adjuncts.

Plants like fenugreek can efficiently reduce blood cholesterol and blood sugar levels in both animal models as well as humans. So when they are carefully incorporated as supplements to regular food and feed they have tremendous positive impacts on long term health implications in both humans and animals. Moreover cultivation of medicinal plants can be conducted on a sustainable basis and will not only add of agriculture but will constitute parts of nutritional intake by the cultivation of medicinal plants. I sincerely believe that these kinds of research works discussed in this volume will further attract many African researchers, students, scholars, academicians and clinical nutrition researchers and traditional and modern medical practitioners in developing a common platform and carry out detailed investigating on the pharmaceutical, nutraceutical, functional food aspects of indigenous African medicinal plants and may be lead to further research collaborations among researchers in North America, Asia and Europe. Africa is the home of huge number of medicinally important plants; cultivation of medicinal plants on a regular basis could help in fetching additional incomes by cultivating medicinal plants on marginal lands or otherwise unsuitable agricultural tracts that could not be efficiently used for generating food crops since the agronomic inputs for several medicinal crops are low. Many commonly known fruit, forages, spices and vegetable species described here have been investigated totally from health and clinical nutrition perspective as antimicrobial, anti-carcinogenic and antioxidant agents. Overall the package included in this volume has attractive materials for African researchers to further investigate and explore and establish their own niche in the global pharmaceutical, nutraceutical and functional food industries.

This critical aspect of the book makes it stand out among an ocean of similar titles published every year all across the globe. Although medicinal plants do constitute a significant part of research contributions every year; an important missing aspect of those studies is that none of the researchers seem to identify or appreciate the genetic variability of the plants/crops involved. This book correctly emphasises the importance of genetic variability and genotype X environment interactions on medicinal properties of the plants/crops cultivated/studied/investigated all across the globe. Hence a specific cultivar with significant health effect due to important chemical(s) may or may not be equally effective when grown in another location(s) or bio-geographic zone(s) and hence is the need of developing locally adapted cultivars for specific locations to optimize health attributes. It is this important message that is missing in all other similar and commonly available titles that the editors with genetics background have been so successful in highlighting in the current book.

The present book has an exhaustive coverage of a number of medicinal plants or plants with potential pharmaceutical and nutraceutical properties. The crops included in the book are diverse and are traditionally grown as oilseed crops, forages, cereals, vegetables, ornamentals, fibre yielding crops and native plants that have the potential of developing into medicinal plants. The book also gives extensive coverage to traditional medicinal plants all across the globe with special emphasis to those from the Indian subcontinent, European Union, Central Asia, Australia and the Americas. There are chapters dealing with methods that can be used for genetic improvement of

nutraceutical properties of the existing crops as well as those involving detailed chemical and bio-chemical/molecular analyses, genetic studies, pathological and pharmaceutical investigations. Each chapter included in this volume is associated with well illustrated summary tables and graphs highlighting key results, important pathways, schematic catalytic conversions, complex biochemical reactions involving key pharmaceutically important chemicals, their degradation, metabolism patterns in human and animal models, extensively detailed images and an excellent but comprehensive list of literature consulted that will of special interest to related researchers. In the words of the editors.....*The authors have incorporated salient information from the literature as well as their personal research experiences.... The book chapters contain reviews of research progress in medicinal and functional food aspects of cannabis, Echinacea, fenugreek, rosemary, marigold, native Australian plants, Indian spices, as well as the effect of plant components on human and other animal health.*

The editors have done an excellent job in bringing together a large number of researchers from diverse fields and different continents and unified them together under a common banner of modern medicinal plant research. All though a few repetitions have been observed in some common aspects and plants in couple of chapters, this has not reduced readability of the entire book. Overall, the book has been a reader's delight, with excellent coverage of plant breeding, agronomy, biochemistry, pharmacy, special products chemistry, molecular biology, plant and crop physiology, genetics and cell biology. The book deals with new aspects of older crops. For example fenugreek a traditional spice and forage species have been described as a novel nutraceutical crop and the two chapters (Chapters 5 & 20) dealing with this crop are an absolute delight to read. It was also interesting to note the medicinal values of some common crops cannabis (Chapter 1), Echinacea (Chapters 2 & 20), tomato (Chapter 3), soybean (Chapter 4), forage crops like red clover (Chapter 6) and alfalfa (Chapter 7), and other plants such as rosemary (Chapter 8), marigold (Chapter 9), green tea (Chapter 11) and a common food mushrooms (classified as fungus) (Chapter 10). Modern biotechnological applications in improving the quality of medicinal plants (Chapter 15), genetic modifications of oil seeds (Chapter 16) and coverage of plant chemicals and nutrients from the perspective of human and animal health presented in Chapters 17-19 along with excellent summary tables and flow charts deserve special mention as they demonstrate the depth of the coverage of the subject matter. It was also interesting to go through the details of the medicinal plants and their properties from Thailand (Chapter 13) and Australia (Chapter 12) and the Indian subcontinent (Chapter 14). The only missing gap I observed was the absence of coverage of plants from the African and south American continents. I hope the editors will consider coming up with a future volume with articles highlighting the plants from these regions.

Both the editors **Acharya** and **Thomas** have done an excellent but pain stacking job of putting together this diverse volume filling in thereby a void of much needed resource for scholars in the areas of medicinal plant research. The editors deserve special credit for accommodating a global coverage of a rapidly expanding and continuously changing research field with great care and devotion. The editors have mentioned in

the preface that.....*this book is devoted to topics that focus on advances in research related to medicinal plants and methods available to use them and their extracts. The book is truly a collaborative effort of a number of well known researchers..... We believe that the content of the book will inspire readers to broaden their research interests, and encourage more widespread use of medicinal plants in our daily diets as a proactive means of maintaining healthy and productive lives.* This volume will be of great help to under graduate and graduate level students in Genetics, Agriculture, Phyto-Chemistry, Biochemistry, Pharmacy, Pharmacology, Plant Physiology and Crop Development. This is indeed an excellent reference material for plant researchers and to those involved in the fields of Clinical Nutrition, Animal Nutrition, Plant Breeding, Plant Chemistry and to personnel associated with Pharmaceutical, Nutraceutical and Functional Food Industry.