



Folk Herbal Medicine and Drug Discovery

S.S. Katewa



 **SCIENTIFIC**
PUBLISHERS (INDIA)

Folk Herbal Medicine and Drug Discovery

Dr. S.S. Katewa Ph.D; FES

Professor

Department of Botany

Mohanlal Sukhadia University

Udaipur (Rajasthan)

Published by:

Scientific Publishers (India)
5 A, New Pali Road, P.O. Box 91
Jodhpur 342 001 (India)

E-mail: info@scientificpub.com
Website: www.scientificpub.com

Branch Office
Scientific Publishers (India)
4806/24, Ansari Road, Daryaganj
New Delhi - 110 002 (India)

© 2012, Katewa, S.S.

All rights reserved. No part of this publication or the information contained herein may be reproduced, adapted, abridged, translated, stored in a retrieval system, computer system, photographic or other systems or transmitted in any form or by any means, electronic, mechanical, by photocopying, recording or otherwise, without written prior permission from the author and the publishers.

Disclaimer: Whereas every effort has been made to avoid errors and omissions, this publication is being sold on the understanding that neither the author nor the publishers nor the printers would be liable in any manner to any person either for an error or for an omission in this publication, or for any action to be taken on the basis of this work. Any inadvertent discrepancy noted may be brought to the attention of the publishers, for rectifying it in future editions, if published.

ISBN: 978-81-7233-776-6

Printed in India

Dr. S.K. Jain

Ph.D., F.N.A., F.N.A.Sc., F.B.S.,
F.L.S., F.A.P.T., F.E.S., F.I.T.E.

26 A-Avas Vikas Colony,
Mall Avenue Colony
Lucknow 226001
Ph- 0522-2235474

Ex Director, Botanical Survey of India,
INSA, Honorary Scientists

FOREWORD

The present Volume contains 24 papers carefully selected by the Editors from a large number of contributions at the International conference on ethnobotany, and herbal drugs, drug discovery and related subjects held at Udaipur in the year 2010. In a way, it represents salient proceedings of the Conference.

Useful therapeutic substances from natural products have been the main source of medicines curing human and animal health disorders from time immemorial. Till recent, all herbal cures had their origin in folklores, which in turn were based on keen observations of forest dwellers, shepherds and herdsmen on birds and animals; the latter, by some curious and yet less understood intuition chose what to eat, and what to avoid. Birds and other animals also gave indication of plants helpful in their ailments. Early man tried with his own discretion and wisdom as also by trial and error these early leads on his fellowmen, and after long trial and error method must have gradually become selective about herbs for particular ailments. This in turn was the birth of our organized indigenous systems of medicines.

Remarkable advances on the one hand in diagnostic methods, and on the other, in researches took medical science from crude drug level to molecules and capsules and pills of today.

The papers in this volume deal with a large variety of topics like biological activities and aspects of herbal drug research, such as anticancer, antidiabetic, anti-ischemic, antimicrobial, ethnomedicine, ethnopharmacology, pharmacognostic, and phytochemistry.

The editors have put the papers under two broad themes, namely: **1. Pharmacology of Natural Plant Products, and 2. Traditional knowledge and Biodiversity Conservation.**

The first theme has 15 papers, and the second has 9 papers.

Three aspects need special mention:

1. Interest of many young research workers, such as papers by Bukola Adenubi, Jayson Wau, Vartika Jain, and Hitesh Singhania ensure continuity and bright future of this thrust area of research.
2. Many papers from overseas scientists provide opportunity to evaluate some aspects of this topical subject at global level.
3. Some allied aspect like nutraceuticals, social aspect of collaborative research and conservation add to value of the volume.

The conference and its proceedings remind of the symposium organized by Ciba (now Novartis) about 15 years ago in Brazil on "Ethnobotany and search for new drugs".

Finally, Prof. S.S. Katewa and his team deserve appreciation for not only very successfully organizing the Conference, but more so for bringing out the proceedings with a years time.

I am sure, this volume will find place in all R&D institutions related with plant sciences as also human health.

S.K. Jain

PREFACE

The system of medicine practiced by the traditional folkhealers and medicinemen has been called as the “Folklore Medicine” which is also a part of the “Traditional Medicine” practiced in India in the name of “Ayurveda” and “Siddha” and in other names in various part of world. It is so called because the information about medicinal properties of plants came down traditionally through several generations of experience and through trial and error by the primitive men-the folklore living in the remote forest and villages. They from their experience knew that a particular plant extract had a useful drug effect and passed on that information orally to their descendants. Usually folkloric information comes from person who have no formal training or apprenticeship in a recognized system of medicine.

Although, traditional medicine flourished in India for quite a long time yet for a while it was subdued under the impact of modern medicine. With the coming of chemical revolution in world and boom of synthetic products including the synthetic medicines, the faith in and the popularity of Traditional Herbal Medicine gradually declined. But as science revealed the great hazards of synthetic medicines on human health combined with their high cost which is beyond the reach of common people the Traditional Herbal Medicine has once again started gaining importance all over the world but specially in the developing countries.

History is evidence of the fact that many valuable drugs of our modern medicine have been discovered by knowing that a particular plant was used by the ancient folkhealers in one or more of the ancient cultures of world for the treatment of some kinds of ailments and information that a plant was used by the traditional healers of ancient civilization is often an indication that it is worth scientific study today. Thus, we cannot longer afford to ignore reports of any aboriginal use of a plant merely because they seem to fall beyond the limits of our credence. To do so would be tantamount to the closing of a door, forever to entomb a peculiar kind of native knowledge; which might lead us along paths of immeasurable progress.

Many wild plants used in the traditional medicines of tribal and other such communities are important sources of biodynamic compounds. Chemical and pharmacological investigations of such plants are important for the discovery of new therapeutic agents. The continued emergence of many wonder drugs discovered during the last fifty years indicates the still untouched material wealth of unknown medicinal value found in plants employed in tribal medicine.

Keeping above facts in mind and to promote the folk herbal medicine at international level, an “International Conference on Folk and Herbal Medicine” was organized at Udaipur in 2010 as areas around this city are known for tribal habitats.

After organization of this mega international academic event, it was felt that a proceeding of the conference has to be brought out as early as possible. However, it got delayed due to various reasons for which I really feel sorry and tender my apology to all concerned.

The volume contains 24 research papers by eminent authorities in their fields under two major theme groups, namely- “Pharmacology of Natural Plant Products” and “Traditional Knowledge and Biodiversity Conservation”.

I am heartily thankful to the eminent scientists who responded to our request and sent their valuable contributions. Financial support for the conference was provided by several agencies, particularly Department of AYUSH, DST, DBT, UGC, Maharana Mewar Charitable Foundation, Udaipur, CSIR, INSA, DST, Govt. of Rajasthan and INSA. The organizers are thankful to all of them.

The conference was unique in having participation and interaction of indigenous healers (Gunnis) with international scientific community and very good participation of young scientists and research scholars from India and abroad.

S. S. Katewa

Contents

Theme I Pharmacology of Natural Plant Products

- | | | |
|---|--|-----|
| 1 | Traditional and modern medicines from Fungi
— Cedric J. Pearce and Nicholas H. Oberlies | 1 |
| 2 | <i>Tribulus terrestris</i> L. and <i>Smilax</i> species – Chemistry and bioactivity
— I. Kostova, D. Dinchev and A. Ivanova | 12 |
| 3 | Evaluation of the toxic effect of aqueous extract of the bark of <i>Morinda morindoides</i> root in male Wistar rats
— Olukunle, J.O., Abatan, M.O., Adenubi, O.T., Ajayi, O.L. and Thomas F.C | 33 |
| 4 | Molecular basis for anticancer and adjunctive therapeutic potential of Thymoquinone in oncologic disease
— Sanjeev Banerjee, Mansi Parasramka, Fazlul H Sarkar and Ramzi M Mohammad | 45 |
| 5 | Antimicrobial guided isolation of three bioactive constituents from <i>Ficus botryocarpa</i> Fruit Latex
— J.S. Wau, A.H. Harakuwe, S. Akoitai, D. Timi, H. Sakulas, R. Gubag-Sipou and P. Wangiwan | 66 |
| 6 | Supercritical fluids technology in new herbal drug discovery
— Vimal Kumar | 70 |
| 7 | Anti-ischemic effect of <i>Ginkgo biloba</i> extract: facts and myths
— Jan Lehotsky, Martina Pavlikova, Maria Kovalska, Stanislav Straka and Peter Kaplan | 80 |
| 8 | Scientific validation of the anticancer activity of the <i>Alstonia scholaris</i> Linn.
— Manjeshwar Shrinath Baliga | 106 |

3	Creation of a sustainable economic and social business model between Senna-producing villagers in the Thar Desert and a California herbal product company	— Josef A. Brinckmann	212
4	Ethnomedicine and discovery of drugs in Indian context: An overview	— N. C. Shah	222
5	Ethnomedicine in drug discovery - Let history tell the future	— Pulok Mukherjee, Neelesh K. Nema, S. Pandit, P. Venkatesh, S. Bhadra and Kakli Mukherjee	235
6	Ethnomedicine: A potential resource for some typical health ailments of global concern	— Tribhubana Panda	247
7	<i>In situ</i> conservation of medicinal plants in Rajasthan	— Satish Kumar Sharma, Anita Jain and S.S. Katewa	255
8	Ethnomedicinal plants and practices of Coastal Karnataka	— M.J. Bhandari and K.R. Chandrashekar	265
9	Ethnomedicinal practices of Nyishi (Daffla) tribe of Arunachal Pradesh	— R.C. Srivastava	280
	Subject Index		290

Theme I

Pharmacology of Natural Plant Products

