



Traditional Herbal Medicines for Modern Times

Rasayana

Ayurvedic Herbs for Longevity and Rejuvenation

H. S. Puri



CRC Press

Taylor & Francis Group

A TAYLOR & FRANCIS BOOK

Rasayana

Traditional Herbal Medicines for Modern Times

Each volume in this series provides academia, health sciences and the herbal medicines industry with in-depth coverage of the herbal remedies for infectious diseases, certain medical conditions or the plant medicines of a particular country.

Edited by Dr Roland Hardman

Volume 1

Shengmai San, edited by Kam-Ming Ko

Volume 2

Rasayana, by H.S. Puri

Rasayana

Ayurvedic herbs for longevity
and rejuvenation

H.S. Puri



CRC Press

Taylor & Francis Group

Boca Raton London New York

CRC Press is an imprint of the
Taylor & Francis Group, an **informa** business
A TAYLOR & FRANCIS BOOK

Published 2003 by CRC Press
Taylor & Francis Group
6000 Broken Sound Parkway NW, Suite 300
Boca Raton, FL 33487-2742

© 2003 by Taylor & Francis Group, LLC
CRC Press is an imprint of Taylor & Francis Group, an Informa business

No claim to original U.S. Government works

ISBN 13: 978-0-415-28489-9 (hbk)

This book contains information obtained from authentic and highly regarded sources. Reasonable efforts have been made to publish reliable data and information, but the author and publisher cannot assume responsibility for the validity of all materials or the consequences of their use. The authors and publishers have attempted to trace the copyright holders of all material reproduced in this publication and apologize to copyright holders if permission to publish in this form has not been obtained. If any copyright material has not been acknowledged please write and let us know so we may rectify in any future reprint.

Except as permitted under U.S. Copyright Law, no part of this book may be reprinted, reproduced, transmitted, or utilized in any form by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying, microfilming, and recording, or in any information storage or retrieval system, without written permission from the publishers.

For permission to photocopy or use material electronically from this work, please access www.copyright.com (<http://www.copyright.com/>) or contact the Copyright Clearance Center, Inc. (CCC), 222 Rosewood Drive, Danvers, MA 01923, 978-750-8400. CCC is a not-for-profit organization that provides licenses and registration for a variety of users. For organizations that have been granted a photocopy license by the CCC, a separate system of payment has been arranged.

Trademark Notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

Visit the Taylor & Francis Web site at
<http://www.taylorandfrancis.com>

and the CRC Press Web site at
<http://www.crcpress.com>

Typeset in 11/13pt Garamond 3 by Graphicraft Limited, Hong Kong

British Library Cataloguing in Publication Data
A catalogue record for this book is available from the British Library

Library of Congress Cataloging in Publication Data
A catalog record has been requested

Contents

<i>Foreword</i>	viii
<i>Preface to the series</i>	xii
<i>Preface</i>	xv
1 Introduction	1
2 What are <i>Rasayana</i> ?	4
3 <i>Tridosha</i>	10
4 <i>Rasayana</i> preparations	13
5 Aak (<i>Calotropis</i> spp.)	16
6 Akrakara (<i>Anacyclus pyrethrum</i>)	20
7 Amalaki (<i>Phyllanthus emblica</i>)	22
8 Anantmul (<i>Hemidesmus indicus</i>)	43
9 Ashwagandha (<i>Withania somnifera</i>)	46
10 Badam (<i>Prunus amygdalus</i>)	59
11 Bala (<i>Sida</i> spp.)	64
12 Banslochan	71
13 Bhalatak (<i>Semecarpus anacardium</i>)	74
14 Bhringraj (<i>Eclipta prostrata</i>)	80
15 Bhuiamla (<i>Phyllanthus</i> spp.)	86
16 Brahmi (<i>Bacopa monnieri</i>)	94
17 Chitrak (<i>Plumbago zeylanica</i>)	98
18 Chuara (<i>Phoenix dactylifera</i>)	102
19 Draksha (<i>Vitis vinifera</i>)	105
20 Gaduchi (<i>Tinospora cordifolia</i>)	107
21 Gokshru (<i>Tribulus terrestris</i>)	116

vi *Contents*

22	Guggal (<i>Commiphora wightii</i>)	124
23	Haritaki (<i>Terminalia chebula</i>)	135
24	Hing (<i>Ferula foetida</i>)	141
25	Jaiphal and Javitri (<i>Myristica fragrans</i>)	144
26	Kabab Chini (<i>Piper cubeba</i>)	147
27	Kalmegh (<i>Andrographis paniculata</i>)	151
28	Kawanch (<i>Mucuna pruriens</i>)	157
29	Keshar (<i>Crocus sativus</i>)	164
30	Kikar (<i>Acacia nilotica</i>)	170
31	Kuchla (<i>Strychnos nux vomica</i>)	175
32	Kulanjan (<i>Alpinia galanga</i>)	180
33	Kutaki (<i>Picrorhiza kurrooa</i>)	184
34	Kuth (<i>Saussurea Spp.</i>)	190
35	Malakangani (<i>Celastrus paniculatus</i>)	196
36	Mandukparni (<i>Centella asiatica</i>)	200
37	Mundi (<i>Sphaeranthus indicus</i>)	209
38	Musli (<i>Curculigo orchoides</i>)	212
39	Neem (<i>Azadirachta indica</i>)	215
40	Peepali (<i>Piper longum</i>)	219
41	Punernava (<i>Boerhavia diffusa</i>)	227
42	Pushkarmul (<i>Inula racemosa</i>)	233
43	Salai Guggal (<i>Boswellia serrata</i>)	237
44	Salep (<i>Orchis latifolia</i>)	242
45	Semal Musli (<i>Bombax ceiba</i>)	247
46	Shankhpushpi (<i>Convolvulus pluricaulis</i>)	250
47	Shatawari (<i>Asparagus racemosus</i>)	255
48	Som Ras (<i>Amanita muscaria</i>)	262
49	Sonth (<i>Zingiber officinale</i>)	265
50	Talamkhana (<i>Hygrophila spinosa</i>)	270
51	Tulsi (<i>Ocimum tenuiflorum</i>)	272
52	Vacha (<i>Acorus calamus</i>)	281
53	Vata Vriksh (<i>Ficus spp.</i>)	289

Contents vii

54 Vatsnabh (<i>Aconitum</i> spp.)	295
55 Vibhitaki (<i>Terminalia bellirica</i>)	299
56 Vidari Kand (<i>Pueraria tuberosa</i>)	303
57 Vidhara (<i>Argyreia speciosa</i>)	309
58 Some <i>Rasayana</i> formulations	312
<i>Index</i>	337

Foreword

Ayurveda, the Ancient Science of Hindus and Indians, dates back about 7000 years. It has eight branches, one of which is *Rasayana Tantra*. The word *rasayana* literally means the path that *rasa* takes (*rasa*: the primordial tissue or plasma; *ayana*: path) (*Charaka*). It is also considered as the science which restores youth, alleviates suffering (diseases) and bestows longevity (*Sushruta*). It is believed in Ayurveda, that the qualities of the *rasa-dhatu* influence the health of other *dhatus* (tissues) of the body. Hence, any medicine that improves the quality of *rasa* are called as *rasayanas*, resulting in the strengthening or promoting of the qualities and health of all tissues of the body. These *rasayana* plants are said to possess the following properties:

- Prevent ageing
- Re-establish youth
- Strengthen life
- Strengthen brain and mind
- Prevent disease
- Promote healthy longevity

Rasayana Tantra appears to have been practiced as an independent clinical discipline primarily as a positive health medicine. With the passage of time this important branch of knowledge has ceased to be in practice (except the knowledge and use of a few herbs) in its appropriate form. Comprehensive efforts are needed to revive this useful discipline for the welfare of humanity at large.

The ability to adapt to a given habitat is a distinctive feature of all living organisms. Any type of demand (external or internal) in this habitat elicits either a specific or non-specific response (Selye,1983). This non-specific response to any demand has been defined as *stress* and the demand as *stressor* by Hans Selye. As per his description there are three stages of response to any given situation of stress, which together constitute the *general adaptation syndrome* (GAS) (Selye,1946), the stages being a) alarm reaction b) resistance and c) exhaustion. Thus, the ability to develop resistance and to maintain it is crucial for coping with a variety of stressors encountered in human life. The desire to control the coping mechanisms has led to the origin of the *science of adaptation*. The branch of Ayurveda which deals with the *science of adaptation* is called *Rasayana Tantra*. Ayurveda may not coin the term *adaptogen*, but those practices, or substances / herbs / medicines which help a person cope with his day to day stresses are known in Ayurveda as *Rasayanas*. Modern research has proved that herbs listed as *Rasayanas* possess *adaptogenic properties* as well (Dahanukar, 1986.).

All of the above imply that they improve and increase the resistance of the body. The scientific studies carried out on most of the *rasayana* herbs showed that these

plants non-specifically activated the reticuloendothelial system (RES) and other components of the immune system as well (Dahanukar, 1986). Knowing that the central nervous system, endocrine system and the immune system participate in intense cross-talk (Ader *et al.*, 1990; Glaser and Kiecolt-Glaser, 1994), it was easy to hypothesize that by acting on the immune system these *rasayanas* could exert broad-based effects by initiating a massive cascade of events involving various neurotransmitters, hormones and amines of the stress response cycle.

With the emerging science of ecogenetics, it is becoming evident that genetic predisposition can alter responses to the external environment. However, at present most of the data is on diseases, which manifest in genetically predisposed persons on exposure to the external stressors. Can *rasayanas* (or adaptogens or immunomodulators) influence genetic control and favour the maintenance of homeostasis in stressful situations? The research on *Amruta* (*Tinospora cordifolia*) opens up a new vision in this direction, as early experiments have shown that it increases the bone marrow proliferative fractions leading to leucocytosis. A slight increase in dose reverses this process and inducing *apoptosis*, and this apparent paradox was believed to be because of its effect on c-myc, a gene that causes both proliferation as well as induces apoptosis depending on the environment. These are some of the recent advances seen in the field of *rasayana drugs*. Looking at it it appears that *rasayana* herbs act as:

- an adaptogen
- an immunostimulant
- an immunomodulator
- pro-host probiotic
- anti-mutagenic

But Ayurveda has much more in it to be included under *rasayana therapy*. Looking at only a few herbs will be doing an injustice to the holistic approach of Ayurveda, hence a brief description of *Rasayana Tantra* may be necessary here.

According to Ayurvedic concept *rasayana therapy* simultaneously affects the body and the mind and bring about physical and psychic improvement. This therapy prevents the effects of early ageing, develops intelligence and increases the body-resistance against diseases.

Rasayana means vitalizing / rejuvenating. In the words of *Charaka* with a *rasayana*, one obtains longevity, regains youth, vitality and vigour, gets a sharp memory, intellect and freedom from diseases, gets a lustrous complexion and the strength of a horse. Sushruta is more specific, describing a *rasayana* as one which, is anti-ageing, increases life-span, promotes intelligence and memory and increases resistance to disease.

Any drug, diet or conduct that leads to the replenishment of the *dhatus* and enlivens the body and mind is *rasayana*. *Rasayana* not only rejuvenates the body and mind, it also prevents disease. There are a number of drugs/materials described which possess the qualities of maintaining health, prolonging life and warding off diseases. They are all grouped as *rasayana* in Ayurveda. A close look at the concept of *rasayana* of Ayurveda and various research findings on *rasayana* suggests that *rasayana therapy/drug* may have its effect on our *ojas*, immunity, resistance, etc. Hence the following points related to the concept of *resistance, immunity* as described in Ayurveda may be useful:

1. The qualitative, quantitative and functional balance of the body-elements maintains strength which, in general, causes resistance to diseases. *Raktam* (Blood) has

x *Foreword*

- been attached much importance because it's normal condition reflects good health and general resistance power.
2. Ayurveda has described a separate substance named *ojas* which has been said to be the essence of all the *dhatus* and is considered to be an excellent body element. Therefore, the excellence of the body in totality is *ojas*. It reflects the excellent performance of the man as a whole. Therefore, resistance power of the body depends on the quality and quantity of *ojas*.
 3. Bala (strength or power) has been classified as *sahaja* (natural, hereditary), *kakarita* (variable as per age and season) and *yuktikrita* (acquired by good diet, drug and exercise etc.). This is why some families have a specific resistance to specific diseases; some diseases are born in a specific age and season and generally speaking those, who are well built, fall less ill.
 4. Again the *bala* (resistance) has been divided into *vyadhi pratibandhakatwa* and *vyadhi bala virodhitwa* bala. The former is the specific resistance against a specific disease so that those diseases will never afflict the man. Today, vaccines substitute this type of resistance. The latter does not stop the onset of the disease but can only minimise its severity. In another context it has been said that the overweight or emaciated, those of weak build, who have a deficient diet and who are mentally weak, are more susceptible to disease (Ch.Su.28/7).

There are various ways of classifying *rasayana therapy* in Ayurveda. They are basically either based on the method of administering the *rasayana* therapy, such as *kutipravesika* (indoor) or *vataaatapika* (outdoor); or based on the effect. *Kaamya* (invigorating and vitalizing), *medhya* (promoting intellectual factors), *achara* (address psycho-somatic activities), *naimittika* (used to promote resistance against disease following illness) and *vrishya* (virilifying or sex-stimulant). Also remember that *Rasayana Tantra* is one of the eight branches (Asthanga Ayurveda) of Ayurveda. And, before administering *rasayana* the individual needs to undergo the *shodana/panchakarma* (purification therapy) process. *Kaya-kalpa* is nothing but another name for *rasayana*.

The importance of Ayurveda in countries outside of India continues to increase. In order to meet the demand in the United Kingdom for qualified personnel, there has been established, for the first time in the UK, a first degree course in the subject at Thames Valley University. It is a three-year degree course with the opportunity afterwards for continuing the course in India for a fourth year at Kottakal (or Manipal University). This degree course is run in conjunction with the world's first Charitable Ayurvedic Hospital outside of India and Sri Lanka which is based in London.

In the light of the extreme importance of *rasayana* in Ayurvedic therapy it is appropriate that Dr Harsharnjit Puri's book on *rasanaya* is being published by Taylor & Francis. I congratulate him on producing this excellent reference book with detailed explanations on the activity of each drug.

However, as a persistent defender of the intellectual property and patent rights of Ayurvedic doctors and Indian Ayurveda, I hope that this book will be read by those with a spirit of learning and not as a commercial tool for attempts to synthesize these medicines or for using them as herbs in non-Ayurvedic traditions.

Gopi Warrier
Chairman
Ayurvedic Charitable Hospital
British Ayurvedic Medical Council

References

- Ader R, Felten D and Cohen M (1990). Interactions between the brain and the immune system, Ann. Rev. Pharmacol. Toxicol. (pp. 30, 561–602.)
- Dahanukar, S A (1986). Study of influence of plant products on Adaptive Processes, PhD thesis, Dept of Pharmacology and therapeutics, University of Mumbai, Mumbai.
- Dahanukar, S A, Nirmala M Thette, Nirmala N Rege (1999). Immunomodulatory Agents from plants, ed. By M Wagner, Birkhäuser Verlag Basel / Switzerland, pp. 289–323.
- Glaser R and Kiecolt, Glaser J (1994). Handbook of human stress and Immunity, Academic Press, San Diego.
- Selye H (1946). General adaptation syndrome and diseases of adaptation. J Clin Endocrinol. 6, pp. 117–230
- Selye H (1983). The stress concept: past, present, and future, In, Stress Research, Issues for the Eighties, ed. By C L Cooper, (pp.1–21) John Wiley & Sons, New York.

Preface to the series

Global warming and global travel are among the factors resulting in the spread of such infectious diseases as malaria, tuberculosis, hepatitis B and HIV. All these are not well controlled by the present drug regimes. Antibiotics too are failing because of bacterial resistance. Formerly less well known tropical diseases are reaching new shores. A whole range of illnesses, for example cancer, occur worldwide. Advances in molecular biology, including methods of *in vitro* testing for a required medical activity give new opportunities to draw judiciously upon the use and research of traditional herbal remedies from around the world. The re-examining of the herbal medicines must be done in a multidisciplinary manner.

Since 1997 twenty volumes have been published in the Book Series **Medicinal and Aromatic Plants – Industrial Profiles**. The series continues. It is characterised by a single plant genus per volume. With the same Series Editor, this new series **Traditional Herbal Medicines for Modern Times**, covers multi genera per volume. It accommodates for example, the Traditional Chinese Medicines (TCM), the Japanese Kampo versions of this and the Ayurvedic formulations of India. Collections of plants are also brought together because they have been re-evaluated for the treatment of specific diseases, such as malaria, tuberculosis, cancer, diabetes, etc. Yet other collections are of the most recent investigations of the endemic medicinal plants of a particular country, e.g. of India, South Africa, Mexico, Brazil (with its vast flora), or of Malaysia with its rainforests said to be the oldest in the world, etc.

Each volume reports on the latest developments and discusses key topics relevant to interdisciplinary health science research by ethnobiologists, taxonomists, conservationists, agronomists, chemists, pharmacologists, clinicians and toxicologists. The Series is relevant to all these scientists and will enable them to guide business, government agencies and commerce in the complexities of these matters. The background to the subject is outlined below.

Over many centuries, the safety and limitations of herbal medicines have been established by their empirical use by the *healers* who also took a holistic approach. The *healers* are aware of the infrequent adverse affects and know how to correct these when they occur. Consequently and ideally, the pre-clinical and clinical studies of a herbal medicine need to be carried out with the full cooperation of the traditional healer. The plant composition of the medicine, the stage of the development of the plant material, when it is to be collected from the wild or when from cultivation, its post-harvest treatment, the preparation of the medicine, the dosage and frequency and much other essential information is required. A consideration of the intellectual property rights and appropriate models of benefit sharing may also be necessary.

Wherever the medicine is being prepared, the first requirement is a well documented reference collection of dried plant material. Such collections are encouraged by organisations like the World Health Organisation and the United Nations Industrial Development Organisation. The Royal Botanic Gardens at Kew in the UK is building up its collection of traditional Chinese dried plant material relevant to its purchase and use by those who sell or prescribe TCM in the UK.

In any country, the control of the quality of plant raw material, of its efficacy and of its safety in use, are essential. The work requires sophisticated laboratory equipment and highly trained personnel. This kind of *control* cannot be applied to the locally produced herbal medicines in the rural areas of many countries, on which millions of people depend. Local traditional knowledge of the *healers* has to suffice.

Conservation and protection of plant habitats is required and breeding for biological diversity is important. Gene systems are being studied for medicinal exploitation. There can never be too many seed conservation *banks* to conserve genetic diversity. Unfortunately such banks are usually dominated by agricultural and horticultural crops with little space for medicinal plants. Developments such as random amplified polymorphic DNA enable the genetic variability of a species to be checked. This can be helpful in deciding whether specimens of close genetic similarity warrant storage.

From ancient times, a great deal of information concerning diagnosis and the use of traditional herbal medicines has been documented in the scripts of China, India and elsewhere. Today, modern formulations of these medicines exist in the form of e.g. powders, granules, capsules and tablets. They are prepared in various institutions e.g. government hospitals in China and Korea, and by companies such as Tsumura Co. of Japan with good quality control. Similarly, products are produced by many other companies in India, the USA and elsewhere with a varying degree of quality control. In the USA, the dietary supplement and Health Education Act of 1994 recognised the class of physiotherapeutic agents derived from medicinal and aromatic plants. Furthermore, under public pressure, the US Congress set up an Office of Alternative Medicine and this office in 1994 assisted the filing of several Investigational New Drug (IND) applications, required for clinical trials of some Chinese herbal preparations. The significance of these applications was that each Chinese preparation involved several plants and yet was handled as a *single* IND. A demonstration of the contribution to efficacy, of *each* ingredient of *each* plant, was not required. This was a major step forward towards more sensible regulations with regard to phytomedicines.

Something of the subject of western herbal medicines is now being taught again to medical students in Germany and Canada. Throughout Europe, the USA, Australia and other countries pharmacy and health-related schools are increasingly offering training in phytotherapy.

TCM clinics are now common outside of China. An Ayurvedic Hospital now exists in London and a degree course in Ayurveda is also available here.

The term *integrated medicine* is now being used which selectively combines traditional herbal medicine with *modern medicine*. In Germany there is now a hospital in which TCM is integrated with western medicine. Such co-medication has become common in China, Japan, India, and North America by those educated in both systems. Benefits claimed include improved efficacy, reduction in toxicity and the period of medication, as well as a reduction in the cost of the treatment. New terms such as adjunct therapy, supportive therapy, and supplementary medicine now appear as a

consequence of such co-medication. Either medicine may be described as an adjunct to the other depending on the communicator's view.

Great caution is necessary when traditional herbal medicines are used by those doctors not trained in their use and likewise when modern medicines are used by traditional herbal doctors. Possible dangers from drug interactions need to be stressed.

I find exceedingly helpful the CAB abstracts *Review of Aromatic and Medicinal Plants*, editor Debbie J. Cousins of CABI Publishing, Wallingford, Oxon, OX10 8DE, UK. Email; cabi@cabi.org

Many thanks are due to the staff of Taylor & Francis who have made this series possible and especially to the volume editors and their chapter contributors for the authoritative information.

Dr Roland Hardman
January 2002

Preface

Ayurveda – the science of life, has been divided into eight disciplines. Whereas the first six disciplines can be easily related to similar topics of modern medical science, the last two *Rasayana* and *Vajikarna*, are unique in themselves and until recently were least understood. Initially *Rasayana* was equated with tonics, elixirs and alteratives, which helped rejuvenation of all systems in the body and hence longevity. *Vajikarna*, also spelled *Bajikarna* – which means to impart (sexual) power of the horse, and also translates as the science of procreation, were considered aphrodisiacs.

This overemphasis on herbs as elixirs and for sexual purposes is not unique to Ayurveda; the study of other oriental *materia medica* reveals more or less the same story. Recent developments have also shown that the concept of sexual deficiencies, real or imaginary, is widespread all over the world in different populations, as has became evident from the success of a preparation for erectile dysfunction (impotence) in males.

Whereas in modern times the emphasis is on sexual pleasure, in ancient India the preparations were required for reproduction to replenish the depleted population. Manpower was required, not only for day-to-day agricultural and industrial activities but also for wars to defend the existing territory and to acquire more land from nature and from other communities. With little knowledge in the prevention and cure of diseases, the death rate was very high, both from natural and unnatural causes. It necessitated the search for herbs, which would not only help in reproduction but also in prolonging life by keeping the body healthy and disease free.

The herbs used for the above purposes had diverse physiological actions on the body, such as sexual stimulant, tranquilizer, liver protection, diuretic, bronchodilator, etc. When subjected to detailed pharmacological activity in the last century, in most cases these herbs had a mild pharmacological effect on the body and it was said that herbs used as *Rasayana* and *Vajikarna* helped the body due to their placebo effect.

After India's independence in 1947, more attention was paid to research on Indian medicinal plants, particularly those used in Ayurveda, but for about half a century much of the information on these herbs remained confined to India, as most of these research findings were published in Indian journals, which had only local circulation and were not even abstracted by multinational publishers. The international journals at that time were not interested in the publication of the routine type of research work, or the Ayurvedic polyherbal, polimineral preparations, processed in the traditional way, where nothing was known about the exact chemical nature of the active constituents with certainty. Mostly the articles on Indian medicines submitted to these journals were returned back to the author with the remark *local interest only*.

Studies on ginseng, *Panax ginseng*, was a trendsetter for research on herbs, considered

as a tonic. Ginseng did not have a strong pharmacological activity but it showed diverse beneficial effects on the human body. In the meantime, in the Soviet Union (the present Russia and other Republics), a new group of herbs, called adaptogens, were discovered. It was observed that by the use of these herbs, the body adapts itself to adverse environmental conditions. These herbs were found to combat stress, kept infections away by their immunomodulating activity and thus helped to promote a long life of good quality.

Recent research has shown that many Ayurvedic herbs used as *Rasayana* act as adaptogens. In this book, an effort has been made to refer to all the lesser known articles on these herbs, so that the interested reader may obtain detailed information about them. In addition to these, some other herbs, which in Indian folklore are considered to have *Rasayana* type activities, have also been included, with the hope that further research on them may discover some new therapeutic active substance.

In the introductory chapters of the book the concept of *Rasayana*, and an allied subject *Tridosha* is explained, along with the methods used for preparing various Ayurvedic products. The main part of the text is concerned with the herbs used as *Rasayana*: each chapter is devoted to a single herb. In the Contents, the Indian names of these herbs are followed by their botanical names in parentheses. In the text, English names are also mentioned; botanical and Indian names are italicized. While describing various formulations, to avoid confusion, instead of botanical binomial nomenclature, mostly generic names of the plants are given. Where more than one part of the herb is used, the plant part is given along with the name of the herb. In the cases where a particular herb is processed, specific information about this has been provided. When describing a herb, Ayurvedic name, botanical name, brief description, distribution of the plant and illustration is followed by its uses in folklore and Ayurveda. Brief information on pharmacology and therapeutic studies have also been provided if recent research confirms the common claims for the herb. An account of some important polyherbal, polymineral formulations used as *Rasayana* and *Vajikarna*, are also given.

When Dr R. Hardman, the series editor, mentioned the new series, *Traditional Herbal Medicine for the Modern Times*, I suggested he include a book on *Rasayana*. In the earlier part of my career, I had surveyed the literature and conducted some research on the plants used in both *Rasayana* and *Vajikarna*. The present book, which describes herbs, is the first part of the study on *Rasayana*. In the second part, information will be given about the role that *Rasayana* plays in our daily life, along with a description of animal products, gems and minerals. I am grateful to Dr Hardman for the guidance and help while preparing the manuscript for the book. During my stay at Herb Pharm Inc., Williams (Or. USA), Mr Ed Smith was kind enough to provide me with a computer and other facilities during the preparation of the manuscript. Thanks are also due to Dr Naresh, of the Institute of Microbial Technology, Chandigarh (India), for library help and occasional discussion, Mr V.K. Sawhney for typing some sections and Mr Naresh Bagga, for the line drawings of the plants.

My son Avon Puri, my wife Harminder Puri, Thorin Halverson, Ashneet Puri and Vikram Malhotra also helped me during the preparation of the manuscript for this book.

H.S. Puri

1 Introduction

Disease (dis-ease), is the disturbance of *ease* i.e. comfort, freedom from constraint, annoyance, awkwardness, pain or trouble both bodily and mental. Since time immemorial, man has tried to lead a disease free life. In one of the oldest repositories of human knowledge, *vedas* of Aryans (*veda* means to know, knowledge), the plants with medicinal virtues have been identified as *oushidhis* which are to be distinguished from *ahara* the edible plants. After *vedas*, further developments in various spheres of human life gave rise to Indian medicine called Ayurveda (*Ayuh* – life, *veda* – science). Dhanwantri, said to be the father of Indian medicine, lived in 7th century BC., as compared to Hippocrates who lived in 5th century BC. After Dhanwantri, the system of Ayurveda developed further, and peaked at the time of *Charak Sanhita* and *Sushrut Sanhita*, the treatises on medicine and surgery written about 1000 BC to 1000 AD. *Charak Sanhita* is said to be a compilation of proceedings of a symposium held in the Himalayas, to discuss the cure of various diseases which had originated at that time due to urbanization. For this purpose, the ancient scholar divided Ayurveda into the following eight disciplines:

- 1 Internal medicine
- 2 Ophthalmology and otorhinolaryngology
- 3 Surgery
- 4 Toxicology
- 5 Psychiatry
- 6 Paediatrics
- 7 *Rasayana*, which in broad terms means rejuvenator
- 8 *Vajikarna*, the literal meaning is to have the sex power of a horse, but is often considered as fertility inducer or procreator.

As the present studies show, it is difficult to distinguish between *Rasayana* and *Vajikarna*. The sexual system is fully dependent on the proper function of mind and body, so a good *Vajikarna* has to be a good *Rasayana*. Initially *Rasayana* preparations were herbal and were prescribed as dietary supplements. Some were administered under controlled conditions, whereas the *Vajikarna* included poisons, minerals, animal products and narcotics like *Cannabis* and opium.

Further developments in Ayurveda took place with the incorporation of herbs discovered in other countries and by contacts with medical scholars from other parts of the world. These developments lead to the incorporation of more and more substances, particularly minerals in Ayurvedic *materia medica*. By the time of *Bhavparkasha* in the

2 Introduction

fifteenth century AD, Ayurveda had become a composite science, covering all aspects of human activities, even including recipes on nutritive foods.

Initially, Ayurveda developed as the medical science of the Aryans settled mainly in the Indo-Gangetic region, but later, findings of physicians from other parts of India were also incorporated into it. In east and south India, Ayurveda developed with the same basic principles but with a focus on local flora, and on physiotherapy. Progress in gemology and metallurgy had its effect on medicine also. For boosting the effects of herbal preparations, a large number of minerals, particularly mercury, with a miraculous power against microbes, became an integral part of Ayurvedic treatments (for details see chapter on Some *Rasayana* Formulations).

During all these stages, Ayurveda covered all aspects of human life. The aim was not only to make a man healthy but happy too. It did not deal with man and medicine only, but with a way of life, which included social, moral, and religious education, based on very intricate philosophies of Indian sages. These learned men postulated many theories. They gave their views about the origin of the universe, the composition of matter, and the actions and interactions in our environment, which disturb the systems of our bodies and gives rise to many diseases and discomforts. Ayurveda combined philosophy with science, so the life processes, which cannot be understood by wisdom (*budhi*) have been explained on the basis of reasoning (*yukti*). These philosophical thoughts are too complex for the present purposes and only the salient features, in a simplified manner, are given in the following chapters.

It was postulated that human health is related to constitution of body, age, sex, geographical region, race, ancestry, and resistance power or immunity. Good health is something more than the absence of diseases or infirmity. It is a state of complete mental, physical and social well being. As per Ayurvedic theories, the approach to health is holistic, with less emphasis on symptomatic relief. Treatment does not mean healing the affected part or a particular system, but the whole body. The treatment aims at correcting the site of origin of disease, the channels of accumulation and the site of manifestation of body poisons. For example, when there is a breathing problem, in the conventional system antispasmodics and bronchodilators are prescribed but in Ayurveda polyherbal preparations are given, in which some of the ingredients may have an antispasmodic effect but some others act on the stomach and intestine, from where the disease might have originated. This diagnosis is based on *tridosha*, the three biological factors in the human systems, around which Ayurvedic physiology, pathology and therapeutics revolve. In broad terms *tridosha* represents metabolic disturbances, and various treatments are given to keep the three *doshas* in order. Balancing of the *doshas* is required for a good old age and also for the day-to-day activities of modern life. It has been stressed that medicaments, particularly *Rasayana*, work only if the conditions within the body are conducive for their effect. During treatment, due importance has also been given to the mind, which is a powerful agent in causation and cure of diseases. Emotions, anger and pride are also treated as diseases. These affect the health, happiness and longevity of an individual.

Recent studies also confirm these observations. According to a leading Indian cardiologist (Dr H.S. Wasir) negative emotions like greed, ego, anger and too much materialistic attachment lead to high blood pressure, aggravation of angina and heart attack. Positive emotions have a beneficial effect on heart function and prevent an upsurge in blood pressure. Music, meditation, and yogic excesses help in settling the mind. A good way of life is also conducive to good health. *Aachar* – good conduct, *Vichar*

– good thoughts, *Vyahar* – good interpersonal dealing, and *Ahar* – good food habits, help. Both malnutrition and over-nutrition adversely affect our health and longevity. Over-nutrition is excessive intake of calories, saturated fats of animal origin, sugar and lack of complex carbohydrates from tubers. The diseases affecting longevity are hypertension, brain stroke, cancer, diabetes, obesity, cirrhosis and other hepatic disorders, alcoholism, cardiomyopathy, and AIDS etc. The ancient Indian physicians were aware of these, and most of the herbs prescribed as *Rasayana* treated one or more of the above diseases.

What are Rasayana?

- Dahanukar, S.A., Thatte, U.M. (1997) Current status of Ayurveda in Phytomedicine. *Phytomedicine*, 4, 359–368.
- Dwivedi, K.K., Singh, R.H. (1992) A clinical study of Medhya Rasayana therapy in the management of convulsive disorders. *Journal of Research in Ayurveda and Siddha*, 13, 97–106.
- Hoffmann, D., The Herbal Handbook. Healing Arts Press, Rochester, Vermont 1998.
- Jayaram, S., Walwaikar, P.P., Rajadhyaksha, S.S. (1993) Evaluation of efficacy of a preparation containing combination of Indian medicinal plants in patients of generalised weakness. *Indian Drugs*, 30, 498–500.
- Kumar, P., Kuttan, R.V., Kuttan, G. (1994) Chemoprotective action of Rasayana against cyclophosphamide toxicity. *Tumori*, 80, 306–308.
- Kumar, P., Kuttan, R.V., Kuttan, G. (1996) Radioprotective effects of Rasayanas. International Symposium on Radiomodifiers in Human Health. Manipal, India. 28–31 December 1995 (Uma Devi, P., Bisht, K.S., eds) *Indian Journal of Experimental Biology*, (1996) 34, 846–850.
- Menon, L.G., Kuttan, R., Kuttan, G. (1966) Inhibition of chemical-induced carcinogenesis by Rasayana – an indigenous herbal preparation. *Journal of Experimental and Clinical Cancer Research*, 15, 241–243.
- Mulgund, S.P., Uchil, D.A. Comparative immunomodulatory and antistress effect of plant extracts. Update Ayurveda – 94, Bombay, 24–26th February 1994.
- Pandey, K.K.K., Pandey, S.B. (1995) Sedative and tranquilising properties of Medhya drugs – a pharmacodynamic concept. *Aryavaidyan*, 84, 198–200.
- Pathak, B., Dwivedi, K.K., Shukla, K.P. (1992) Clinical evaluation of Snehan, Swedana and an ayurvedic compound drug in sandhivata vis-a-vis osteoarthritis. *Journal of Research and Education in Indian Medicine*, 11, 27–34.
- Puri, H.S. (1970a) Indian medicinal plants used in elixirs and tonics. *Quarterly Journal of Crude Drug Research*, 10, 1555–1566.
- Puri, H.S. (1970b) Chavanprasha – an ancient Indian preparation for respiratory diseases. *Indian Drugs*, 7, 15–16.
- Puri, H.S. (1971) Vegetable aphrodisiacs of India. *Quarterly Journal of Crude Drug Research*, 11, 1742–1748.
- Puri, H.S. (1972) Aphrodisiacs in India. *Indian Drugs*, 9, 11–14.
- Shastri, K. Rastrangni by Sharma, Sadanand, (translation of Sanskrit text into Hindi). Motilal Banarsi Das, Delhi, India 1979.
- Shetty, B.R. Studies on the Rasayana effect of an Ayurvedic compound drug in apparently normal aged persons. Seminar on Research in Ayurveda and Siddha, CCRAS. New Delhi, 20–22nd March 1995.
- Singh, R.H., Murthy, A.R.V. (1989) Medhya Rasayana therapy in the management of apsmara vis-à-vis epilepsies. *Journal of Research and Education in Indian Medicine*, 8, 13–16.
- Srivastava, K.K. (1995) Adaptogens in the high mountains, *Indian Journal of Natural Products*, 11, 13–19.
- Srivastava, K.K., Grover, S.K., Ramachandran, U.R. (1990) Membrane integrity changes at high terrestrial altitudes. *Probe*, 29, 112–117.
- Udupa, K.N. (1973) Psychosomatic stress and Rasayana. *Journal of Research in Indian Medicine*, 8, 1–2.
- Wagner, H. (1994) Therapy and prevention with immunomodulatory and adaptogenic plant drugs. Update – Ayurveda–94, Bombay, 24–26 February 1994.

Aak

- Basu, A., Sen, T., Ray, R.N., Nag Chaudhuri, A.K. (1992) Hepatoprotective effects of *Calotropis procera* root extract on experimental liver damage in animals. *Fitoterapia*, 63, 507–514.
- Chouhan, B.S., Gupta, I.L.A., Rathore, G.S., Mathur, C.B. (1992) *Calotropis* injury to eye. *Afro Asian Journal of Ophthalmology*, 10, 124–125.
- Jain, P.K., Kumar, N. Verma, R. (1985) Clinical trials of Arka Mula Tvaka, bark of *Calotropis procera*, Ait (R.Br.) on Atisar and Pravihika – a preliminary study. *Journal of Research in Ayurveda and Siddha*, 6, 89–91.
- Kumar, V.I., Basu, N. (1994) Antiinflammatory activity of the latex of *Calotropis procera*. *Journal of Ethnopharmacology*, 44, 123–125.
- Nadkarni, K.M. *Indian Materia Medica*, Vol. I. Popular Prakashan, Bombay, India 1954.
- Prasad, G. (1985) Action of *Calotropis procera* on migraine (Family Asclepiadaceae). *Journal of National Integrated Medical Association*, 27, 7–10.
- Sharma, P.P., Sharma, J.M. Therapeutic evaluation of *Calotropis* spp. in the management of bronchial asthma: a clinical study. International Seminar of Traditional Medicine, Calcutta, 7–9 November 1992.
- Smit, H.F., Woerdenbag, H.J., Singh, R.H., Meulenbeld, G.J., Labadie, R.P., Zwaving, J.H. (1995) Ayurvedic herbal drugs with possible cytostatic activity. *Journal of Ethnopharmacology*, 47, 75–84.
- Thirunavukkarasu, S. (1995) A clinical evaluation of Siddha herbal drugs for bronchial asthma: Eraippu Noi. International Seminar on Recent Trends in Pharmaceutical Sciences, Ootacamund, India. 18–20 February

Amalaki

- Alam Muzaffer Varadrajan, T.V., Dayala Venkatakrishna, D. (1977) Some studies on Cyavanaprasha preparation and standardisation. *Journal of Research in Indian Medicine, Yoga and Homeopathy*, 12, 64–71.
- Bordia, A., Verma, S.K., Mehta, I.K. Andreais, A.M.R. (1985) Comparative effects of amla juice: review. *Indian Drugs*, 23, 72.
- Brahmachari, H.D., Gupi, V.S. (1958) Role of tannins in stabilising the ascorbic acid content of the fruit. *Indian Journal of Applied Chemistry*, 21, 173–174.
- Chawla, Y.K., Dubey, P. Singh, R., Nandy, S., Tondon, B.N. (1987) Treatment of dyspepsia with amalaki (*Embllica officinalis*) with an Ayurvedic drug. *Vagbhata*, 5, 24–26.
- Chunekar, K.C., Pandey, G.S. *Bhavprakash Nighantu* (in Hindi). Chokhamba Vidya Bhawan, Varansi, India 1969.
- Dophode, V.V. (1993) Suksham Triphala in general practice. *Deerghayu International*, 3, 21–23.
- El-Mekkawy, S., Meselhy, M.R., Kusumoto, I.T., Kadota, S., Hattori, M., Namba, T. (1995) Inhibitory effects of Egyptian folk medicines on human immunodeficiency virus (HIV) reverse transcriptase. *Chemical and Pharmaceutical Bulletin*, 43, 641–648.
- Gaind, K.N., Mital, H.C., Khanna, S.R. (1964) Anthelminthic activity of triphala. *Indian Journal of Pharmacy*, 26, 106–107.
- Ghosal, S., Tripathi, V.K., Chauhan, S. (1996) Active constituents of *Embllica officinalis*: Part I: The chemistry and antioxidative effects of two new hydrolysable tannins, emblicanin A and B. *Indian Journal of Chemistry*, section B. Organic including Medicinal, 35, 941–948.
- Ghosh, A., Sharma, A., Talukder, G. (1993) Comparison of the protection afforded by a crude extract of *Phyllanthus emblica* fruit and an equivalent amount of synthetic ascorbic acid against the cytotoxic effect of calcium chloride in mice. *International Journal of Pharmacognosy*, 31, 116–120.
- Ghosh, D., Thejomoorthy, P., Veluchamy, G. (1989) Antiinflammatory, antiarthritic and analgesic activities of Triphala. *Journal of Research in Ayurveda and Siddha*, 10, 168–174.
- Ghosh, D., Uma, R., Thejomoorthy, P. Veluchamy, G. (1990) Hypoglycaemic and toxicity studies of Triphala: a Siddha drug. *Journal of Research in Ayurveda and Siddha*, 11, 78–89.
- Grover, I.S., Simran Kaur (1989) Effect of *Embllica officinalis* Gaertn (Indian Gooseberry) fruit extract on sodium azide and nitro-o-pheylenediamine-induced mutagensis in *Salmonella typhniureum*. *Indian Journal of Experimental Biology*, 27, 207–209.
- Gulati, R.K., Agarwal, S., Agrawal, S.S. (1995) Hepatoprotective studies on *Phyllanthus emblica* Linn. and quercetin. *Indian Journal of Experimental Biology*, 33, 261–268.
- Gupta, R.A., Singh, B.N., Singh, R.N. (1983) Pharmacological studies on *Dasamula kvatha*. Part I. *Journal of Research in Ayurveda and Siddha*, 4, 73–84.
- Gupta, R.A., Singh, B.N., Singh, R.N. (1984) Pharmacological studies on *Dasamula kvatha*. Part II. *Journal of Research in Ayurveda and Siddha*, 5, 38–40.
- Janjua, K.M. (1991) Role of minor minerals on human health. Diabetic control with chromium containing herbs. Part IV. *Hamdard Medicus*, 34, 104–106.
- Jayaram, S., Walwaikar, P.P., Rajyadhyaksha, S.S. (1993) Evaluation of efficacy of a preparation containing combination of Indian medicinal plants in patients of generalised weakness. *Indian Drugs*, 30, 498–500.
- Jose, I.K., Kutan, R. (1995) Inhibition of oxygen free radicals by *Embllica officinalis* extract and Chavanprasha. *Amala Research Bulletin*, 15, 46–52.
- Kulkarni, P.H. (1995a) Clinical assessment of effect of Sookshma Triphala in Lipoma, in Kulkarni, P.H., ed., *Ayurveda Research Papers II*, pp. 66–71, *vide MAPA* 9605–2700.
- Kulkarni, P.H. (1995b) Clinical assessment of effect of Sookshma Triphala in Lipoma. *Biorhythm*, 72–77, *vide MAPA* 9605–2713.
- Kulkarni, P.H. (1995c) *Clinical study of effect of Sukshma (subtle) Triphala Guggulu (TG 3X)*, in P.H. Kulkarni, ed., *Ayurveda Research Papers II*, pp. 50–59, *vide MAPA* 9605–2716.
- Mand, J.K., Soni, G.L., Gupta, P.P., Singh, R. (1991) Effect of Amla (*Embllica officinalis*) on the development of atherosclerosis in hypercholesterolemic rabbits. *Journal of Research and Education in Indian Medicine*, 10, 1–7.
- Mathur, R., Sharma, A., Dixit, V.P., Verma, M. (1996) Hypolipidaemic effect of fruit juice of *Embllica officinalis* in cholesterol fed rabbits. *Journal of Ethnopharmacology*, 50, 61–68.
- Mehrotra, S., Rawat, A.K.S., Singh, H.K., Shome, U. (1995) Standardisation of popular Ayurvedic adaptogenic preparation *Chavanprash* and ethnobotany of its ingredients. *Ethnobotany*, 7, 1–15.
- Morton, J.F. (1957) Emblic (*Phyllanthus emblica*) rich but neglected source of vitamin C. *Economic Botany*, 31, 223–264.

- Murakami, S., Isobe, Y., Kijima, H., Nagai, H., Muramatu, M., Otomo, S. (1991) Inhibition of gastric H⁺, K⁺-ATPase and acid secretion by ellagic acid. *Planta Medica*, 57, 305–308.
- Ojha, J.K., Bajpai, H.S., Sharma, P.V., Khanna, M.N., Shukla, P.K., Sharma, T.N. (1973) Chavanprasha as an anabolic agent: experimental study (preliminary work). *Journal of Research in Indian Medicine*, 8, 11–19.
- Ojha, J.K., Khanna, M.N., Bajpai, H.S., Sharma, P.V., Sharma, T.N. (1975) A clinical study of Chavanprasha as an adjunct in the treatment of pulmonary tuberculosis. *Journal of Research in Indian Medicine*, 10, 1–4.
- Pakrashi, A., Bandyopadhyaya, S. (1996–97) Effect of *Phyllanthus emblica* extract on peptic ulcer. *Phytomedicine*, 3(suppl.), 66.
- Puri, H.S. (1970) Chavanprasha: an ancient Indian preparation for respiratory diseases. *Indian Drugs*, 1, 15–16.
- Pranjpe, P., Kulkarni, P.H. (1995) Comparative efficacy of four Ayurvedic formulations in the treatment of acne vulgaris: a double blind randomised placebo controlled clinical evaluation. *Journal of Ethnopharmacology*, 49, 127–132.
- Paranjpe, P., Patki, P., Patwardhan, B. (1990) Ayurvedic treatment of obesity. A randomized double-blind placebo-controlled clinical trial. *Journal of Ethnopharmacology*, 29, 1–11.
- Roy, A.K., Dhir, H., Sharma, A., Talukder, G. (1991) *Phyllanthus emblica* fruit extract and ascorbic acid modify hepatotoxic and renotoxic effects of metals in mice. *International Journal of Pharmacognosy*, 29, 117–126.
- Roy, S., Khan, S.U., Siddiqui, H.H., Arora, R.B. (1987) Bioavailability of ascorbic acid in children as a method of standardisation of amla and vitamin C rich herbal extracts. (AH-II) *Hamdard Medicus*, 30, 229–238.
- Savrikar, S.S., Bhangle, P.K. (1984) Clinical study of Chavanprasha Avaleh. *Nagarjun*, 27, 117–119.
- Seshagiri, Rao, Kusumkumari, K., Netaji, B., Subhakta, P.K.J.P. (1985) A pilot study of Svet pradra (Leucorrhoea) with Amalaki Guggul. *Journal of Research in Ayurveda and Siddha*, 6, 213.
- Shishoo, C.J., Shah, S.A., Rathod, I.S., Patel, S.G. (1997) Determination of vitamin C content of *Phyllanthus emblica* and Chyavanprash. *Indian Journal of Pharmaceutical Sciences*, 59, 268–270.
- Siddique, T.O., Ahmed, J. (1985) Vitamin C contents of Indian Medicinal plants: a literature review. *Indian Drugs*, 23, 72.
- Singh, I.P., Guru, L.V. (1975) The effect of Amalaki rasayana on experimental rats with special reference to their nitrogen balance. *Journal of Research in Indian Medicine*, 10, 141–146.
- Singh, K.P., Singh, R.H. (1985) Recent advances in the management of amalpitta Parinam sula (non-ulcer dyspepsia and peptic ulcer dyspepsia). *Journal of Research in Ayurveda and Siddha*, 6, 32.
- Singh, R.K., Londhe, C.S. (1993) Use of Triphala Kwath in Swet Pradera (leucorrhoea). *Deerghayu International*, 9, 15–17.
- Suresh, K., Vasudevan, D.M. (1994) Augmentation of murine natural killer cell and antibody dependent cellular cytotoxicity activities by *Phyllanthus emblica*, a new immunomodulator. *Journal of Ethnopharmacology*, 44, 55–60.
- Tariq, M., Hussain, S.J., Asif, M., Jahan, M. (1977) Protective effect of fruit extracts of *Emblica officinalis* Gaertn and *Terminalia belerica* Roxb., in experimental myocardial necrosis in rats. *Indian Journal of Experimental Biology*, 15, 485–486.
- Tertia, T.L., Sridhar, B.N., Pillai, B.K.R. (1982) Effect of Chyavanaprasha on malnutrition. *Journal of Research in Ayurveda and Siddha*, 3, 119–123.
- Tewari, A., Sen, S.P., Guru, L.V. (1968) The effect of Amalaki (*Phyllanthus emblica*) rasayana on biologic systems. *Journal of Research in Indian Medicine*, 2, 189.
- Thakur, C.P., Mandal, K. (1984) Effect of *Emblica officinalis* on cholesterol-induced atherosclerosis in rabbits. *Indian Journal of Medical Research*, 79, 142–146.
- Thresiamma, K.C., George, J., Kuttan, R. (1996) Protective effect of curcumin, ellagic acid and bixin on radiation-induced toxicity. *Indian Journal of Experimental Biology*, 34, 845–847.
- Treadway, Linda (1988) Amla, traditional food and medicine. *Herbalgram*, 31, 26–27.
- Tripathi, P.C., Shaw, B.P., Mishra, R.K., Mishra, P.K. (1992) The role of amalaki in the management of amalpitta. *Indian Medicine*, 42, 11.
- Vani, T., Rajani, M., Srakar, S., Shishoo, C.J. (1997) Antioxidant properties of the Ayurvedic formulation Triphala and its constituents. *International Journal of Pharmacy*, 35, 313–317.
- Varma, M.D., Singh, R.H., Udupa, K.N. (1973) Biological, endocrine and metabolic studies on the effect of rasayana on aged persons. *Journal of Research in Indian Medicine, Yoga and Homeopathy*, 8, 1–9.
- Varma, M.D., Singh, R.H., Gupta, J.P., Udupa, K.N. (1977) Amalaki rasayana in the treatment of chronic peptic ulcer. *Journal of Research in Indian Medicine, Yoga and Homoeopathy*, 12, 1–9.
- Yaqueenuddin, Quereshi, I., Mirza, M., Yaqeen, Z. (1990) Pharmacological evaluation of the antiemetic action of *Emblica officinalis* Gaertn. *Pakistan Journal of Scientific and Industrial Research*, 33, 268–269.
- Zachariah, G. (1984) *Emblica officinalis*: A remedy for hyperhidrosis. *Antiseptic*, 81, 312–315.

Anantmul

- Atal, C.K., Sharma, M.L., Kaul, A., Khajuria, A. (1986) Immunomodulating agents of plant origin. *Journal of Ethnopharmacology*, 18, 133–141.
- Chunekar K.C., Pandey, G.S. *Bhavprakash Nighantu* (in Hindi) Chowkhamba Vidya Bhawan, Varanasi, India 1969.
- Deepak, D., Srivastava, S., Khare, A. (1997) Pregnan glycoside from *Hemidesmus indicus*. *Phytochemistry*, 44, 145–151.
- Karnick, C.R. (1977) Ethnobotanical, pharmacognostical and cultivation studies of *Hemidesmus indicus* R. Br. (Indian Sarsaparilla). *Herba Hungarica*, 16, 7–12.
- Nadkarni, K.M. *Indian Materia Medica*. Vol I. Popular Prakashan, Bombay, India 1954.

Ashwagandha

- Ahumada, F., Aspee, F., Wikman, G., Hancke, J. (1991a) *Withania somnifera* extract. Its effect on arterial blood pressure in anaesthetized dogs. *Phytotherapy Research*, 5, 111–114.
- Ahumada, F., Trincado, M.A., Arellano, J.A., Hancke, J., Wikman, G. (1991b) Effect of certain adaptogenic plant extracts on drug-induced necrosis in female and male mice. *Phytotherapy Research*, 5, 29–31.
- Al-Hindawi, M.K., Al-Khafaji, S.H., Abdul Nabi, M.H. (1992) Anti-granuloma activity of Iraqi *Withania somnifera*. *Journal of Ethnopharmacology*, 37, 113–116.
- Anand, I.V., Kuttan, G. (1995) Use of *Withania somnifera* as an adjuvant during radiation therapy. *Amala Research Bulletin*, 15, 83–87.
- Anbalagan, K., Sadique, J. (1981a) Influence of an Indian medicine (Ashwagandha) on acute phase reactants in inflammation. *Indian Journal of Experimental Biology*, 19, 245–249.
- Anbalagan, K., Sadique, J. (1981b) Response of alpha-1 globulins of serum during inflammation. *Current Science*, 50, 88–89.
- Anbalagan, K., Sadique, J. (1985) *Withania somnifera* (Ashwagandha): a rejuvenating herbal drug which controls alpha-2 micro-globulin synthesis during inflammation. *International Journal of Crude Drug Research*, 23, 177–183.
- Bahr, V., Hansel, R. (1982) Immunomodulating properties of 5,20 α ® dihydroxy 6 χ7 α epoxy-1-oxo(s a) with a-2,24 dieolide and solasodine. *Planta Medica*, 44, 32–33.
- Bector, N.P. (1968) Role of *Withania somnifera* (Ashwagandha) in various types of arthropathies. *Indian Journal of Medical Research*, 56, 1581–1583.
- Bhattacharya, S.K., Ashok Kumar, Ghoshal, S. (1995) Effects of glycowithanolides from *Withania somnifera* on an animal model of Alzheimer's disease and perturbed central cholinergic markers of cognition in rats. *Phytotherapy Research*, 9, 110–113.
- Bhattacharya, S.K., Goel, R.K., Ravinder Kaur, Ghoshal, Shubnatha (1987) Anti stress activity of sitoindosides VII and VIII. New acylsteryl glucosides from *Withania* group. *Phytotherapy Research*, 1, 32–38.
- Bhattacharya, S.K., Satyan, K.S., Chakraborti, A. (1997a) Effect of Trasina, an Ayurvedic herbal formulation, on pancreatic islet superoxide dismutase activity in rats. *Indian Journal of Experimental Biology*, 35, 297–299.
- Bhattacharya, S.K., Satyan, K.S., Ghoshal, Shubnath (1997b) Antioxidant activity of glycowithanolides from *Withania somnifera*. *Indian Journal of Experimental Biology*, 35, 236–239.
- Bhattathiri, V.N., Uma Devi, P., Sreelekha, T., Remani, P., Vijaykumar, T., Nair M.K. (1995) Biochemical modulation of GSH by ashwagnadha: relation to its usefulness as a radiosensitizer. International Conference on Current Progress in Medicinal and Aromatic Plant Research, Calcutta, India. 30 December 1994–1 January 1995.
- Budhiraja, R.D., Garg, K.N., Sudhir, S., Arora, B. (1986) Protective effect of 3-β hydroxy-2, 3 dihydrowithanolide F against CC14-induced hepatotoxicity. *Planta Medica*, 52, 28–29.
- Budhiraja, R.D., Sudhir, S. (1987) Review of biological activity of withanolides. *Journal of Scientific and Industrial Research*, 46, 488–491.
- Budhiraja, R.D., Sandhu, S., Garg, K.N. (1984) Anti-inflammatory activity of 3β hydroxy-2, 3-dihydro withanolide F. *Planta Medica*, 50, 134.
- Chhajed, S., Baghel, M.S., Ravishankar, B., Singh, G. (1991) Evaluation of hepatoprotective effect of *Piper longum* (Pippali) and *Withania somnifera* in hepatotoxicity induced by antitubercular drugs in mice. *Journal of Research and Education in Indian Medicine*, 10, 9–12.
- Davis, L., Kuttan, G. (1998) Suppressive effect of cyclophosphamide-induced toxicity by *Withania somnifera* extract in mice. *Journal of Ethnopharmacology*, 62, 209–214.
- Dhuley, J.N. (1997) Effect of some Indian herbs on macrophage functions in ochratoxin A treated mice. *Journal of Ethnopharmacology*, 58, 15–20.
- Dhuley, J.N. (1998) Effect of ashwagandha on lipid peroxidation in stress-induced animals. *Journal of Ethnopharmacology*, 60, 173–178.

- Ganasoundari, A., Zare, S.M., Uma Devi, P. (1997) Modification of bone marrow radiosensitivity by medicinal plant extracts. British Journal of Radiology, 70, 599–602.
- Gandhi, A., Mujumdar, A.M., Patwardhan, B. (1995) A comparative pharmacological investigation of Ashwagandha and *ginseng*. Journal of Ethnopharmacology, 44, 131–135.
- Gandhi, S.S. (1994) The potential of *Withania somnifera* as an antistress agent. Update Ayurveda—94, Bombay, India. 24 to 26 February 1994.
- Gupta, O.P., Dube, C.B., Ansari, Z. (1994) A clinical study of ashwagandha rasayana in patients of keratin and rough skin. National Seminar on the use of Traditional Medicinal Plants in Skin care, CIMAP, Lucknow, 25–26 November 1994.
- Hazeena Begum, V., Sadique, J. (1988) Long term effect of herbal drug *Withania somnifera* on adjuvant-induced arthritis in rats. Indian Journal of Experimental Biology, 26, 877–882.
- Karnick, C.R. (1992) Clinical observation on the effect of composite herbal drugs of *Withania somnifera*, *Panax ginseng* and *Tribulus terrestris* on psychomotor performance in healthy volunteers. Indian Medicine, 4, 1–4.
- Kulkarni, R.R., Patki, P.S., Jog, V.P., Gandage, S.P., Patwardhan, B. (1991) Treatment of osteoarthritis with herbomineral formulation: a double blind, placebo controlled cross over study. Journal of Ethnopharmacology, 33, 91–95.
- Kulkarni, R.R., Patki, P.S., Jog, V.P., Gandage, S.P., Patwardhan, B. (1992) Efficacy of an Ayurvedic formulation in rheumatoid arthritis: A double blind placebo controlled cross over study. Indian Journal of Pharmacology, 24, 98–101.
- Kulkarni, S.K., George, B. (1995) GABA receptor modulation by herbal preparation (invited lecture) International Seminar on Recent Trends in Pharmaceutical Sciences, Ootacamund, 18–20 Feb. 1995.
- Kulkarni, S.K., George, B., Mathur, R. (1998) Protective effect of *Withania somnifera* root extract on electrographic activity in a lithium-pilocarpine model of status epilepticus. Phytotherapy Research, 12, 451–453.
- Kulkarni, S.K., George, B., Nayar, U. (1995) Amygdaloid kindling in rats: Protective effect of *Withania somnifera* (Ashwagandha) root extract. Indian Drugs, 32, 37–49.
- Kulkarni, S.K., Sharma, A., Verma, A., Ticku, M.K. (1993) GABA receptor mediated anticonvulsant action of *Withania somnifera* root extract. Indian Drugs, 30, 305–312.
- Kumar, P., Kuttan, R., Kuttan, G. (1994) Usefulness of Rasayana as immunomodulators and chemoprotectors against cyclophosphamide-induced toxicity. Amala Research Bulletin, 14, 49–51.
- Kuppurajan, K., Rajagopalan, S.S., Sitaraman, R., Rajagopalan V., Janaki, K., Revathi, R., Venkatraghavan, S. (1980) Effect of Aswagandha (*Withania somnifera* Dunal) on the process of ageing in human volunteers. Journal of Research in Ayurveda and Siddha, 1, 247–208.
- Kuttan G. (1996) Use of *Withania somnifera* Dunal as an adjuvant during radiation therapy. Indian Journal of Experimental Biology, 14, 854–856.
- Nashine, K., Srivastava, D.N., Shani, I. (1995) Role of inflammatory mediators in antiinflammatory activity of *Withania somnifera*. Indian Veterinary Medical Journal, 19, 268–288.
- Palyi, I., Tyihak, E., Palyi, V. (1969) Cytological effects of compounds isolated from *Withania somnifera*. Herba Hungarica, 8, 73–76.
- Panda, S., Gupta, P., Kar, A. (1997) Protective role of ashwagandha in cadmium-induced hepatotoxicity and nephrotoxicity in male mouse. Current Science, 72, 546–547.
- Pande, S.B., Sharma, S. (1992) Role of ashwagandha in Sangyabaran (Anaesthesia): an experimental study. International Seminar-Traditional Medicine, Calcutta, 7–9 November 1992.
- Ramarao, P., Rao, K.T., Srivastava, R.S., Ghosal, S. (1995) Effects of glycowithanolides from *Withania somnifera* on morphine-induced inhibition of intestinal motility and tolerance of analgesia in mice. Phytotherapy Research, 9, 66–68.
- Roy, A.S., Acharya, S.B., De, A.K., Debnath, P.K. (1992a) Mountain medicine: Effect of Aswgandha (*Withania somnifera*) on the changes of psychophysiological status of trainee mountaineers by altitude gain. International Seminar-Traditional Medicine, Calcutta, 7–9 November 1992.
- Roy, U., Mukhopadhyay, S., Poddar, M.K., Mukherjee, B.P. (1992b) Evaluation of antistress activity of Indian medicinal plants, *Withania somnifera* and *Ocimum sanctum* with special reference to stress-induced stomach ulcer in albino rats. International Seminar-Traditional Medicine, Calcutta. 7–9 November 1992.
- Sandhya Singh, Sushil Kumar, The Indian Ginseng, Ashwagandha. CIMAP, Lucknow, India 1998.
- Sahni, Y.P., Srivastava, D.N. (1993) *Withania somnifera*: an indigenous anti-ulcerogenic drug. Indian Journal of Indigenous Medicine, 10, 53–56.
- Sahni, Y.P., Srivastava, D.N. (1994) Anti-inflammatory and anti-ulcerogenic activity of *Withania somnifera*. Update Ayurveda 94, Bombay, India. 24–26 November 1994.
- Sahni, Y.P., Srivastava, D.N. (1995) Role of inflammatory mediators in anti-inflammatory activity of *Withania somnifera* on chronic inflammatory reactions. Indian Veterinary Medical Journal, 19, 150–153.
- Saksena, A.K., Singh, S.P., Dixit, K.S., Singh, N., Seth, K., Seth, P.K., Gupta, G.P. (1989) Effect of *Withania somnifera* and *Panax ginseng* on dopaminergic receptors in rat brain during stress. Planta Medica, 55, 95.
- Sankara Subramanian, S. (1982) Ashwagandha an ancient Ayurvedic drug. Arogya-Journal of Health Science, 8, 135.

- Sharada, A.C., Solomon, F.E., Uma Devi, P. (1993a) Toxicity of *Withania somnifera* root extract in rats and mice. International Journal of Pharmacognosy, 31, 205–212.
- Sharada, A.C., Solomon, F.E., Uma Devi, P., Srinivasan, K.K., Udupa, N. (1993b) Withaferin A and plumbagin. Isolation and acute toxicity studies. Amala Research Bulletin. 13th August 1993.
- Shareef, M.A. (1993) Management of cervical spondylitis through herbal drugs, *Withania somnifera* and *Smilax china*. A preliminary clinical study. Medicinal Plants: New Vistas and Research, 97–101.
- Sharma, S., Dahunkar, S., Karandikar, S.M. (1985) Effects of long term administration of the roots of Ashwagandha (*Withania somnifera*) and Shatavari (*Asparagus racemosus*) in rats. Indian Drugs, 23, 133–139.
- Sheena, I.P., Singh, U.V., Kamath, R., Uma Devi, P., Udupa, N. (1998) Niosomal withaferin A with better antitumour efficacy. Indian Journal of Pharmaceutical Sciences, 60, 45–48.
- Shobat, B., Kirson, I., Lavie, D. (1978) Immunodepressive properties of withaferin and withanolide D. Biomedicine, 28, 18.
- Shukla, S.P. (1981) Anti-anxiety agent of plant origin. Probe, 20, 201–208.
- Singh, N., Nath, R., Lata, A., Singh, S.P., Kohli, R.P., Bhargava, K.P. (1982) *Withania somnifera* (Ashwagandha), a rejuvenating herbal drug which enhances survival during stress (an adaptogen). International Journal of Crude Drug Research, 20, 29–35.
- Singh, N. et al. (1986) Prevention of urethane-induced lung adenomas by *Withania somnifera* (L) Dunal in albino mice. International Journal of Crude Drug Research, 24, 90–100.
- Singh, R.H., Nath, S.K., Behere, P.B. (1990) Depressive illness a therapeutic evaluation with herbal drugs. Journal of Research in Ayurveda and Siddha, 11, 1–6.
- Singh, R.H. et al. (1979) Studies on psychotropic effect of indigenous drug Ashwaganda (*Withania somnifera*). II. Experimental studies. Journal of Research in Indian Medicine, Yoga and Homeopathy, 14, 49–54.
- Singh, R.H., Murthy, A.R.V. (1989) Medhya rasayana therapy in the management of apsmara vis-a-vis epilepsies. Journal of Research and Education in Indian Medicine, 8, 13–16.
- Srivastava, K.K. (1995) Adaptogen in high mountains. Indian Journal of Natural Products, 11, 13–19.
- Uma Devi, P. (1996) *Withania somnifera* Dunal (Ashwagandha), potential plant source of promising drug for cancer chemotherapy and radiosensitisation. Indian Journal of Experimental Biology, 34, 927–932.
- Uma Devi, P., Akagi, K., Ostapenko, V., Tanaka, Y., Sugahara, T. (1996) Withaferin A: a new radiosensitiser from the Indian medicinal plant *Withania somnifera*. International Journal of Radiation Biology, 69, 193–197.
- Uma Devi, P., Sharada, A.C., Solomon, F.E. (1993) Antitumour and radiosensitising effects of *Withania somnifera* (Ashwagandha) on a transplantable mouse tumour, Sarcoma -180. Indian Journal of Experimental Biology, 31, 607–611.
- Uma Devi, P., Sharada, A.C., Soloman, F.E. (1994) Anticancer potential of ashwagandha roots. Update Ayurveda 94, Bombay, India. 24–26 February 1994.
- Uma Devi, P., Sharada, A.C., Solomon, F.E., Kamath, M.S. (1992) In vivo growth inhibitory effect of *Withania somnifera* (Ashwagandha) on a transplantable mouse tumour, sarcoma 180. Indian Journal of Experimental Biology, 30, 169–172.
- Venkataraman, S., Seshadri, C., Sundaresan, T.P., Ravathi, R., Rajgopalan, V., Janaki, K. (1984) The comparative effect of milk fortified with Aswagandha, and Punernava in children: a double blind study. Journal of Research in Ayurveda and Siddha, 1, 370–385.
- Ziauddin, M., Phansalkar, N., Patki, P., Patwardhan, B. (1996) Studies on the immunomodulatory effects of Ashwagandha. Journal of Ethnopharmacology, 50, 69–76.

Badam

- Culbreth, D.M.R. A Manual of Materia Medica and Pharmacology. Lea and Febiger, Philadelphia, USA 1927.
- Kim, J.H., Kang, T.W., Park, C.B., Cha, K.L., Ahn, Y.K. (1996) Immunobiological studies on route of administration of amygdalin. Yak Hoeji, 40, 202–211.
- Kubo, M., Matsuda, H., Shiromoto, H., Namba, K. (1990) Effect of pepsin hydrolysis product of water soluble portion from almond on adjuvant-induced arthritis. Shoyakugaku Zasshi, 44, 101–117.
- Matsuda, H., Shiromoto, H., Nanba, K., Kubo, M. (1990) Effect of pepsin hydrolysis products of water soluble portion from almonds on experimental hepatitis. Shoyakugaku Zasshi, 44, 112–116.
- Nadkarni, K.M. Indian Materia Medica. Vol. I Popular Prakashan, Bombay, India 1954.
- Nagamoto, N., Noguchi, H., Nanba, K., Nakamura, H., Mizuno, M. (1988) Active components having anti-inflammatory activities and analgesic activities from Armeniaceae semen, *Pruni japonicae* semen and almond seeds. Shoyakugaku Zasshi, 42, 81–88.

Bala

- Alam, M., Joy, S., Ali, U.S. (1991a) Screening of *Sida cordifolia* Linn., *Sida rhombifolia* Linn., and *Triumfetta rotundifolia* Lam. for anti-inflammatory and antipyretic activities. Indian Drugs, 28, 397–400.
- Alam, M., Joy, S., Ali, U.S. (1991b) Antibacterial activity of *Sida cordifolia* Linn. *Sida rhomboidea* Roxb, and *Triumfetta rotundifolia* Lam. Indian Drugs, 28, 570–572.
- Bagi, K., Kalyani, G.A., Dennis J., Kumar, K.A., Kakrani, H.K. (1985) A preliminary pharmacological screening of *Abutilon indicum*. I. Analgesic activity. Fitoterapia, 56, 169–171.
- Bhatt, D.J., Baxi, A.J., Parikh, A.R. (1983) Chemical investigations of the leaves of *Sida rhombifolia* Linn. Journal of Indian Chemical Society, 60, 98.
- Dixit, S.P., Tewari, P.V., Gupta, R.M. (1978) Experimental studies on the immunological aspects of Atibala (*Abutilon indicum* Linn.), Mahabala (*Sida rhombifolia* Linn.), Bala (*Sida cordifolia* Linn.) and Bhumbala (*Sida veronicaefolia* Lam.). Journal of Research in Indian Medicine, Yoga and Homoeopathy, 13, 62–66.
- Lutterodt, G.D. (1988) Responses of a gastrointestinal smooth muscles preparation to a muscarine principle present in *Sida veronicaefolia*. Journal of Ethnopharmacology, 23, 313–322.
- Lutterodt, G.D., Okere, C., Liu C.X., Takashi, H. (1995) Induction of oxytocin release at various stages of pregnancy in rats by methanolic extractives of *Sida veronicaefolia*. Asia Pacific Journal of Pharmacology, 10(Supp.), 33–36.
- Muanza, D.N., Euler, K.L., Williams, L., Newman, D.J. (1995) Screening for antitumour and anti-HIV activities of nine medicinal plants from Zaire. International Journal of Pharmacognosy, 33, 98–106.
- Nair, P.R., Vijayan, N.P., Pillai, B.K.R., Bhagavathy Amma, K.C. (1980) Treatment of chronic cases of Saisaveeya vata (Poliomyelitis) II. Journal of Research in Ayurveda and Siddha, 1, 438–446.
- Ramu, K.G., Janakiramiah, N., Sanapati, N.M., Shankara, M.R., Murthy, V.S.N. (1982) Ksirdhara on anxiety neurosis (Cittodvega): a pilot study. Journal of Research in Ayurveda and Siddha, 3, 126–132.
- Rao, K.S., Mishra, S.H. (1998) Antihepatotoxic activity of *Sida cordifolia* whole plant. Fitoterapia, 69, 20–33.
- Schultes, R.E., Hofmann, A. Plants of the Gods. Healing Arts Press, Vermont, USA 1979.
- Sharma, P.V., Ahmed, Z.A., Sharma, V.V. (1989) Analgesic constituents of *Abutilon indicum*. Indian Drugs, 26, 333.
- Sharma, S. *Rasayana* effect of herbs. Sachitter Ayurveda (in Hindi), July, 1981: 27–29.
- Venkitaraman, S., Radhakrishnan, N. (1976) Myotrophic and androgenic activities of the steroid fraction isolated from the roots of *Sida retusa* var. *Sida rhombifolia* Linn. (Bala). Nagarjun, 19, 26–27.

Banslochan

- Malik, W.U., Ahmed S. (1973) Studies on the effect of some indigenous drugs (Bhasamas and Tabashir) on the growth behaviour of *Escherichia coli* B. Journal of Research in Indian Medicine, 8, 35–39.
- Puri, H.S. (1983) Medicinal Plants of Tezpur (Assam). Bulletin Medico-Ethno-Botanical Research, 4, 1–13.

Bhalatak

- Ahmed, A., Rahman, H.S.Z., Amin, K.M.Y., Khan, N.A. Evaluation of Baladur (*Semecarpus anacardium*) on the basis of literature and folk information. Proceedings 1st National Seminar on Ilmul Advia, Beenapura, India, 23–25 April 1993.
- Chitnis, M.P., Bhatia, K.G., Phatak, M.K., Kesava Rao, K.V. (1980) Antitumour activity of the extract of *Semecarpus anacardium* L. nuts in experimental tumour models. Indian Journal of Experimental Biology, 18, 6–8.
- Mujumdar, A.M. (1977) Central nervous system actions of *Semecarpus anacardium* Linn. Journal University of Poona, Science and Technology, 50, 147–150.
- Phatak, M.K., Ambaya, R.Y., Indap, M.A., Bhatia, K.G. (1983) Cytotoxicity of the acetylated oil of *Semecarpus anacardium* Linn. Indian Journal of Physiology and Pharmacology, 27, 166–170.
- Premlatha, B., Muthulakshmi, V., Vijayalakshmi, T., Sachanandam, P. (1997) *Semecarpus anacardium* nut extract-induced changes in enzymic antioxidants studied in aflatoxin B1 caused hepatocellular carcinoma bearing Wistar rats. International Journal of Pharmacognosy, 35, 161–166.
- Shanavaskhan, A.E., Binu, S., Unnithan, M.D., Santhoshkumar, E.S., Pushpagandan, P. (1997) Detoxification techniques of traditional physicians of Kerala, India, on some toxic herbal drugs. Fitoterapia, 68, 69–74.

- Sharma, A., Mathur, R., Dixit, V.P. (1995) Hypocholesterolemic activity of nut shell extract of *Semecarpus anacardium* (Bhilawa) in cholesterol fed rabbits. Indian Journal of Experimental Biology, 33, 444–448.
- Sharma, A.K., Singh, R.H. (1986) A clinical study on Amrita Bhallataka as a Naimittika Rasayan in the management of rheumatoid arthritis (amvata). Rheumatism, 21, 51–60.
- Smit, H.F., Woerdenbag, H.J., Singh, R.H., Meulenbelt, G.J., Labadie, R.P., Zwaving, J.H. (1995) Ayurvedic herbal drugs with possible cytostatic activity. Journal of Ethnopharmacology, 47, 75–84.
- Thakur, R.S., Puri, H.S., Akhtar Hussain (1989) Major Medicinal Plants of India. Central Institute of Medicinal and Aromatic Plants, Lucknow, India 1989.
- Tripathi, Y.B., Tripathi, P., Reddy, M.V.R., Dutt, S., Tewari, D.S., Reddy, E.P. (1998) Effect of *Semicarpus anacardium* on the cell cycle of DU-145 cells. Phytomedicine, 5, 383–388.
- Upadhyay, B.N., Singh, T.N., Tewari, C.M., Jaiswal, L.C., Tripathi, S.N. (1986) Experimental and clinical evaluation of *Semecarpus anacardium* nut (Bhallatak) in the treatment of Amavata (rheumatoid arthritis). Rheumatism, 21(3), 70–87.
- Vaidya, A.R. The Ancient Indian System of Rejuvenation and Longevity. Indian Book Center, Delhi, India 1998.
- Vijayalakshmi, T., Muthulakshmi, V., Sachdanandam, P. (1996) Effect of the milk extract of *Semecarpus anacardium* nut on adjuvant arthritis: a dose dependent study in Wistar albino rats. General Pharmacology, 27, 1223–1226.
- Vijayalakshmi, T., Muthulakshmi, V., Sachdanandam, P. (1997) Effect of milk extract of *Semecarpus anacardium* nuts on glycohydrolases and lysosomal stability in adjuvant arthritis in rats. Journal of Ethnopharmacology, 58, 1–18.
- Wealth of India: Raw materials. Vol IX. Council of Scientific and Industrial Research, New Delhi, India 1972.

Bhringraj

- Bhargava, K.K., Seshadri, T.R. (1974) Chemistry of medicinal plants: *Eclipta alba* and *Wedelia calendulacea*. Journal of Research in Indian Medicine, 9, 9–15.
- Chandra, T., Sadiqui, J., Somasundram, S. (1987) Effect of *Eclipta alba* on inflammation and liver injury. Fitoterapia, 58, 23–32.
- Chow, L.-S., Jung, Y.-C., Ching, L.-C., Yunho L. (1996) Hepatoprotective activity of Taiwan folk medicine: *Eclipta prostrata* Linn. against various hepatotoxins-induced acute hepatotoxicity. Phytotherapy Research, 10, 483–496.
- Das, S. (1992) Effect of *Eclipta alba* on gastritis. International Seminar-Traditional Medicine, Calcutta, 7–9 November 1992.
- Dixit, S.P., Achar, M.P. (1979) Bhringraja (*Eclipta alba* L) in the treatment of infective hepatitis. Current Medical Practice, 23, 237–242.
- Dixit, S.P., Achar, M.P. (1981) Study of Bhringraja (*Eclipta alba*) therapy in jaundice in cholera. Journal of Scientific Research in Plants and Medicine, 2, 96–100.
- Dube, C.B., Devendkumar, Srivastava, P.S. (1982) A trial of Bhringraja Ghansatva on the patients of Kostha-Shakaraista-Kamala (with special reference to hepatocellular jaundice). Journal National Integrated Medical Association, 24, 265–269.
- Gopalakrishnan, S., Sadique, J., Chandra, T. (1989) Antihepatotoxic activity of *Wedelia calendulacea* in rats. Fitoterapia, 60, 456–459.
- Gupta, S.C., Bajaj, U.K., Sharma, V.N. (1976) Cardiovascular effect of *Eclipta alba* (Hassk.) Bhringraja. Journal of Research in Indian Medicine and Homoeopathy, 11, 91–92.
- Hegde, D.A., Khosa, R.L., Chansuria, J.P.N. (1994) A study of the effect of *Wedelia calendulacea* Less on wound healing in rats. Phytotherapy Research. 8, 439–440.
- Kosuge, T. et al. (1981) Studies on anti-haemorrhagic principles in the crude drug for hemostatics: on hemostatic activity of the crude drugs for hemostatics. Yakugaku Zasshi, 101, 501–503.
- Kumar, D., Dube, C.B., Srivastava, P.S. (1981) Controlled experimental study of Bhringraja Ghansatva. Journal of Research in Ayurveda and Siddha, 2, 32–41.
- Kumar, S., Tripathi, S.N. (1987) Role of certain Ayurvedic medicines in the management of liver disease. Journal of the National Integrated Medical Association, 29, 7–14.
- Melo, P.A., Nascimento, M.C., Mors, W.B., Suarez-Kurtz, G. (1994) Inhibition of the myotoxic and hemorrhagic activities of crotalid venoms by *Eclipta prostrata* (Asteraceae) extracts and constituents. Toxicon (Oxford) 32, 595–603.
- Mogre, K., Vohra, K.K., Seth, U.K. (1988) Protective effect of *Picrorhiza kurroa* and *Eclipta alba* on Na⁺, K⁺ Atphase in hepatic injury by hepatotoxic agents. Indian Journal of Pharmacy, 13, 253–259.
- Murthy, T.S., Rao, B.G., Satyanaryana, T., Rao, R.V.K. (1993) Hepatoprotective activity of *Eclipta alba*. Journal of Research and Education in Indian Medicine, 12, 41–43.
- Premilla, M.S. (1995) Emerging frontiers in the area of hepatoprotective herbal drugs. Indian Journal of Natural Products. 11, 9.

- Sharma, A.K., Anand, K.K., Pushpangadan, P., Chandan, B.K., Chopra, C.L., Prabhakar, Y.S., Damodaran, N.P. (1989) Hepatoprotective effects of *Wedelia calendulacea*. Journal of Ethnopharmacology, 25, 93–102.
- Singh, B., Saxena, A.K., Chandan, B.K., Agarwal, S.G., Bhatia, M.S., Anand, K.K. (1993) Hepatoprotective effect of ethanolic extract of *Eclipta alba* on experimental liver damage in rats and mice. Phytotherapy Research, 7, 154–158.
- Rashid, M.D., Karim, V., Ahmed, M., Choudhury, A.R. (1992) Antihypertensive activity of *Eclipta alba*. International Seminar-Traditional Medicine, Calcutta, 7–9 November, 1992.
- Raut, A.A., Tewari, S.K., Kumar, S. (1986) *Eclipta alba* – a scientific appraisal with special reference to its effect on peptic ulcer, non-ulcer dyspepsia and liver. Journal of NIMA, April 1986, 17–23.
- Reddy, K.R.K., Tehara, S.S., Goud, P.V., Alikhan, M.M. (1990) Comparison of the antiinflammatory activity of *Eclipta alba* (Bhangra) and *Solanum nigrum* (Mako Khushk) in rat. Journal of Research and Education in Indian Medicine, 9, 43–46.
- Samana, H.C., Ramaswamy, V.M. (1976) Protective effect of *Eclipta alba* in experimentally induced liver damage in dogs. Cheiron, 5, 96–98.
- Thyagarajan et al. (1982) In vitro activation of Hb. Ag by *Eclipta alba* Hassk and *Phyllanthus niruri*. Indian Journal of Medical Research, 76, 124–130.
- Wagner, H., Geyer, B., Kiso, Y., Hikino, H., Rao, G.S. (1986) Coumestans as the main active principles of the liver drugs *Eclipta alba* and *Wedelia calendulacea*, Planta Medica, 5, 370–374.

Bhuiamla

- Agarwal, K., Dhir, H., Sharma, A., Talukdar, G. (1992) The efficacy of two species of *Phyllanthus* in counteracting nickel clastogenicity. Fitoterapia, 63, 49–54.
- Agarwal, S.S., Garg, A., Agarwal, S. (1986) Screening of *Phyllanthus niruri* Linn and *Riccinus communis* Linn on alcohol-induced liver cell damage in non-hepatectomised rats. Indian Journal of Pharmacology, 18, 211–214.
- Alonso, G.D.B., Perez, O.C., Chevalier, P. (1995) In vitro inactivation of Ags HB by plant extracts of *Phyllanthus* genus. Revista Cubana de Medicina Tropical, 47, 127–130.
- Bagchi, G.D., Srivastava, G.N., Singh, S.C. (1992) Distinguishing features of medicinal herbaceous species of *Phyllanthus* occurring in Lucknow District (U.P.) India. International Journal of Pharmacognosy, 30, 161–168.
- Bhatt, A.V., Nair, K.V., Nair, C.A.A. (1981) Ethnobotanical studies in the Silent Valley and the adjoining areas. Bulletin of Medico-Ethno-Botanical Research, 3, 153–161.
- Chandra, T., Sadique, J. (1987) A new recipe for liver injury. Ancient Science of Life, 7, 99–103.
- Cruz, A.B., Moretto, E., Cechinel Filho, V., Niero, R., Montanari, J.L., Yunes, R.A. (1994) Antibacterial activity of *Phyllanthus urinaria*. Fitoterapia, 65, 461–462.
- Dhir, H., Roy, A.K., Sharma, A., Talukdar, G. (1990) Protection afforded by aqueous extracts of *Phyllanthus* species by lead and aluminum salts. Phytotherapy Research, 4, 172–176.
- Dixit, S.P., Achar, M.P. (1983) Bhunyamlaki (*Phyllanthus niruri*) and jaundice in children. Journal National Integrated Medical Association, 25, 269–272.
- Hukeri, V.I., Kalyam, G.A., Kakrani, H.K. (1988) Hypoglycaemic activity of flavonoids of *Phyllanthus fraternus* in rats. Fitoterapia, 59, 68–70.
- Hussain, R.A., Dickey, J.K., Rosser, M.P., Matson, J.A., Kozlowski, M.R., Brittain, R.J., Webb, M.L., Rose, P.M., Fernandes, P. (1995) A novel class of non-peptidic endothelin antagonists isolated from the medicinal herb *Phyllanthus niruri*. Journal of Natural Products, 58, 1515–1520.
- Jayaram, S., Thyagarajan, S.P., Panchanadam, M., Subramanian, S.S. (1987) Anti-hepatitis B virus properties of *Phyllanthus niruri* Linn. and *Eclipta alba* Haussk: in vitro and in vivo safety studies Biomedicine, 7, 9–16.
- Jayaram, S., Thyagarajan, S.P., Sumathi, S., Manjula, S., Malathi, S., Madangopal, N. (1997) Efficacy of *Phyllanthus amarus* treatment in acute viral hepatitis A, B, and non A and non B: an open clinical trial. Indian Journal of Virology, 13, 59–64.
- Jayaram, S., Valliammai, T., Thyagrajan, S.P., Pal, V.G., Jayaraman, K., Madangopal, N. (1990) Study on HBV markers in chronic HbsAg carriers while on treatment with *Phyllanthus amarus* using ELISA and DOT biohybridisation method VIR 3. XIV National Congress of the Indian Association of Medical Microbiologist, Vellore, TN, October 25–27, 1990.
- John, G., Krishnamurthy, S. (1993) Some biochemical effects of *Phyllanthus niruri*: an ayurvedic drug for hepatitis in rats. Medical and Nutritional Research Communication, 1, 40–46.
- Joy, K.L., Kuttan, R. (1995) Anti-oxidant activity of selected plant extracts. Amala Research Bulletin, 15, 68–71.
- Karin, C.S., Liu, C., Lin, M.-T., Lee, S.-S., Faen, C.J., Ren, S., Lien, E.J. (1999) Antiviral tannins from two *Phyllanthus* species. Planta Medica, 65, 43–46.
- Kohale, K.N., Bijwal, D.L., Patnaik, B.S., Sadekar, R.D., Moele, S.G. (1993) Efficacy of *Phyllanthus niruri* Linn in experimentally induced hepatotoxicity in crossbred calves. Indian Journal of Veterinary Medicine, 13, 16–17.

- Milne, A., Lucas, C.R., Waldon, J., Foo, F. (1994) Failure of New Zealand hepatitis B carriers to respond to *Phyllanthus amarus*. New Zealand Medical Journal, 107, 243.
- Moshi, M.J., Uiso, F.C., Mahunnali, R.L.A., Malele, S.R., Swai, A.B.M. (1997) A study of the effect of *Phyllanthus amarus* extract on blood glucose in rabbits. International Journal of Pharmacognosy, 35, 167–173.
- Munshi, A., Mehrotra, R., Panda, S.K. (1993) Evaluation of *Phyllanthus amarus* and *Phyllanthus maderasptensis* as agent for post exposure prophylaxis in neonatal duck hepatitis B virus infection. Journal of Medical Virology, 40, 53–58.
- Nadkarni, K.M. Indian Materia Medica, Vol. I. Popular Prakashan, Bombay, India 1954.
- Ott, M., Thyagarajan, S.P., Gupta, S. (1997) *Phyllanthus amarus* suppresses hepatitis B virus by interrupting interactions between HBV enhancer I and cellulose transcriptase factors. European Journal of Clinical Investigations, 27, 908–915.
- Paulino, N., Cechinel Filho, V., Yunes, R.A., Calixto, J.B. (1996) The relaxant effect of extract of *Phyllanthus urinaria* in the guinea-pig isolated trachea. Evidence for involvement of ATP-sensitive potassium channels. Journal of Pharmacy and Pharmacology, 48, 1158–1163.
- Polya, G.M., Wang, B.H., Foo, L.Y. (1995) Inhibition of signal regulated protein kinases by plant derived hydrolysable tannins. Phytochemistry, 38, 307–314.
- Prakash, A., Satyan, K.S., Wahi, S.P., Singh, K.P. (1995) Comparative hepatoprotective activity of three *Phyllanthus* species, *P. urinaria*, *P. niruri* and *P. simplex* on carbon tetrachloride – induced liver injury in the rat. Phytotherapy Research, 9, 594–596.
- Reddy, B.P., Murthy, V.N., Venkateshwarlu, V., Kokate, C.K., Rambhau, D. (1993) Antihepatotoxic activity of *Phyllanthus niruri*, *Tinospora cordifolia* and *Ricinus communis*. Indian Drugs, 30, 338–341.
- Sane, R.T., Kuber, V.V., Chalissery, M.S., Menon, S. (1995) Hepatoprotection by *Phyllanthus amarus* and *Phyllanthus debilis* in CCl₄-induced liver dysfunction. Current Science 68, 1243–1246.
- Santos, A.R.S., Cechinel Filho, V., Yunes, R.A., Calixto, J.B. (1995) Further studies on the antinociceptive action of the hydroalcoholic extracts from plants of the genus *Phyllanthus*. Journal of Pharmacy and Pharmacology, 47, 66–71.
- Satyan, K.S., Nand Prakash, Singh, R.P., Wahi, S.P. (1994) Chemical and hepatoprotective activity of *Phyllanthus* Linn. Species; Family: Euphorbiaceae. Proceedings of 46th Annual Indian Pharmaceutical Congress. Chandigarh, 28–30 December 1994.
- Shimizu, M., Horie, S., Terashima, S., Ueno, H., Hayashi, T., Arisawa, M., Suzuki, S., Yoshizaki, M., Morita, N. (1989) Studies on aldose reductase inhibitors from natural products II. Active components of a Paraguayan crude drug *Para-parai mi*, *Phyllanthus niruri*. Chemical and Pharmaceutical Bulletin, 37, 2531–2532.
- Shyamsunder, Kodakandla Venkata, Bikram Singh, Raghunath Singh Thakur, Akhtar Hussain, Yoshunobu Kiso, Hiroshi Hikino (1985) Anti-hepatotoxic principles of *Phyllanthus niruri* herb. Journal of Ethnopharmacology, 14, 41–44.
- Singh, R.T., Sharma, A., Handa, S.S. (1994) Standardisation of *Phyllanthus amarus* Schum. & Thonn. Proceedings of 46th Annual Indian Pharmaceutical Congress, Chandigarh, 28–30 December 1994.
- Sivaprakasam, K., Yasodha, R., Sivandanam, G., Veluchamy, G. (1995) Clinical evaluation of *Phyllanthus amarus* Schum & Thonn in diabetic mellitus. Seminar on Research in Ayurveda and Siddha CCRAS, New Delhi, 20–22 March 1995.
- Somanabandhu, A., Nityanguras, S., Mahidol, C., Ruchirawat, S., Likhit-Wityayawind, K., Shieh, H., Chai H., Pezznto and Cordell, G.A. (1993) ¹H and ¹³C NMR assignment of phyllanthin and hypophyllanthin. Lignans that evidence cytotoxic response with cultured multi drug resistant cells. Journal of Natural Products, 56, 233–239.
- Sridhya, N., Periwal, S. (1995) Diuretic, hypotensive and hypoglycaemic effect of *Phyllanthus amarus*. Indian Journal of Experimental Biology, 33, 861–864.
- Thakur, R.S., Puri, H.S., Hussain, A. Major Medicinal Plants of India. Central Institute of Medicinal and Aromatic Plants, Lucknow, India 1989.
- Thyagrajan, S.P. (1982) In vitro inactivation of Hb, Ag by *Eclipta alba* Haussk and *Phyllanthus nirurri*. Indian Journal of Medical Research, 76, 124–130.
- Thyagarajan, S.P., Jayaram, S., Satyasekaran, M., Madangopalan, N. (1990) Efficacy of *Phyllanthus amarus* v/s *Essentiale* in acute viral hepatitis. VIR 5. XIV National Congress of the Indian Association of Medical Microbiologists, Vellore, TN. October 25–27, 1990.
- Thyagarajan, S.P., Subramanian, S., Thirunalasundri, T., Venkateswaran, P.S., Blumberg, B.S. (1988) Effect of *Phyllanthus amarus* on chronic carriers of hepatitis B virus. Lancet, II (8614), 764–766.
- Tripathi, S.C., Patnaik, G.K., Visen, P.K.S., Saraswat, B., Kulshreshtha, D.K., Dhawan, B.N. (1992) Evaluation of hepatoprotective activity of *Phyllanthus amarus* against experimentally induced liver damage in rat. Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, Bihar, India. 5–8 December 1992.
- Ueno, H., Horie, S., Nishi, Y., Shogwa, H., Kawasaki, M., Suzuki, S., Hayashi, T., Arisawa M., Shimizu, M., Yoshizaki, M., Morita, N., Bergenza, L.H., Ferro, E., Bagua, Wo, I. (1988) Chemical and pharmaceutical studies on medicinal plants in Paraguay, geraniin an angiotensin-converting enzyme inhibitor from *Paraparai Mi Phyllanthus nirurui*. Journal of Natural Products, 51, 357–365.

- Umarani, D., Devaki, T., Govindraju, P., Shanmugasundram, K.R. (1985) Ethanol-induced metabolic alternations and the effect of *Phyllanthus niruri* in their reversal. *Ancient Science of Life*, 4, 174–180.
- Unander, D.W., Blumberg, B.S. (1991) In vitro activity of *Phyllanthus* (Euphorbiaceae) species against the DNA polymerase of hepatitis viruses: effect of growing environment and inter and intra-specific differences. *Economic Botany*, 45, 225–242.
- Unander, D.W., Webster, G.L., Blumberg, B.S. (1995) Usage and bioassays in *Phyllanthus* (Euphorbiaceae). IV Clustering of antiviral uses and other effects. *Journal of Ethnopharmacology*, 45, 1–18.
- Venkateswaran, P.S., Millman, I., Blumberg, B.S. (1987) Effect of an extract of *Phyllanthus niruri* on hepatitis B and woodchuk hepatitis viruses: in vitro and in vivo studies. *Proceedings National Academy of Sciences USA*, 84, 274–278.
- Zhibao, M., Shan, C.H., Xitan, Z., Wu, S.X., Zhuang, L., Xioming, W. (1995) Duck hepatitis B virus model for screening of antiviral agents from medicinal herbs. *Chinese Medical Journal*, 108, 660–664.

Brahmi

- Abhang, R. (1993) Study to evaluate the effect of a micro (suksma) medicine derived from brahmi (*Herpestis monierra*) on students of average intelligence. *Journal of Research in Ayurveda and Siddha*, 14, 10–21.
- Bhattacharya, S.K., Ghoshal, S. (1998) Anxiolytic activity of a standardised extract of *Bacopa monniera*: an experimental study. *Phytomedicine*, 5, 77–82.
- Chopra, R.N., Nayar, S.L., Chopra, I.C. *Glossary of Indian Medicinal Plants*. Council of Scientific and Industrial Research, New Delhi, India 1955.
- Dar, A., Channa, S. (1997) Relaxant effect of ethanol extract of *Bacopa monniera* on trachea, pulmonary activity and aorta from rabbits and guinea pigs. *Phytotherapy Research*, 11, 323–325.
- Deshpande, P.J., Lalita Prasad (1978) Role of indigenous drugs as preanaesthetic agents. *Journal of Research in Indian Medicine, Yoga and Homoeopathy*, 13, 1–8.
- Dey, C.D., Bose, S., Mitra, S. (1976) Effect of some centrally active phyto products on maze learning of albino rats. *Indian Journal of Physiology and Allied Sciences*, 30, 88–97.
- Elangovan, V., Govindasamy, S., Ramamoorthy, N., Balasubramanian, K. (1995) In vitro studies on the anticancer activity of *Bacopa monnieri*. *Fitoterapia*, 66, 211–215.
- Jain, P., Khanna, N.K., Pendse, V.K., Godhwani, J.L. (1994) Antiinflammatory effects of an Ayurvedic preparation, *Brahmi rasayana* in rodents. *Indian Journal of Experimental Biology*, 32, 633–636.
- Khanna, T. Ahmad, B. (1992) Some beta adrenergic activity of saponins derived from ethanolic extract of *Bacopa monniera*. *Proceedings of Conference on Trends in Molecular and Cellular Cardiology*, Lucknow. 4–5 May, 1992.
- Kiri, A.K., Khan, K.A. (1996) Chromosome aberrations, sister chromatid exchange and micronuclei formation analysis in mice after in vivo exposure to Bacoside A and B. *Cytologia*, 6, 99–103.
- Martis, G., Rao, A., Karanth, K.S. (1992) Neuropharmacological activity of *Herpestis monniera*. *Fitoterapia*, 63, 399–404.
- Nair, V., Sadanand, S., Athaval, V.B. (1976) "Brahmi" as an anticonvulsant: trials in rats and in patients with tuberculous meningitis. *Pediatric Clinics India*, 11, 246–252.
- Singh, H.K., Dhawan, B.N. (1994) Pre-clinical neuro-psychopharmacological investigations on bacosides: A nootropic memory enhancer. *Update Ayurveda 94*. Bombay, India, 24–26 February, 1994.
- Singh, R. H., Singh, L. (1980) Studies on the anti-anxiety effect of the Medhya rasayana drug, Brahmi (*Bacopa monniera* Wettst). Part I. *Journal of Research in Ayurveda and Siddha*, 1, 133–148.
- Singh, R.H., Singh, L., Sen, S.P. (1979) Studies on the anti-anxiety effect of the Medhya rasayana drug Brahmi (*Bacopa monniera* Linn). Part II. Experimental studies. *Journal of Research in Indian Medicine, Yoga and Homoeopathy*, 14, 1–6.
- Singh, R.H., Sinha, A.N., Pandey, H.P. (1975) A comparative study on the psychotropic action of the Medhya drugs, Brahmi (*Bacopa monniera*) and Mandukaparni (*Hydrocotyl asiatica*). *Journal of Research in Indian Medicine*, 10, 108–110.
- Tripathi, Y.B., Chaurasia, S., Tripathi, E., Upadhyaya, A., Dubey, G.P. (1996) *Bacopa monniera* Linn as an anti-oxidant mechanism of action. *Indian Journal of Experimental Biology*, 34, 523 – 526.
- Vohora, S.B., Khanna, T., Athar, M., Bahar Ahmed (1997) Analgesic activity of bacosine, a new triterpene isolated from *Bacopa monnieri*. *Fitoterapia*, 68, 361–365.

Chitrak

- Dhar, S.K., Rao, P.G. (1995) Hormonal profile of plumbagin. *Fitoterapia*, 66, 442–446.
- Emerson Solomon, F., Sharda, A.C., Uma Devi, P. (1993) Toxic effects of crude root extract of *Plumbago rosea* (Rakta chitraka) on mice and rats. *Journal of Ethnopharmacology*, 38, 79–84.
- Ganasoundari, A., Zare, S.M., Uma Devi, P. (1997) Modification of bone marrow radiosensitivity by medicinal plant extracts. *British Journal of Radiology*, 70, 599–602.
- Purushothaman, K.K., Mohana, K., Susan, T. (1985) Biological profile of plumbagin. *Bulletin Medico Ethnobotanical Research*, 6, 177–188.
- Shanavaskhan, A.E., Biru, S., Unniathan, M.D., Santhoshkumar, E.S., Pushpagandan, P. (1997) Detoxification techniques of traditional physicians of Kerala, India on some toxic herbal drugs. *Fitoterapia*, 68, 69–74.
- Sharma I., Gusain D., Dixit V.P. (1991) Hypolidaemic and antiatherosclerotic effect of plumbagin in rabbits. *Indian Journal of Physiology and Pharmacology*, 35, 10–14.
- Uma Devi, P., Emerson Solomon, F., Sharada, A.C. (1994) In vivo tumour inhibitory and radiosensitising effects of an Indian medicinal plant, *Plumbago rosea*, on experimental mouse tumours. *Indian Journal of Experimental Biology*, 32, 523–528.

Draksha

- Liviero, L., Puglisi, P.P., Morazzoni, P., Bombardelli, E. (1994) Antimutagenic activity of procyandins from *Vitis vinifera*. *Fitoterapia*, 65, 203–209.
- Waterhouse, A.L. (1995) Wine and heart disease. *Chemistry and Industry*, No 9, 338–341.

Gaduchi

- Ansari, M.S., Gaur, S.K. (1983) On the medicinal utility of Giloy. *Nagarjun*, 26, 12.
- Bhattacharya, S.K., Satyan, K.S., Chakraborti, A. (1997) Effect of Trasina, an ayurvedic herbal formulation, on pancreatic islet superoxide dismutase activity in hyperglycaemic rats. *Indian Journal of Experimental Biology*, 35, 297–299.
- Bisset, N.G., Nwaiwu, J. (1983) Quaternary alkaloids of *Tinospora* spp. *Planta Medica*, 48, 275.
- Biswas, T.K., Chattopadhyaya, R.N., Dutta, S., Marjit, B., Maity, L.N. (1993) A preliminary study on antiulcerogenic effect of three indigenous drugs. *Indian Journal of Physiology and Allied Sciences*, 47, 170–175.
- Cavin, A., Hostettmann, K., Dyatmyko, W., Potterat, O. (1998) Antioxidant and lipophilic constituents of *Tinospora crispa*. *Planta Medica*, 64, 393–396.
- Deshmukh, A., Usha, D. In vitro effect of *Tinospora cordifolia* on PMN function. *Update Ayurveda* 94, Bombay, 24–26 February, 1994.
- Deshmukh, R., Ranade, S.B. (1995) Sandhishoola-sandhishotha and Amrutadi guggulu, in Kulkarni, P.H., ed., *Advanced Research Papers*.
- Dhamnskar, R.K., Tanksale, K.G., Ainapurne, S.S. Hypoglycaemic effect of *Tinospora cordifolia* with special reference to enzymes in glycolytic pathway. *Proceedings of 46th Annual Indian Pharmaceutical Congress*, Chandigarh, India. 28–30 December, 1994.
- Dhanukar, S.A., Thatte, U.M., Pai, N., Move, B.B., Karandikar, S.M. (1988) Immunotherapeutic modification by *Tinospora cordifolia* of abdominal sepsis induced by caecal ligation in rats. *Indian Journal of Gastroenterology*, 7, 21–23.
- Dhawale, D.P. Effect of *Tinospora cordifolia* on thymocyte counts in normal and lymphopenic mice. *Update Ayurveda*–94, Bombay India. 24–26 February, 1994.
- Dhuley, J.N. (1997) Effect of some Indian herbs on macrophage functions in ochratoxin A treated mice. *Journal of Ethnopharmacology*, 58, 15–20.
- Gulati, O.D., Pandey, D.C. (1982) Antiinflammatory activity of *Tinospora cordifolia*. *Rheumatism*, 17, 76–83.
- Gulati, O.D., Shah, C.P., Kanani, R.C., Vaidya D.C., Shah, D.S. (1980) Clinical trial of *Tinospora cordifolia* in rheumatoid arthritis. *Rheumatism*, 15, 143–148.
- Javle, H.S., Koti, R.S., Bapat, R.D. Antiedotoxic effect of *Tinospora cordifolia*. *Update Ayurveda*–94, Bombay, India. 24–26 February, 1994.
- Kishore, P., Pandey, P.N., Ruhil (1980) Role of Sunthi-Gaduci in the treatment of amvata-rheumatoid arthritis. *Journal of Research in Ayurveda and Siddha*, 1, 417–420.
- Koti, R.S., Rege, N.N., Javle, H.S., Desai, N.K., Bapat, R.D., Dahnukar, S.A. *Tinospora cordifolia*: A boon in therapy of multiorgan dysfunction in obstructive jaundice. *Update Ayurveda* 94, Bombay, India, 24–26 February, 1994.

- Mhaiskar, V.B., Pandey, D.C., Karmakar, K.B. (1976) Clinical evaluation of *Tinospora cordifolia* in amvata and sandhigatvata. *Rheumatism*, 11, 77–81.
- Maurya, R., Wazir, V., Kapil, A., Kapil, S. (1996) Cordifoliosides A and B, two new phenylpropene disaccharides from *Tinospora cordifolia* possessing immunostimulant activity. *Natural Product Letters*, 8, 7–10.
- Nayampalli, S.S., Desai, N.K., Ainapure, S.S. (1988) Antiallergic properties of *Tinospora cordifolia* in animal models. *Indian Journal of Pharmacology*, 18, 250–252.
- Noor, N., Ashroft, S.J.H. (1989) Antidiabetic effects of *Tinospora crispa* in rats. *Journal of Ethnopharmacology*, 27, 149–161.
- Oke, V.G., Ainapure, S.S., Molgiri, S.R., Shah, N.D., Dhar, H. L. Diuretic action of *Tinospora cordifolia* (Abstract). 9th Annual Conference of Indian Pharmacological Society, Varanasi, Dec. 29–31, 1976. *Indian Journal of Pharmacology*, 9, 77. Abstr.92.
- Pathak, A.K., Jain, D.C., Sharma, R.P. (1995) Chemistry and biological activities of the genera *Tinospora*. *International Journal of Pharmacognosy*, 33, 277–287.
- Peer, F., Sharma, M.C., Prasad, M.C. (1990) Efficacy of Liv.52 and *Tinospora cordifolia* in experimental C 14 hepatopathy in goats. *Indian Journal of Animal Sciences*, 60, 526–531.
- Pendse, V.K., Dadhich, A.P., Mathur, P.N., Bal, B.M.S., Madan, B.R. (1977) Antiinflammatory, immunosuppressive and some related pharmacological actions of the water extract of neem giloe (*Tinospora cordifolia*) a preliminary report. *Indian Journal of Pharmacology*, 9, 221–224.
- Pokharankar, S.L., Nagarkatti, D.S. Modulation of alveolar macrophage function by antituberculous agents and *Tinospora cordifolia*. Update Ayurveda–94, Bombay, India, 24–26 Feb. 1994.
- Prasad, H.C., Majumdar, R., Chakraborty, R. Hypoglycaemic and antihyperglycaemic effect of medicinal plants from Assam. International Seminar-Traditional Medicine, Calcutta, 7–9 November 1992.
- Rani, P.U., Naidu, M.U.R. (1998) Subjective and polysomnographic evaluation of a herbal preparation in insomnia. *Phytomedicine*, 5, 253–257.
- Reddy, B.P., Murthy, V.N., Venkateshwarlu, V., Kokate, C.K., Rambhau, D. (1993) Antiheptotoxic activity of *Phyllanthus niruri*, *Tinospora cordifolia* and *Ricinus communis*. *Indian Drugs*, 30, 338–341.
- Rege, N., Dhanukar, S., Karndikar, S.M. (1984) Hepatoprotective effects of *Tinospora cordifolia* against carbon tetrachloride-induced liver damage. *Indian Drugs*, 21, 544–555.
- Rege, N., Nazareth, H.M., Bapat, R.D., Dhanukar, S.A. (1989) Modulation of immunosuppression in obstructive jaundice by *Tinospora cordifolia*. *Indian Journal of Medical Research*, 90, 478–483.
- Sarma, D.N.K., Khosa, R.L., Chansuria, J.P.N., Ray, A.K. (1995a) Effect of *Tinospora cordifolia* on brain neurotransmitters in stressed rats. *Fitoterapia*, 66, 421–422.
- Sarma, D.N.K., Khosa, R.L., Chansuria, J.P.N., Sahai, M. (1995b) Anti-ulcer activity of *Tinospora cordifolia* Miers and *Centella asiatica* Linn. extracts. *Phytotherapy Research*, 9, 589–590.
- Sarma, D.N.K., Khosa, R.L., Chansuria, J.P.N., Sahai, M. (1996) Antistress activity of *Tinospora cordifolia* and *Centella asiatica* extracts. *Phytotherapy Research*, 10, 181–183.
- Shah, D.S., Pandya, D.C. (1976) A preliminary study about the anti-inflammatory activity of *Tinospora cordifolia*. *Journal of Research in Indian Medicine, Yoga and Homoeopathy*, 11, 77–83.
- Sharma, D.N.K., Khosa, R.L. (1993) Chemistry and pharmacology of *Tinospora cordifolia* Miers. *Indian Drugs*, 30, 549–554.
- Siddiqui, A.A., Zafar, R. (1995) *Tinospora cordifolia* Miers. A review. *Hamdard Medicus*, 38, 85–90.
- Sipahimalani, A., Norr, H., Wagner, H. (1994) Phenylpropanoid glycosides and tetrahydro-furofuran lignan glycosides from the adaptogenic plant drugs, *Tinospora cordifolia* and *Drypetes roxburghii*. *Planta Medica*, 60, 596–597.
- Tillu, C.V. Comparative effects of plant products on stress-induced damage. Update Ayurveda–94, Bombay, India, 24–26 February, 1994.
- Usha, D., Thatte, U.M., Joshi, D.S. Flow cytometry evaluation of bone marrow proliferation induced by *Tinospora cordifolia*. Update Ayurveda–94, Bombay, India, 24–26 February, 1994.
- Wadood, N., Wadood, A., Shah, S.A.W. (1992) Effect of *Tinospora cordifolia* on blood glucose and total lipid levels of normal and alloxan-diabetic rabbits. *Planta Medica*, 58, 131–136.

Gokshru

- Anand, R., Patnaik, G.K., Srivastava, S., Kulshreshtha, D.K., Dhawan, B.N. (1994) Evaluation of antiurolithiatic activity of *Tribulus terrestris*. *International Journal of Pharmacognosy* 32, 217–224.
- Anon. Encyclopaedia of Chinese Medicinal Substances. Shanghai People's Publishers, Shanghai, China 1977.
- Anon. Selected Medicinal Plants. Chemxcil, Bombay, India 1992.
- Bowen, W., Long'en, M. Tongku (1990) Clinical observation on 406 cases of angina pectoris of coronary heart disease treated with saponin of *Tribulus terrestris*. *Chinese Journal of Traditional and Western Medicine*, 10, 85–87.

- Fang, S., Hao, C., Liu, Z., Song, F., Liu, S. (1999) Application of electrospray ionisation, mass spectrometry techniques for the profiling of steroid saponin mixture extract from *Tribulus terrestris*. *Planta Medica*, 65, 68–73.
- Jian, Xin Li, Shi, Q., Xiong, G., Prasain, J.K., Tezuka, Y., Hareyama, T., Wang, Zlex, tanaka, K., Namba, T., Kadota, S. (1998) Tribulusamide A & B, new hepatoprotective lignamides from the fruits of *Tribulus terrestris*: Indication of cytoprotective activity in murine hepatocyte culture. *Planta Medica*, 64, 628–631.
- Lee, J.W., Choi, J.H., Kang, S.M. (1992) Screening of medicinal plants having hepatoprotective activity. Effect with primary cultured hepatocytes intoxicated using carbon tetrachloride cytotoxicity. *Korean Journal of Pharmacognosy*, 23, 268–275.
- Mahato, S.B., Sahu, N.P., Pal, B.C., Chakravarti, R.N., Chakravarti, D., Ghosh, A. (1978) Screening of *Tribulus terrestris* plants for diosgenin. *Journal Institute of Chemistry (India)*, 50, 49–50.
- Miles, C.O., Wilkins, A.L., Erasmus, G.L., Kellerman, T.S., Coetzer, J.A.W. (1994) Photosensitivity in South Africa. VII. Chemical composition of biliary crystals from a sheep with experimentally induced geeldikkop. *Onderstepoort Journal of Veterinary Research*, 61, 215–222.
- Nagarkatti, D.S., Rege, N.N., Mittal, B.V., Uchil, D.A., Desai, N.K., Dahanukar, S.A. Avenue ahead: Nephroprotection by *Tribulus terrestris*. *Update Ayurveda–94*, Bombay, India 1994.
- Noogi, N.C., Chakraborty, B., Sikadar, S., Ray, N.M. (1977) Investigations on the pharmacological properties of *Tribulus terrestris*. *Indian Medical Gazette*, 17, 174–176.
- Prakash, Deepak, Singh, P.N., Wahi, S.P. (1985) An evaluation of *Tribulus terrestris* L. (chota gokhru). *Indian Drugs*, 22, 332–333.
- Sangeeta, D., Sidhu, H., Thind, S.K., Nath, R., Vaidyanathan, S. (1993) Therapeutic response of *Tribulus terrestris* (Gokhru) aqueous extract on hyperoxaluria in male adult rats. *Phytotherapy Research*, 7, 116–119.
- Sangeeta, D., Sidhu, H., Thind, S.K., Nath, R. (1994) Effect of *Tribulus terrestris* on oxalate metabolism in rats. *Journal of Ethnopharmacology*, 41, 61–66.
- Santha, G., Iyer, G.Y.N. (1967) Preliminary studies on the diuretic effects of *Hygrophila spinosa* and *Tribulus terrestris*. *Indian Journal of Medical Research*, 55, 714–716.
- Schreter, I.A. (1980) Distribution of *Tribulus terrestris* L. in the Soviet Union. *Rastitelnye Resursy*, 16, 513–523 (in Russian).
- Seth, S.D., Jagdeesh, G. (1976) Cardiac action of *Tribulus terrestris*. *Indian Journal of Medical Research*, 64, 1821–1825.
- Singh, R.G., Singh, R.P., Usha, Shukla, K.P., Singh, P. (1991) Experimental evaluation of diuretic action of herbal drug *Tribulus terrestris* on albino rats. *Journal of Research and Education in Indian Medicine*, 10, 19–21.
- Suru, P.P., Kulkarni, P.H. (1991) Study of use of *Varunadi Kwath* in Mutrakruchchra. *Deerghayu International*, 7, 2–4.
- Tomova, M. (1987) Tribestan (A preparation from *Tribulus terrestris*). *Farmatsiya* (in Russian), 37, 40–42.
- Wang Yan, Ohtani, K., Kasai, R., Yamasaki, R. (1996) Steroidal saponins from fruits of *Tribulus terrestris*. *Phytochemistry*, 42, 1417–1422.

Guggal

- Agrawal, R.C., Singh, S.P., Saran, R.K., Das, S.K., Sinha, M., Asthana, O.P., Gupta, P.P., Nityanand, S., Dhawan, B.N., Agarwal, S.S. (1986) Clinical trials of guggulipid-a new hypolipidemic agent of plant origin in primary hypolipidaemia. *Indian Journal of Medical Research*, 84, 624–634.
- Ahluwalia, P., Amma, M.K.P. (1988) Effect of oral ingestion of oleo-resin of gum guggal on the fecal excretion of cholesterol and bile acids in hypo- and hypercholesterolemic rats. *Research Bulletin Punjab University*, 39, 53–55.
- Arora, R.B., Gupta, L., Sharma, R.C., Gupta, S.K. (1973) A standardisation of Indian indigenous drugs and preparations. III Standardisation of Yogaraj Guggulu with reference to its anti-inflammatory activity. *Journal of Research in Indian Medicine*, 8, 20–24.
- Arora, R.B., Sharma, J.N., Shastri, H. (1982) Beneficial effect of fraction of gum guggal in arthritic syndrome and liver function in clinical and experimental arthritis. *Rheumatism*, 18, 9–16.
- Arora, R.C., Agarwal, N., Arora, S. (1995) Evaluation of CTI (cardioprotective drug) in subjects of coronary artery disease, hypertension and diabetes mellitus. *Flora and Fauna*, 1, 203–205.
- Autarkar, D.S., Pande, R., Athavale, A.V., Saoji, S.R., Shah, K.N., Jakhmola, A.T., Vaddya, A.B. (1984) Phase I Tolerability study of Yogarajguggulu, a popular Ayurvedic drug. *Journal Postgraduate Medicine*, 30, 111–115.
- Bagi, M.K., Kakrani, H.K., Kalyani, C.A., Datyanarayana, D., Manvi, F.V. (1985) Preliminary pharmacological studies of essential oil from *Commiphora mukul*. *Fitoterapia*, 56, 245–248.
- Baldwa, V.S., Sharma, R.C., Ranka, P.C., Chittora, M.D. (1980) Effect of *Commiphora mukul* (guggal) on fibrinolytic activity and platelet aggregation in coronary artery disease. *Rajasthan Medical Journal*, 19, 84–86.
- Bhatt, A.D., Dalai, D.G., Shah, S.J., Joshi, B.A., Gajjar, M.N., Vaidya, R.A., Vaidya, R.B., Autarkar, D.S. Challenge of assessing efficacy of guggulu in obesity. Pointers from a naturalistic trial. *Update–94*, Ayurveda,

- Bombay, 24–26 Feb., 1994.
- Bordia, A., Chuttani, S.K. (1979) Effect of gum guggulu on fibrinolysis and platelet adhesiveness in coronary heart disease. Indian Journal of Medical Research, 70, 992–996.
- Chandrasekharan, A.N., Porkodi, R., Radhamadhavan, Parthiban, M., Bhatt, N.S. (1994) Study of Ayurvedic drugs in rheumatoid arthritis compared to auranofin. Indian Practitioner, 57, 489–502.
- Chaurasia, S., Tripathi, P., Tripathi, Y.B. (1995) Antioxidant and anti-inflammatory property of Sandhika: a compound herbal drug. Indian Journal of Experimental Biology, 33, 428–432.
- Dogra, J., Aneja, N., Saxena, V.N. (1990) Oral gugulipid in acne vulgaris management. Indian Journal of Dermatology, Venereology and Leprology, 56, 381–383.
- Dubey, G.P., Singh, S., Mishra, A.K. Effects of Pushkar-guggulu on body composition in CHD cases. Seminar on Research in Ayurveda and Siddha, CCRAS, New Delhi, India, 20–22 March, 1995.
- Duwiejua, M., Zeitlin, I.J., Waterman, P.G., Chapman, J., Mhango, G.J., Proven G.J. (1993) Anti-inflammatory activity of resins from some species of the plant Burseraceae. Planta Medica, 59, 12–16.
- Gopal, K., Saran, K.K., Nityanand, S., Gupta, P.P., Hasan, M., Das, M., Sinha, N., Agarwal, S.S. (1986) Clinical trials of ethyl acetate extract of gum guggal (guggulipid) in primary hyperlipidaemia. Journal Association of Physicians of India, 34, 249–251.
- Gupta, M., Tripathi, S.N., Prasad, B. (1974) Effect of extract of gum guggulu on estrogen-induced hyperlipidemia in chicks. Journal of Research in Indian Medicine, 9, 4–11.
- Gupta, M., Tripathi, S.N., Upadhyay, B.N. (1978) Assessment of hypocholesterolemic and hypolipidemic action of *Commiphora mukul* in human beings suffering from lipid disorders. Antiseptic, 75, 271–275.
- Kakrani, H.K. (1981) Guggal – a review. Indian Drugs, 18, 417–421.
- Kakrani, H.K., Kalyani, G.A. (1984) Anthelmintic activity of essential oil of *Commiphora mukul*. Fitoterapia, 55, 232–234.
- Kishore, P., Devi Das. K.V., Banerjee, S. (1987) Clinical studies on the treatment of amvata-rheumatoid arthritis with sunthi-guggal. Journal of Research in Ayurveda and Siddha, 3, 133–146.
- Kotiyal, J.P., Singh, D.S., Bisht, D.B. (1985) Gum guggulu (*Commiphora mukul*) fraction A in obesity – A double blind clinical trial. Journal of Research in Ayurveda and Siddha, 1, 20–35.
- Kulkarni, P.H. (1991) Clinical study of effect of sookshma (subtle) Triphala Guggulu (TG3X) in obesity. Deerghayu International, 7, 17–22.
- Kulkarni, P.H., Paranjape, P. (1990) Clinical assessment of Ayurvedic anti-obesity drugs. A double blind placebo controlled trial. Journal of the National Integrated Medical Association, 32, 7–11.
- Kuppurajan, K., Rajagopalan, S.S., Koteswara, Rao, Vijayalakshmi, A.N., Dwarkananth, C. (1973) Effect of Guggulu (*Commiphora mukul* Engl.) on serum lipids in obese subjects. Journal of Research in Indian Medicine, 8, 1–8.
- Majumdar, A. (1979) Clinical studies of drugs (Bhallatak, Gourakh & Guggulu) in rheumatoid arthritis. Rheumatism, 14, 118–130.
- Majumdar, K.A. (1984) Role of gum guggulu with gold in rheumatic and other allied diseases. Rheumatism, 20, 9–15.
- Malhotra, C.L., Agarwal, Y.K., Mehta, V.L., Prasad, S. (1970) The effect of various fractions of gum guggal on experimentally produced hypercholesterolemia in chicks. Indian Journal of Medical Research, 58, 394.
- Mehra, B.L., Gurdip Singh (1986) A comparative study on the effect of Nirgundi Pak, Pinda Sneha and Suddh Guggal (controlled temperature) on the patients of Griva Hundanam (cervical spondylosis). Rheumatism, 21, 88.
- Nair, P.R.C., Vijayan, N.P., Pillai, B.K.R., Venkatraghavan, S. (1978) The effect of Nirgundi Panchang and Guggal in sodhana cum samana and samana treatment of Gridhras (sciatica). Journal of Research in Indian Medicine, Yoga and Homeopathy, 13, 13–18.
- Nandkarni, K.M. (1954) Indian Materia Medica. Part I. Popular Prakashan, Bombay.
- Panda, M. (1990) The effect of Laksha Guggulu in the clinical management of fracture. Journal of Research in Ayurveda and Siddha, 11, 13–18.
- Pandey, V.K., Sharma, A.K. (1986) Evaluation of *Vatahari* Guggal and Nadivaspas sweda in the management of rheumatic diseases. Rheumatism, 22, 1–6.
- Pandit, M.M., Shukla, C.P. (1981) Study of shuddha guggulu on rheumatoid arthritis. Rheumatism, 16, 54–67.
- Patil, N.D., Dewoolkar, Chheda, M.S. (1995) Effect of guggal on lipid profile and glycosylated HB in obese subjects, Project report. Biorhythm, 57–59.
- Purushottam Dev (1979) Assessment of the ability of *Vatari Guggulu* to modify inflammatory pain. Rheumatism, 14, 39–44.
- Rao, T.S., Kusuma Kumari, Netaji, B., Subhakta, P.K.J.P. (1985) A pilot study of svetpradra (leucorrhoea) with Amalaka guggulu. Journal of Research in Ayurveda and Siddha, 6, 213–237.
- Sann, B.N., Kumari, K. (1994) Preliminary clinical trial of Trikushta guggulu in the treatment of sandhigatavata (osteoarthritis). Sachitra Ayurveda, 46, 765–771.
- Satyavati, G.V. (1988) Gum guggal (*Commiphora mukul*) – The success story of an ancient insight leading to a modern discovery. Indian Journal of Medical Research, 87, 327–335.

- Satyavati, G.V., Dwarkantah, C., Tripathi, S.N. (1969) Experimental studies on the hypocholesterolemic effect of *Commiphora mukul* Engl (Guggal). Indian Journal of Medical Research, 57, 1950–1962.
- Saukhala, A., Mathur, P.N., Saukhala, A.K., Dashora, P.K. (1992) Comparative efficiency of Shilajeet and gum guggal (*Commiphora mukul*) in preventing diet-induced hypercholesterolemia in Wistar rats. Indian Journal of Clinical Biochemistry, 7, 45–48.
- Shanavaskhan, A.E., Binu, S., Unnithan, M.D., Santoshkumar, E.S., Pushpangadan, P. (1997) Detoxification techniques of traditional physicians of Kerala, India on some toxic herbal drugs. Fitoterapia, 68, 69–74.
- Sharma, J.N., Rajpal, M.N., Rao, T.S., Gupta, S.K. (1988) Some pharmacological investigations on the alcoholic extract of Triphala alone and in combination with petroleum ether extract of oleo-gum resin of *Commiphora mukul*. Indian Drugs, 25, 220–223.
- Sharma, K., Puri, A.S., Sharma, R., Prakash, S. (1976) Effect of gum guggal on serum lipids in obese subjects. Journal of Research in Indian Medicine, Yoga and Homoeopathy, 11, 132–134.
- Shukla, K.P., Singh, S.P., Kishore, N., Singh, D.R., Srivastava, S. (1985) Evaluation of Rasanadi Guggulu compound in the treatment of rheumatoid arthritis. Rheumatism, 21, 16–15.
- Singh, A.K., Tripathi, S.N., Prasad, G.C. (1983) Response of *Commiphora mukul* (Guggulu) on melatonin-induced hyperthyroidism. Ancient Science of Life, 3, 85–90.
- Singh, A.K., Tripathi, S.N., Prasad, G.C. (1985) Hormonal response of thyroid gland to *Commiphora mukul* and LATS in tissue culture. Bulletin Ethno-Botanical Research, 6, 155–164.
- Singh, K., Chander, R., Kapoor, N.K. (1997) Guggulsterone, a potent hypolipidemic, prevents oxidation of low density lipoprotein. Phytotherapy Research, 11, 291–294.
- Singh, R., Singh, R.P., Batliwala, P.G., Upadhyaya, B.N., Tripathi, S.N. (1993) Puskara-Gugguluan antianginal and hypolipidemic agent in coronary heart disease (CHD). Journal of Research in Ayurveda and Siddha, 12, 1–18.
- Tripathi, S.N., Gupta, M., Dwivedi, L.D., Sen, S.P. (1975) Regression of hyperlipidemia with an active principle of *Commiphora mukul*. Journal of Research in Indian Medicine, Yoga and Homoeopathy, 10, 11–16.
- Tripathi, Y.B., Malhotra, O.P., Tripathi, S.N. (1984) Thyroid stimulating action of z-guggulosteron obtained from *Commiphora mukul*. Planta Medica, 50, 78–80.
- Tripathi, Y. B., Tripathi, A., Malhotra, O.P., Tripathi, S.N. (1988) Thyroid stimulating action of (z) guggalsterone. Mechanism of action. Planta Medica, 54, 271–277.
- Tyagi, M.K., Prasad, R.D. Clinical evaluation of the effect of Trayodshang guggulu and Vistundak vati in the management of Gridhrasi. Seminar on Research in Ayurveda and Siddha, CCRAS, New Delhi (India), 20–22 March, 1995.
- Upadhyaya, G.P., Singh, R.H. (1979) Clinical trials of popular indigenous compounds. Part II. Clinical and microbiological studies on the role of Goksuradi Guggulu in urinary tract infection with obstructive uropathy (Mutrakricchra). Journal of Research in Indian Medicine, Yoga and Homoeopathy, 14, 25–33.
- Varadani, B.V. (1973) Obesity and it's treatment by an indigenous drug LIPIDEX. Indian Medical Gazette, 13, 33–43.
- Verma, S.K., Barodia, A. (1988) Effect of *Commiphora mukul* (gum guggulu) in patients of hyperlipidemia with special reference to HDL cholesterol. Indian Journal of Medical Research, 87, 356–360.
- Vyas, S.N., Shukla, C.P. (1987) A clinical study on the effect of Shuddha guggulu in rheumatic arthritis. Rheumatism, 23, 15–26.

Haritaki

- Awasthi, L., Nath, B. (1968) Chemical examination of *Terminalia chebula* Roxb. Part I. A new cardiac glycoside. Journal of Indian Chemical Society, 45, 913.
- Azeem, M.A., Reddy, B.M., Appa Rao, A.V.N., Prabhkar, M.C., Prasad, M.S.K. (1992) Effect of *Terminalia chebula* extracts on frog heart muscle (Na⁺, K⁺, Mg²⁺) ATPase activity. Fitoterapia, 63, 300–303.
- Chung, T.H., Kim, J.C., Lee, C.Y., Moon, M.K., Chae, S.C., Lee, I.S., Kim, S.H., Hahn, K.S., Lee, I.P. (1997) Potential antiviral effects of *Terminalia chebula*, *Sanguisorba officinalis*, *Rubus coreanus* and *Rheum palmatum* against duck hepatitis B virus (DHBV). Phytotherapy Research, 11, 179–182.
- Dahanukar, S.A., Date, S.G., Karandikar, S.M. (1983) Cytoprotective effect of *Terminalia chebula* and *Asparagus racemosus* on gastric mucosa. Indian Drugs, 20, 442–445.
- Fu Naiwu, Quan Lanping, Huang Lei, Zhang Ruyi, Chen Yayan (1992) Antioxidant action of extract of *Terminalia chebula* and its preventive effect on DNA breaks in human white cells induced by TPA. Chinese Traditional and Herbal Drugs (in Chinese), 23, 26–29.
- Grover, I.S., Saroj Bala (1992) Antimutagenic activity of *Terminalia chebula* (myroblan) in *Salmonella typhimurium*. Indian Journal of Experimental Biology, 30, 339–341.
- Khanna, A.K., Chander, R., Kapoor, N.K., Singh, C., Srivastava, A.K. (1993) Hypolipidemic activity of *Terminalia chebula* in rats. Fitoterapia, 64, 351–356.

- Lee Seung Ho, Ryu ShiYong, Choi SangUn, Lee ChongOck, No ZaeSung, Kim SeongKie, Ahn JongWoong (1995) Hydrolysable tannins and related compound having cytotoxic activity from the fruits of *Terminalia chebula*. Archives of Pharmacal Research, 18, 118–120.
- Reddy, B.M., Ramesh, M., Appa Rao, A.V.N., Prabhakar, M.C. Isolation and studies on cardiotonic activity of active principles from the fruits Terminalia chebula. Proceedings of 46th Annual Indian Pharmaceutical Congress, Chandigarh, 28–30 December, 1994.
- Reddy, V.R.C., Ramana Kumari, S.V., Reddy, B.M., Anzeem, M.A., Prabhakar, M.C., Appa Rao, A.V.N. (1990) Cardiotonic activity of the fruit of *Terminalia chebula*. Fitoterapia, 61, 517–525.
- Sato, Y., Oketani, H., Singyouchi, K., Ohtsubo, T., Kihara, M., Shibata, H., Higuti, T. (1997) Extraction and purification of effective antimicrobial constituents of *Terminalia chebula* Rets. against methicillin resistant *Staphylococcus aureus*. Biological and Pharmaceutical Bulletin, 20, 401–404.
- Sohni, Y.R., Bhatt, R.M. (1996) Activity of a crude extract formulation in experimental hepatic amoebiasis and in immunomodulation studies. Journal of Ethnopharmacology, 54, 119–124.
- Srivastava, R.D., Dwivedi, S., Sreenivasan, K.K., Chandra Shekhar (1992) Cardiovascular effects of *Terminalia* species of plants. Indian Drugs, 29, 144–149.
- Tamhana, M.D., Thorat, S.P. Alternations in gastric motility-induced by Ayurvedic agents. Update Ayurveda–94, Bombay (India) 24–26 Feb. 1994.
- Thakur, R.S., Puri, H.S., Akhtar Hussain Major Medicinal Plants of India. Central Institute of Medicinal and Aromatic Plants, Lucknow, India 1989.
- Tripathi, V.N., Tewari, S.K. (1983) Clinical trials of Haritaki (*Terminalia chebula*) treatment of simple constipation. Sachittar Ayurveda, 35, 733–740.
- Xu HongXi, Wan Min, Loh BoonNee, Kon Olian, Chow Pengwai, Sim KengYeow (1996) Screening of traditional medicines for their inhibitory activity against HIV-1 protease. Phytotherapy Research, 10, 207–210.
- Yokozawa, T., Fujioka, K., Oura, H., Tanaka, T. (1995) Confirmation that tannin containing crude drugs have a uraemic toxin decreasing action. Phytotherapy Research, 9, 1–5.

Hing

Culbreth, D.M.R. A Manual of Materia Medica and Pharmacology. Lea & Febiger, Philadelphia, USA 1927.

Jaiphal and Javitri

- Alpana Ram, Lauria, P., Rajeev Gupta, Sharma, V.N. (1996) Hypolipidemic effect of *Myristica fragrans* fruit extract in rabbits. Journal of Ethnopharmacology, 55, 49–53.
- Chabra, S.K., Rao, A.R. (1994) Transmammary modulation of xenobiotic enzymes in liver of mouse pups by mace (*Myristica fragrans* Houtt.) Journal of Ethnopharmacology, 42, 167–177.
- Bhagwat, A.W., Saifi, A.Q. (1980) Observations on the pharmaceutical actions of the volatile oil of *Myristica fragrans* (Houtt.). Journal of Scientific Research (Bhopal), 20, 183–186.
- Farrell, K.T. Spices, Condiments and Seasoning. Avi Publishing, Westport, Co., USA 1985.
- Hallstrom, H., Thuvander, A. (1997) A toxicological evaluation of myristicin. Natural Toxins, 5, 186–192.
- Hattori, M., Yang, X.W., Miyashiro, H., Namba, T. (1993) Inhibitory effects of monomeric and dimeric phenylpropanoids from mace on lipid peroxidation in vitro and vivo. Phytotherapy Research, 7, 395–401.
- Rashid, A., Misra, D.S. (1984) Antienterotoxicogenic effect of *Myristica fragrans* (nutmeg) on enterotoxicogenic *Escherichia coli*. Indian Journal of Medical Research, 79, 694–696.
- Ratsch, Christian Plants of Love. The History of Aphrodisiacs and a Guide to their Identification and Uses. Ten Speed Press, Berkeley CA, USA 1997.
- Shidore, P.P., Majumdar, S.M., Shrotri, D.S., Majumdar, A.M. (1985) Antidiarrhoeal and antiinflammatory activity of nutmeg extracts. Indian Journal of Pharmaceutical Sciences, 47, 188–190.
- Shin, K.H., Kim, O.N., Woo, W.S. (1988) Isolation of hepatic drug metabolism inhibitors from the seeds of *Myristica fragrans*. Archives of Pharmacal Research, 11, 240–243.

Kabab Chini

Culbreth, D.M.R. A Manual of Materia Medica and Pharmacology. Lea and Febiger, Philadelphia, USA 1927.
Ratsch, Christian Plants of Love. The History of Aphrodisiacs and a Guide to their Identification and Uses. Ten Speed Press, Berkeley, CA, USA 1997.

Kalmegh

- Bhatt, A.D., Bhatt, N.S. (1996) Indigenous drugs and liver diseases. Indian Journal of Gastroenterology, 15, 63–67.
- Burgos, R.A., Caballero, E.E., Sanchez, N.S., Schroeder, R.A., Wikman, G.K., Hancke, J.L. (1997) Testicular toxicity assessment of *Andrographis paniculata* dried extract in rats. Journal of Ethnopharmacology, 58, 219–224.
- Gupta, P.P., Tandon, J.S., Patnaik, G.K. (1998) Antiallergic activity of andrographolides isolated from *Andrographis paniculata* (Burm.f) Wall. Pharmaceutical Biology, 36, 172–174.
- Hancke, J., Burgos, R., Caceres, D., Wikman, G. (1995) A double blind study with a new mono drug Kan Jang: decrease of symptoms and improvement in the recovery from common colds. Phytotherapy Research, 9, 559–562.
- Handa, S.S., Sharma, A. (1990a) Hepatoprotective activity of andrographolide from *Andrographis paniculata* against carbon tetrachloride. Indian Journal of Medical Research, 92B, 276–283.
- Handa, S.S., Sharma, A. (1990b) Hepatoprotective activity of andrographolide against galactosamine and paracetamol intoxication in rats. Indian Journal of Medical Research, 92B, 284–292.
- Huo, T., Jinzhi, T. (1989) Study on antiplatelet aggregation effect of *Andrographis paniculata*. Chinese Journal of Integrated Traditional and Western Medicine, 9, 540–542.
- Madav, S., Tandon, S.K., Lal, J., Tripathi, H.C. (1996) Anti-inflammatory activity of andrographolide. Fitoterapia, 67, 452–458.
- Madav, S., Tripathi, H.C., Tandan, S.K., Dinesh Kumar, Lal, J. (1998) Antiallergic activity of andrographolide. Indian Journal of Pharmaceutical Sciences, 60, 176–178.
- Madav, S., Tripathi, H.C., Tandon, S.K., Mishra, S.K. (1995) Analgesic, antipyretic and antiulcerogenic effects of andrographolide. Indian Journal of Pharmaceutical Sciences, 57, 121–125.
- Matsuda, T., Kuroyanagi, M., Sugiyama, S., Umehara, K., Ueno, A., Nishi, K. (1994) Cell differentiation-inducing diterpenes from *Andrographis paniculata*. Chemical and Pharmaceutical Bulletin, 42, 1216–1225.
- Melchior, J., Palm, S., Wikman, G. (1996) Controlled clinical study of standardised *Andrographis paniculata* extract in common cold: a pilot trial. Phytomedicine, 3, 314–318.
- Otake, T., Mori, H., Morimoto, M., Ueba, N., Sutardjo, S., Kusumoto, I.T., Haitori, M., Namba, T. (1995) Screening of Indonesian plant extracts for anti-human immunodeficiency virus type I (HIV-1) activity. Phytotherapy Research, 9, 6–10.
- Puri, A., Saxena, R., Saxena, R.P., Saxena, K.C., Srivastava, V. (1993) Immunostimulant agent from *Andrographis paniculata*. Journal of Natural Products, 56, 995–999.
- Premila, M.S. (1995) Emerging frontier in the era of hepatoprotective herbal drugs. Indian Journal of Natural Products, 11, 7.
- Ramesh Chander, Srivastava, V., Tandon, J.S., Kapoor, N.K. (1995) Antihepatotoxic activity of diterpenes of *Andrographis paniculata* (Kal-Megh) against *Plasmodium berghei*-induced hepatic damage in *Mastomys natalensis*. International Journal of Pharmacognosy, 33, 135–138.
- Sarma, R.B.P., Tripathi, S.N. (1992) Effect of Kalamegh and amalkali compounds on viral hepatitis (Koshtha-Shakhashrita Kamala). Aryavaidyan, 5, 164–169.
- Saxena, K.C. (1992) Immunomodulators from plants and their use in prophylaxis and therapy. Proceedings 25th Indian Pharmacological Society Conference, Muzaffarpur, 5–8, December, 1992.
- Shukla, B., Visen, P.K.S., Patnaik, G.K., Dhawan, B.N. (1992) Choleretic effect of andrographolide in rats and guinea pigs. Planta Medica, 58, 146–149.
- Sutarjadi, Santosa, M.H., Bendryman, Dyatmiko, W. (1991) Immunomodulatory activity of Piper betle, *Zingiber aromaticum*, *Andrographis paniculata*, *Allium sativum* and *Oldenlandia corymbosa* grown in Indonesia. Planta Medica, 57 (supplement 2), p. A 136.
- Tajuddin, Shahid, A., Tariq, M. (1983) Anti-inflammatory activity of *Andrographis paniculata* Nees (Chirayata). Nagarjun, 27, 13–14.
- Tomar, G.S., Tiwari, S.K., Chaturvedi, G.N. (1982) Kalmegh (*Andrographis paniculata*) and its medicinal status. Nagarjun, 26, 76–78.
- Tripathi, G.S., Tripathi, Y.B. (1991) Choleretic action of andrographolide obtained from *Andrographis paniculata* in rats. Phytotherapy Research, 5, 176–178.
- Visen, P.K.S., Saraswat, B., Patnaik, G.K., Srimal, R.C., Dhawan, B.N. Curative effect of some hepatoprotective constituents isolated from plants against galactosamine toxicity: In vitro study on primary

cultured rat hepatocytes. Proceedings of 25th Indian Pharmacological Society Conference, Muzaffarpur, 5–8 December, 1992.

Visen, P.K.S., Shukla, B., Patnaik, G.K., Dhawan, B.N. Evaluation of hepatoprotective activity of andrographolide isolated from the plant *Andrographis paniculata*. Proceedings of 24th Indian Pharmacological Society Conference, Ahmedabad, 29–31 December 1991.

Visen, P.K.S., Shukla, B., Patnaik, G.K., Dhawan, B.N. (1993) Andrographolide protects rat hepatocytes against paracetamol-induced damage. *Journal of Ethnopharmacology*, 40, 131–136.

Vishwanathan, S., Kulanthavel, P., Nazimudeen, S.K., Gopal Krishnan, V.T., Kameswaran, C. (1981) The effect of apigenin-7, 4'di-O-methyl ether of a flavone from *Andrographis paniculata* on experimentally induced ulcers. *Indian Journal of Pharmaceutical Sciences*, 43, 159.

Wang, D.W., Zhao, H. (1994) Prevention of atherosclerotic arterial stenosis and restenosis after angioplasty with *Andrographis paniculata* Nees and fish oil. *Chinese Medical Journal*, 107, 464–470.

Zhang, C.V., Tan, B.K.H. (1997) Mechanism of cardiovascular activity of *Andrographis paniculata* in the anaesthetised rat. *Journal of Ethnopharmacology*, 56, 97–101.

Zhao, H.Y., Fang, W.Y. (1991) Combined traditional Chinese and western medicine, Antithrombotic effects of *Andrographis paniculata* Nees in preventing myocardial infarction. *Chinese Medical Journal*, 104, 770–775.

Kawanch

Ahmad, S., Taiyab, M., Amin, K.M.Y. Study of the activity of low and high doses of Tukhame-e-Konch (*Mucuna pruriens*) on CNS. Conference of Pharmacology and Symposium on Herbal Drugs, New Delhi, India, 15 March 1991.

Amin, K.M.Y., Khan, N.A., Rahman, S.Z. (1993) The sexual function improving effect of Tukhm-e-Konch (*Mucuna pruriens*) and its mechanism of action: An experimental study. Proceedings of 1st National Seminar on Ilmul Advia, Beenapara, India, 23–25 April 1993.

Amin, K.M.Y., Khan, N.A., Saleem, A.M. (1993a) The effect of Frah-E-Zilli, a herbal Unani drug, on male sexual function. Proceedings of National Seminar on History of Unani Medicine in India, New Delhi, India. 16–17 April 1993.

Amin, K.M.Y., Khan, M.N., Zilur-Rehman, S., Khan, N.A. (1996) Sexual function improving effect of *Mucuna pruriens* in sexually normal male rats. *Fitoterapia*, 67, 53–58.

Ambekar, M.S., Khan, N.A. (1991) Effect of a compound Unani drug on accessory reproductive organs of male rats. Conference of Pharmacology and Symposium on Herbal Drugs, New Delhi, India, 15 March 1991.

Anantha Kumar, K.V., Srinivasan, K.K., Shanbag, T., Rao, S.G. (1994) Aphrodisiac activity of the seeds of *Mucuna pruriens*. *Indian Drugs*, 31, 321–327.

Elisabetsky, E., Figueiredo, W., Oliveria, G. (1992) Traditional Amazonian nerve tonics as antidepressant agents: *Chaunochiton kappler*: a case study. *Journal of Herbs, Spices and Medicinal Plants*, 1, 125–162.

Ghosh, G. (1982) A note on pharmacognostic and chemical identification of *Mucuna utilis* seed, a substitute of *Mucuna pruriens*. *Indian Drugs*, 20, 24–25.

Iauk, I., Galati, E.M., Kirjavainen, S., Forestieri, A.M., Trovato, A., (1993) Analgesic and antipyretic effects of *Mucuna pruriens*. *International Journal of Pharmacognosy*, 31, 213–216.

Janardhanan, K., Lakshmanan, K.K. (1985) Studies on the pulse, *Mucuna utilis*: Chemical composition and antinutritional factors. *Journal of Food Science and Technology*, 22, 369–371.

Mahajani, S.S., Doshi, V.J., Parikh, K.M., Manyam, B. (1996) Bioavailability of L-Dopa from HP-200: a formulation of seed powder of *Mucuna pruriens* (Bak): a pharmacokinetics and pharmacodynamic study. *Phytotherapy Research*, 10, 245–256.

Rajagopalan, T.G., Antarkar, D.S., Purohit, A.V., Wadia, N.H. Treatment of Parkinson's disease with the cowhage plant: *Mucuna pruriens* Bak. *Symposium on Life and Health Science*, Bharat Vidya Bhawan, New Delhi, India 1978.

Saksena, S., Dixit, V.K. (1987) Role of total alkaloids of *Mucuna pruriens* Baker in spermatogenesis in albino rats. *Indian Journal of Natural Products*, 3, 3–7.

Sambasivarao, K., Tripathi, H.C., Jawahar, Lal, Gupta, P.K. (1982) Influence of drugs on male sex behaviour and its pharmacological aspects: A mini review. *Indian Drugs*, 19, 133–139.

Shanavaskhan, A.E., Binu, S., Unnithan, M.D., Santhoshkumar, E.S. Pushpangandan, P. (1997) Detoxification techniques of traditional physicians of Kerala, India on some toxic herbal drugs. *Fitoterapia*, 68, 69–74.

Singh, R.H., Nath, S.K., Behere, P.B. (1990) Depressive illness as a therapeutic evaluation with herbal drugs. *Journal of Research in Ayurveda and Siddha*, 11, 1–6.

Srinivasan, K.K., Anant Kumar, K.V., Gurumadhava Rao, S. Aphrodisiac activity of the seeds of *Mucuna pruriens* (abstract). Proceedings of 46th Annual Indian Pharmaceutical Congress, Chandigarh, 28–30 December, 1994.

Uguru, M.O., Aguiyi, J.C., Gosa, A.A. (1997) Mechanism of action of the aqueous seed extract of *Mucuna pruriens* on the guinea pig ileum. *Phytotherapy Research*, 11, 328–329.

Yang, H. (1985) L-dopa extracted from seeds of *Mucuna sempervirens* Hemsl., as a promoter of fracture healing. Chinese Journal of Integrated Traditional and Western Medicine, 5, 398–401.

Keshar

- Baker, D., Negbi, M. (1983) Uses of saffron. Economic Botany, 37, 228–236.
- Casoria, P., Laneri, U., Novella, N. (1996) A preliminary note on an interesting species of Crocus (*Crocus longiflorus*, Iridaceae) similar to saffron (*C. sativus*). Economic Botany, 50, 463–464.
- Dufresne, C., Cormier, F., Dorion, S. (1997) In vitro formation of crocetin glucosyl esters by *Crocus sativus* callus extract. Planta Medica, 63, 150–153.
- Escribano, J., Alonso, G.L., Coca-Prados, M., Fernandex, J.A. (1996) Crocin, safranal and picrocrocin from saffron (*Crocus sativus* L.) inhibit the growth of human cancer cell *in vitro*. Cancer Letters, 100 (1/2), 23–30.
- Konoshima, T., Takasaki, M.M., Tokuda, H., Morimoto, S., Tanaka, H., Kwata, E., Xuan, L.J., Saito, H., Sugiura, M., Molnar, J., Shoyama, Y. (1998) Crocin and crocetin derivatives inhibit skin tumour promotion in mice. Phytotherapy Research, 12, 400–404.
- Krishnamurthy, K.H. Khas, Kesar, Nagkesat, Khaskhash. Books for All, Delhi, India 1993.
- Madan, C.L., Kapur, B.M., Gupta, U.S. (1966) Saffron. Economic Botany, 20, 377.
- Nair, S.C., Salami, M.J., Panikkar, B., Panikkar, K.R. (1991) Modulatory effects of *Crocus sativus* and *Nigella sativa* extracts on cisplatin-induced toxicity in mice. Journal of Ethnopharmacology, 31, 75–83.
- Nair, S.C., Varghese, C.D., Panikkar, K.R., Kurumboor, S.K., Parathod, R.K. (1994) Effects of saffron on vitamin A levels and its antitumour activity on the growth of solid tumours in mice. International Journal of Pharmacognosy, 32, 105–114.
- Nishio, T., Okugawa, H., Kato, A., Hashimoto, Y., Matsumoto, K., Fujioka, A. (1987) Effect of Crocus (*Crocus sativus* Linn. Iridaceae) on blood coagulation and fibrinolysis. Shoyakugaku Zasshi (in Japanese), 41, 271–276.
- Rios, J.L., Recio, M.C., Giner, R.M., Manez, S. (1996) An update of saffron and its active constituents. Phytotherapy Research, 10, 189–193.
- Sugiura, M., Saito, H., Abe, K., Shoyama, Y. (1995) Ethanol extract of *Crocus sativus* L. antagonizes the inhibitory action of ethanol on hippocampal long term potentiation *in vivo*. Phytotherapy Research, 9, 100–104.
- Trivedi, Madhuchandrika A best aphrodisiac, saffron. Nirogadham (in Hindi), October-December, 1997.

Kikar

- Anderson D.M.W. (1986) Evidence for the safety of gum arabic (*Acacia Senegal* Willd) as a food additive: a brief review. Food Additives Contaminants, 3, 225–230.
- Saxena Pravar, S.R. Herbal Treatment (in Hindi). Rajasthan Patrika Parkashan, Jaipur, India 1998.
- Singhal, P.C. (1984) Role of gum arabica and gum catechu in glycaemia and cholesterolemia. Current Science, 53, 91.

Kuchla

- Agrawal, V.K., Joshi, D. (1977) Effect of purification (Shodhna) on the alkaloidal concentration of kuchla seeds (*Strychnos nux-vomica* Linn). Journal of Research in Indian Medicine Yoga and Homoeopathy, 12, 43–45.
- Bhanu, M.N., Vasudevan, T.N. (1989) Studies on sodhna of nux-vomica, Indian Drugs, 26, 150–152.
- Furukawa, Y., Saegusa, K., Chiba, S. (1985) Suppression of strychnine on the two chronotropic and inotropic effects in the isolated blood perfused canine atrium. Japanese Journal of Pharmacology, 38, 439–441.
- Panda, P.K., Panda, D.P. (1993) Anti-ulcer activity of nux vomica and its comparison with cimetidine in Shay rat. Indian Drugs, 30, 53–56.
- Shanavaskhan, A.E., Binu, S., Unnithan, M.D., Santhoshkumar, E.S., Pushpagandan, P. (1997) Detoxification techniques of traditional physicians of Kerala, India on some toxic herbal drugs. Fitoterapia, 68, 69–74.

Kulanjan

- Achuthan, C.R., Padikkala, J. (1995) Hypolipidemic effect of *Alpinia galanga* (Rasna) and *Kaempferia galanga* (Kachoor). *Amala Research Bulletin*, 15, 53–56.
- Al Yahya, M.A., Rafatullah, S., Mossa, J.S., Ageel, A.M., Al-Said, M.S., Tariq, M. (1990) Gastric, anti-secretory, anti-ulcer and cytoprotective properties of ethanolic extract of *Alpinia galanga* Wild in rats. *Phytotherapy Research*, 4, 112–114.
- Itokawa, H., Morita, H., Sumitomo, T., Totsuka, N., Takeya, K. (1987) Antitumour principles from *Alpinia galanga*. *Planta Medica*, 53, 32–33.
- Janssen, A.M., Scheiffer, J.J.C. (1985) Acetoxychavicol acetate, an antifungal component of *Alpinia galanga*. *Planta Medica*, 51, 507–511.
- Jung, B.D., Kim, C.H., Kim, J.H., Heo, M.Y. (1996) Protective effect of galangin on carbon tetrachloride-induced hepatotoxicity. *Yakhak Hoeji*, 40, 320–325.
- Kiuchi, F., Iwakami, S., Shibuya, M., Hanaoka, F., Sankawa, U. (1992) Inhibition of prostaglandin and leukotriene biosynthesis by gingerols and diarylheptanoids. *Chemical and Pharmaceutical Bulletin*, 40, 387–391.
- Nadkarni, A.K. *Indian Materia Medica*. Vol. I, Popular Prakashan, Bombay, India 1956.
- Quershi, S., Shah, A.H., Ageel, A.M. (1992) Toxicity studies on *Alpinia galanga* and *Curcuma longa*. *Planta Medica*, 58, 124–127.
- Quershi, S., Shah, A.H., Ahmed, M.M., Rafatullah, S., Bibi, F., Al-Bekairi, A.M. (1994) Effect of *Alpinia galanga* treatment on cytological and biochemical changes induced by cyclophosphamide in mice. *International Journal of Pharmacognosy*, 32, 171–177.
- Ratsch, Christian Plants of Love. The History of Aphrodisiacs and a Guide to their Identification and Use. Ten Speed Press, Berkeley CA, USA 1997.
- Wren, R.C. *Potter's New Cyclopaedia of Botanical Drugs and Preparations*. C.W. Daniel, Essex, England 1975.
- Zheng, G.Q., Kenney, P.M., Lam, L.K.T. (1993) Potential anticarcinogenic natural products isolated from lemongrass oil and galanga root oil. *Journal of Agriculture and Food Chemistry*, 41, 153–156.

Kutaki

- Ansari, R.A., Aswal, B.S., Chander, R., Dhawan, B.N., Garg, N.K., Kapoor, N.K., Kulshreshtha, D.K., Mehdi, H., Mehrotra, B.N., Patnaik, G.K., Sharma, S.K. (1988) Hepatoprotective activity of kutkin—the iridoid glycoside mixture of *Picrorhiza kurrooa*. *Indian Journal of Medical Research*, April 1988, 401–404.
- Bandyopadhyay, B., Bandyopadhyay, S.K. Evaluation of anti ulcer drug from an Indian origin plant *Picrorhiza kurrooa* (Katuki). International Conference on Current Progress in Medicinal and Aromatic Plant Research, Calcutta, India, 30 December 1994–1 January 1995.
- Bedi, K.L., Zuttschi, U., Chopra, C.L., Amla, V. (1989) *Picrorrhiza kurrooa*, an Ayurvedic herb may potentiate photochemotherapy in vitiligo. *Journal of Ethnopharmacology*, 27, 347–352.
- Biswas, T.K., Mukherjee, B., Maity, L.N., Marji, B. Duodenitis: Effect of Kutaki in comparison with famotidine. International Seminar—Traditional Medicine, Calcutta, 7–9 November, 1992.
- Chander, R., Kapoor, N.K., Dhawan, B.N. Picroliv: a biological antioxidant. Proceedings 24th Indian Pharmacological Society Conference, Ahmedabad, India, 29–31 December 1991.
- Chander, R., Kapoor, N.K., Dhawan, B.N. (1994) Picroliv affects gamma-glutamyl cycle in liver and brain of *Mastomys natalensis* infected with *Plasmodium berghei*. *Indian Journal of Experimental Biology*, 32, 324–327.
- Dass, P.K., Tripathi, R.M., Agarwal, V.K., Sanyal, A.K. (1976) Pharmacology of kutkin and two organic acid constituents, cinnamic acid and vanillic acid. *Indian Journal of Experimental Biology*, 14, 456–458.
- Dhuley, J.N. (1997) Effect of some Indian herbs on macrophage functions in ochratoxin A treated mice. *Journal of Ethnopharmacology*, 58, 15–20.
- Dwivedi, A.K., Rastogi, R., Singh, S., Dhawan, B.N. (1996) Effect of Picroliv on the pharmacokinetics of rifampicin in rats. *Indian Journal of Pharmaceutical Sciences*, 58, 28–31.
- Dwivedi, Y., Rastogi, R., Ramesh Chander, Sharma, S.K., Kapoor, N.K., Garg, M.K., Dhawan, B.N. (1990) Hepatoprotective activity of Picroliv against carbon tetrachloride-induced liver damage in rats. *Indian Journal of Medical Research*, 92B, 195–200.
- Jain, A.K., Sethi, N. (1992) Effect of Picroliv, a hepatoprotective agent prepared from *Picrorhiza kurrooa* on mice chromosomes. *Fitoterapia*, 63, 255–257.
- Khanna, A.K., Chander, R., Kapoor, N.K., Dhawan, B.N. (1994) Hypolipidaemic activity of Picroliv in albino rats. *Phytotherapy Research*, 8, 403–407.
- Puri, A., Saxena, R.P., Sumati, Guru, P.Y., Kulshreshtha, D.K., Saxena, K.C., Dhawan, B.N. (1992) Immunostimulant activity of picroliv, the iridoid glycoside fraction of *Picrorhiza kurrooa* and its protective action against *Leishmania donovani* infection in hamsters. *Planta Medica*, 58, 528–532.

- Rastogi, R., Dwivedi, Y., Garg, N.K., Dhawan, B.N. (1991) Perfusion of rat liver with picroliv reverse enzyme changes induced by D-galactosamine or thioacetamide. Proceedings 24th Indian Pharmacological Society Conference, Ahmedabad, India, 29–31 December 1991.
- Rastogi, R., Seema, S., Garg, N.K., Dhawan, B.N. (1995) Effect of Picroliv on antioxidant system in liver of rats, after partial hepatectomy. *Phytotherapy Research*, 9, 364–367.
- Shukla, B., Visen, P.K.S., Patnaik, G.K., Dhawan, B.N. Prevention of carbon tetrachloride-induced hepatic damage by picroliv. Proceedings 24th Indian Pharmacological Society Conference, Ahmedabad, India, 29–31 December 1991.
- Shukla, B., Visen, P.K.S., Patnaik, G.K., Dhawan, B.N. (1992) Reversal of thioacetamide-induced cholestasis by picroliv in rodents. *Phytotherapy Research*, 6, 53–55.
- Simons, J.M., t'Hart, L.A., Labadie, R.P., van Dijk, H., de Silva, K.T.D. (1990) Modulation of human complement activation and the human neutrophil oxidative burst by different root extracts of *Picrorhiza kurrooa*. *Phytotherapy Research*, 4, 207–211.
- Simons, J.M., t'Hart, L.A., van Dijk, H., Fischer, F.C., de Silva, K.T.D., Labadie, R.P. (1989) Immunomodulatory compounds from *Picrorhiza kurrooa*: Isolation and characterisation of two anti-complementary polymeric fraction from an aqueous root extract. *Journal of Ethnopharmacology*, 26, 169–182.
- Singh, G.B., Sarang Bani, Surjeet Singh, Khujuria, A., Sharma, M.L., Gupta, B.D., Banerjee, S.K. (1993) Antiinflammatory activity of iridoids kutkin, picroside-1 and kutkoside from *Picrorhiza kurrooa*. *Phytotherapy Research*, 7, 402–407.
- Singh, N., Mishra, N., Singh, S.P., Kohli, R.P., Bhargava, K.P. (1982) Protective effect of *Picrorhiza kurrooa* against cutaneous vaccinia (viral) infection in Guinea pigs. *Journal of Research in Ayurveda and Siddha*, 3, 162–171.
- Sohni, Y.R., Padmaja Kaimal, Bhatt, R.M. (1995) Prophylactic therapy of *Salmonella typhi* septicemia in mice with traditionally prescribed crude drug formulation. *Journal of Ethnopharmacology*, 45, 141–147.
- Srivastava, S., Srivastava, A.K., Patnaik, G.K., Dhawan, B.M. (1996) Effect of picroliv on liver regeneration in rats. *Fitoterapia*, 67, 252–256.
- Visen, P.K.S., Saraswat, B., Patnaik, G.K., Dhawan, B.N. Hepatoprotective activity of combination of active material isolated from medicinal plants. Fourth International Congress of Ethnobiology, NBRI, Lucknow (India), 17–21 November 1994.

Kuth

- Batorova, S.M., Rakshain, K.V., Bogdanov, T.V., Shantanova, L.N. (1980) Pharmacological evaluation of the decoction of roots of *Echinops latifolia*. *Rastitelnye Resursy* (in Russian), 16, 134–136.
- Bouhnik, Y., Flourie, B., Andrieux, C., Bissetti, N., Brief, F., Rambaud, J.C. (1996) Effects of bifidobacterium sp fermented milk ingested with or without inulin on colonic bifidobacteria and enzymatic activities in healthy humans. *European Journal of Clinical Nutrition*, 50, 269–273.
- Chaturvedi, P., Shukla, S., Tripathi, P., Chaurasia, S., Singh, S.K., Tripathi, Y.B. (1995) Comparative study of *Inula racemosa* and *Saussurea lappa* on the glucose levels in albino rats. *Ancient Science of Life*, 15, 62–70.
- Chaturvedi, P., Tripathi, P., Pandey, S., Singh, U., Tripathi, Y.B. (1993) Effect of *Saussurea lappa* alcoholic extract on different endocrine glands in relation to glucose metabolism in the rat. *Phytotherapy Research*, 7, 205–20.
- Chen, H.C., Chou, C.K., Lee, S.D., Wang, J.C., Yeh, S.F. (1995) Active compounds from *Saussurea lappa* Clark that suppresses hepatitis B virus surface antigen gene expression in human hepatoma cells. *Antiviral Research*, 27, 99–109.
- Cho, J.Y., Park, J., Yoo, E.S., Baik, K.U., Jee, H.J., Lee, J., Park, M.H. (1998) Inhibitory effect of sesquiterpene lactones from *Saussurea lappa* on tumour – production in murine macrophage like cells. *Planta Medica*, 64, 594–597.
- Chopra, R.N., Chopra, I.C., Handa, K.L., Kapur, L.D. Chopra's Indigenous Drugs of India. 2nd Edition. U.N. Dhur & Sons, Calcutta, India 1958.
- Dwivedi, S., Chansuria, J.P.N., Somani, P.N., Udupa, K.N. (1987) Influence of certain indigenous drugs on the prostaglandin E2 like activity in the ischaemic rabbit aorta. *Indian Drugs*, 24, 378–382.
- Dwivedi, S., Somani, P.N., Udupa, K.N. (1989) Role of *Inula racemosa* and *Saussurea lappa* in management of angina pectoris. *International Journal of Crude Drug Research*, 27, 217–222.
- Gibson, G.R., Beatty, E.R., Wang X., Cummings J.H. (1995) Selective stimulation of bifidbacteria in the human colon by oligofructose and inulin. *Gastroenterology*, 108, 975–982.
- Jung, Jee, H., Ha, Joo Yong, Min, K.R., Shibata, F., Nagagawa, H., Kang, S.S., Chang, F.L., Moo, Kim Y. (1998) Reynosin from *Saussurea lappa* as inhibitor on CINC-1 induction in LPS stimulated NRK 52 E cells. *Planta Medica*, 64, 454–455.
- Kleessen, B., Sykura, B., Zunft, H.J., Blaut, M. (1997) Effects of inulin and lactose on fecal microflora, microbial activity and bowel habit in elderly constipated persons. *American Journal of Clinical Nutrition*, 65, 1397–1402.

- Lee, G.I., Ha, J.Y., Min, K.R., Nakagawa, H., Tsurufuji, S., Chang, I.M., Kim, Y.S. (1995) Inhibitory effects of oriental herbal medicines on IL-8 induction in lipopolysaccharides-activated rat macrophages. *Planta Medica*, 61, 26–30.
- Lin, X.Z., Wang, G.X. (1986) The effects of *Saussurea* polysaccharides on isolated rat uteri. *Acta Pharma Sinica*, 21, 220–222.
- Mitra, S.K., Gopumadhavan, S., Hemavathi, T.S., Murlidhar, T.S., Venkataranganna, M.V. (1996) Protective effect of UL-409, a herbal formulation against physical and chemical factor-induced gastric and duodenal ulcers in experimental animals. *Journal of Ethnopharmacology*, 52, 168–169.
- Nadkarni, K.M. *Indian Materia Medica*. Vol I Popular Book Depot, Bombay, India 1954.
- Okugawa, H., Ueda, R., Matsumoto, K., Kawanishi, K., Kato, A. (1996) Effect of dehydrocostus lactones and costunolide from *Saussurea* root on the central nervous system in mice. *Phytomedicine*, 3, 147–153.
- Singh, D.C., Sharma, B.P. (1990) Management of Madhumeha (diabetes mellitus) by indigenous drugs Bijaysar and Kushtha. *Aryavaidyan*, 4, 21–23.
- Taniguchi, M., Kataoka, T., Suzuki, H., Uramoto, M., Arao, K., Magae, J., Nishimura, T., Stake, N., Nagai, K. (1995) Costunolide and dehydrocostus lactone as inhibitors of killing function of cytotoxic T lymphocytes. *Bioscience, Biotechnology and Biochemistry*, 59, 2064–2067.
- Upadhyay, O.P., Singh, R.H., Dutta, S.K. (1996) Studies on antidiabetic plants used in Indian folk-lore. *Aryavaidyan*, 9, 159–167.
- Yamahara, J., Chisaka, T., Hunag, Q., Kishi, K., Kobayashi, H., Kawahara, Y. (1990) Gastrointestinal motility enhancing effect of *Saussureae Radix*. *Phytotherapy Research*, 4, 160–161.
- Yamahara, J., Kobayashi, M., Miki, K., Kozuka, M., Sawada, T., Fujimura, H. (1985) Cholagogic and antiulcer effect of *Saussureae radix* and its active components. *Chemical and Pharmaceutical Bulletin*, 33, 1285–1288.
- Yoshikawa, M., Hatkeyama, S., Inoue, Y., Yamahara, J. (1993) Saussureamines A, B, C, D and E, new anti-ulcer principles from Chinese *Saussureae Radix*. *Chemical and Pharmaceutical Bulletin*, 41, 214–216.

Malakangani

- Ahumada, F., Trincado, M.A., Arellano, J.A., Hancke, J. Wikman, G. (1991) Effect of certain adaptogenic plant extracts on drug-induced narcosis in female and male mice. *Phytotherapy Research*, 5, 29–31.
- Balaraman, S. (1971) Rapid screening of the behavioural effects of *Celastrus paniculatus* and sodium pentobarbital with fixed internal schedules of reinforcement. *Journal of Research in Indian Medicine*, 8, 61–68.
- Bidawi, P.P., Wangoo, D., Sharma, V. (1990) Effect of polar and semipolar compounds from the seeds of *Celastrus paniculatus* on the liver and kidney in rats. *Fitoterapia*, 61, 417–424.
- Dandiya, P.C., Chopra, Y.M. (1970) *Celastrus paniculatus* Willd, CNS active drugs from plants indigenous to India. *Indian Journal of Pharmacology*, 2, 69–70.
- Gaitonde, B.B., Raikar, B.P., Shroff, F.N., Pateljal, R. (1957) Pharmacological studies with Malkangani: an indigenous tranquilizer drug. *Current Medical Practitioner*, 1, 619–621.
- Kakrani, H.K., Nair Vijaynathan, G., Kalyani, G.A., Satyanaryana, D. (1985) Studies on Ayurvedic drug. I Evaluation of antifatigue effect of the Ayurvedic drug Alert in rats. *Fitoterapia*, 65, 293–295.
- Karnath, K.S., Haridas, K.K., Gunasundri, S., Guruswami, M.N. (1980) Effect of *Celastrus paniculatus* on learning process. *Arogya – Journal of Health Science*, 6, 137–139.
- Karnath, K.S., Padma, T.K., Guruswami, M.N. Preliminary report of *Celastrus paniculatus* on memory process (abstract). Proceedings of the 46th Annual Congress of Indian Pharmaceutical Society, Chandigarh, 28–30 December 1994.
- Mathur, N.T., Varma, M., Dixit, V.P. (1993) Hypolipidaemic and antiatherosclerotic effect of *Celastrus paniculatus* seed extract (50 percent EtOH) in cholesterol fed rabbits. *Indian Drugs*, 30, 76–82.
- Nalini, K., Karanth, K.S., Rao, A., Aroor, A.R. (1995) Effects of *Celastrus paniculatus* on passive avoidance performance and biogenic amine turnover in albino rats. *Journal of Ethnopharmacology*, 47, 101–108.
- Namboodiri, P.K.N., Menon, T.V., Parbhakran, V.A., Vijayan, N.P., Pillai, N.G.K. Santhakumari, K. (1991) Comparative effect of J.J. tailam internal and external in Paksavadha (Hemiplegia). *Journal of Research in Ayurveda and Siddha*, 12, 41–46.
- Seth, U.K., Vaz, A., Daliwala, C.V. Billiore, R.A. (1963) Behavioural and pharmacologic studies of tranquilising fraction from the oil of *Celastrus paniculatus* (Malkanagani oil). *Archives International Pharmacodynamics*, 144, 35–50.
- Singh, N., Chand, N., Kohli, R.P. (1974) Pharmacological studies on *Celastrus paniculatus* (*Malkanagani*). *Journal of Research in Indian Medicine*, 9, 1–8.
- Tripathi, J.S., Singh, R.H. (1994) Clinical evaluation of Smritisagar Ras in cases of residual schizophrenia. *Journal of Research in Ayurveda and Siddha*, 15, 8–16.

Mandukparni (Gotu Kola)

- Agrawal, S.S. (1981) Some CNS effects of *Hydrocotyle asiatica* Linn. Journal of Research in Ayurveda and Siddha, 2, 144–149.
- Anbuganapathi, G. (1995) The synergistic effect of Vallarai and Brahmi on learning ability of albino mice and school children. International Seminar on Recent Trends in Pharmaceutical Sciences, Ootacamund. (TN, India) 18–20 Feb. 1995.
- Appa Rao, M.V.R., Srinivasan, K., Koteswara Rao, T. (1973) The effect of mandookparni (*Centella asiatica*) on the general mental ability (medhya) of mentally retarded children. Journal for Research in Indian Medicine, 8, 9–16.
- Appa Rao, M.V.R., Srinivasan, K., Koteswara Rao, T. (1977) The effect of *Centella asiatica* on the general mental ability of mentally retarded children. Indian Journal of Psychiatry, 19, 54–59.
- Babu, T.D., Kuttan, G., Padikkala, J. (1995) Cytotoxic and anti-tumour properties of certain taxa of Umbelliferae with special reference to *Centella asiatica* (L.) Urban. Journal of Ethnopharmacology, 48, 53–57.
- Babu, T.D., Padikkala, J. (1993) Anticancer activity of an active principle from *Centella asiatica*. Amala Research Bulletin, 13, 46–49.
- Babu, T.D., Padikkala, J. (1994) DNA fragmentation in Ehrlich Ascites tumour cells by extract of herbal plant *Centella asiatica* (L.). Amala Research Bulletin, 14, 52–56.
- Babu, T.D., Padikkala, J. (1995) The role of *Centella asiatica* extracts on chemotherapeutic drug-induced toxicity in mice. Amala Research Bulletin, 15, 41–45.
- Bagchi, G.D., Puri, H.S. (1988) *Centella asiatica* I. Herba Hungarica, 27, 137–140.
- Bagchi, G.D., Puri, H.S. (1989) *Centella asiatica* II. Herba Hungarica, 28, 127–134.
- Bonte, F., Dumas, M., Chaudagne, C., Meybeck, A. (1994) Influence of asiatic acid, madecassic acid and asiaticoside on human collagen I synthesis. Planta Medica, 60, 133–135.
- Bonte, F., Dumas, M., Chaudagne, C., Meybeck, A. (1995) Asiaticoside and madecassoside activity on human fibroblast type I and II collagen secretion. Annales Pharmaceutiques Francaises, 53, 38–42.
- Chatterjee, T.K., Chakraborty, A., Pathak, M. (1992) Effect of plant extract *Centella asiatica* (Linn.) on cold restraint stress ulcer in rats. Indian Journal of Experimental Biology, 30, 889–891.
- Danese, P., Carnevali, C., Bertazzoni, M.G. (1994) Allergic contact dermatitis due to *Centella asiatica* extract. Contact Dermatitis, 31, 201.
- Ghosh, S.T. Drugs of Hindoostan. Hahneman Publishing Co, Calcutta, India 1930.
- Grimaldi, R., De Ponti, F., D'Angelo, L., Caravaggi, M., Guidi, G., Lecchini, S., Frigo, G.M., Crema, A. (1990) Pharmacokinetics of the total triterpenic fraction of *Centella asiatica* after single and multiple administration to healthy volunteers, a new assay for asiatic acid. Journal of Ethnopharmacology, 28, 235–241.
- Jain, P., Khanna, N.K., Trehan, N. (1994) Antiinflammatory effects of an Ayurvedic preparation Brahmi Rasayan in rodents. Indian Journal of Experimental Biology, 32, 633–636.
- Kapoor, K.B. (1986) Study of Yogi Rasayan (Brami jam) in insomnia. Journal of Scientific Research on Plants and Medicine, 7, 50–53.
- Kuppurajan, K. Anti-anxiety effect of an ayurvedic compound preparation. A cross over trial. Seminar on Research in Ayurveda and Siddha, CCRAS, New Delhi, 20–22 March 1995.
- Kuppurajan, K., Seshadri, C., Rajagopalan, V., Srinivasan, K., Sitaraman, R., Indurthi, J., Venkataraman, S. (1992) Anti-anxiety effect of an Ayurvedic compound drug – a cross over trial. Journal of Research in Ayurveda and Siddha, 13, 107–116.
- Lucas, Richard Natures's Medicine. Park Publishing, UK 1966.
- Nalini, K., Aroor, A.R., Karanth, K.S., Rao, A. (1992) Effect of *Centella asiatica* fresh leaf aqueous extract on learning and memory and biogenic amine turnover in albino rats. Fitoterapia, 63, 232–237.
- Plohmann, B., Bader, G., Streich, S., Hiller, K., Franz, G. (1994) Immuno-modulatory effects of triterpenoid saponins. European Journal of Pharmaceutical Sciences, 21, 120.
- Praveen Kumar, Kuttan, V.R., Kuttan, G. (1996) Radioprotective effects of Rasayanas. Indian Journal of Experimental Biology, 34, 848–850.
- Sarkar, P., Sinha Babu, S.P., Sukul, N.C. (1998) Antifilarial effect of a combination of botanicals from *Acacia auriculiformis* and *Centella asiatica* on canine dirofilariasis. Pharmaceutical Biology, 36, 107–110.
- Sakina, M.R., Dandiya, P.C. (1990) A psycho-neuropharmacological profile of *Centella asiatica* extract. Fitoterapia, 61, 291–296.
- Sarma, D.N.K., Khosa, R.L., Chansauria, J.P.N., Sahai, M. (1995) Antiulcer activity of *Tinospora cordifolia* Miers and *Centella asiatica* Linn extracts. Phytotherapy Research, 9, 589–590.
- Sharma, R., Jaiswal, A.N., Suresh Kumar, Chaturvedi, C., Tewari, P.V. (1985) Role of Brahmi in educable mentally retarded children. Journal of Research in Education of Indian Medicine, 1, 55–77.
- Singh R.H., Shukla, S.P., Mishra, B.K. (1981) The psychotropic effect of Medhya rasayana drug, Mandukparni (*Hydrocotyle asiatica*): an experimental study. Part II. Journal of Research in Ayurveda and Siddha, 2, 1–10.
- Shin, H.S., Chou, I.C., Lee, M.H., Pack, K.N. (1982) Clinical trials of medecassol: *Centella asiatica* on gastro-intestinal ulcer patients. Korean Journal of Gastroenterology, 14, 49–56.
- Shukla, S.P. (1989) A study on barbiturate hypnosis potentiation effects of different fraction of indigenous plant drug Mandukparni (*Hydrocotyle asiatica* Linn). Bulletin of Medico-Ethnobotanical Research, 10, 119–123.

Sunilkumar, Parameshwaraiah, S., Shivakumar, H.G. (1998) Evaluation of topical formulations of aqueous extract of *Centella asiatica* on open wounds in rats. Indian Journal of Experimental Biology, 36, 569–572.
Thakur, R.S., Puri, H.S., Akhtar Hussain Major Medicinal Plants of India. CIMAP, Lucknow, India 1989.

Mundi

- Sharma, H.M., Dwivedi, C., Dalter, B.C., Abou-Issa, H. (1991) Antineoplastic properties of Maharishi Amrit Kalash, an Ayurvedic food supplement against 7,12 dimethylbenz (a) anthracene-induced memory tumours in rats. Journal of Research and Education in Indian Medicine, 10, 1–8.
Shekhani, M.S., Pir Muzzam Shah, Afshan Yasmin, Rabia Siddiqui, Shahnaz Perveen, Khalid Mohammed Khan, Shana Urooj Kazmi, Atta-ur Rehman (1990) An immunostimulant sesquiterpene glycoside from *Sphaeranthus indicus*. Phytochemistry, 29, 2573–2576.
Vaidya, A.R. The Ancient Indian System of Rejuvenation and Longevity. Indian Book Center Delhi India 1998.

Musli

- Dua, P.R., Tandon, M., Shukla, Y.N., Thakur, R.S. Adaptogenic activity of *Asparagus adscendens* Proceedings of 25th Indian Pharmacological Society, Muzaferpur, Bihar, India, 5–8 December 1992.
Fan Tao, Fu Xi Xian, Zhang Guo Qing (1996) The inhibitory effect of some Chinese herbs on hepatitis B virus replication in vitro and its mechanism (in Chinese). Chinese Journal of Experimental and Clinical Virology, 10, 27–30.
Rao, K.S., Mishra, S.H. (1996) Studies on *Curculigo orchoides* Gaertn. for antiinflammatory and hepatoprotective activity. Indian Drugs, 33, 20–25.
Yadav, B.B.L., Tiwari, K.C., Tiwari, V.P. (1974) A scientific study on *Cucrculigo orchoides* Gaertn. Journal for Research in Indian Medicine, 9, 109–123.

Neem

- Puri, H.S. Neem The Divine tree, *Azadirachta inclica*. Harwood Academic Publishers, Amsterdam, Holland 1999.

Peepali

- Agarwal, A.K., Singh, M., Gupta, N., Saxena, R., Puri, A., Verma, A.K. (1994) Management of giardiasis by an immunomodulatory herbal drug *Pippali rasayana*. Journal of Ethnopharmacology, 44, 143–146.
Agarwal, A.K., Tripathi, D.M., Sahai, R., Gupta, N., Saxena, R.P., Puri, A., Singh, M., Misra, R.N., Dubey, C.B., Saxena, K.C. (1997) Management of giardiasis by a herbal drug *Pipali Rasayana*: a clinical study. Journal of Ethnopharmacology, 56, 223–236.
Annamalai, A.R., Manavalan, R. (1990) Effect of *Trikatu* and its individual components and piperine on gastrointestinal tracts: Trikatu-a bioavailable enhancer. Indian Drugs, 27, 595–604.
Anshuman, P.S., Singh, K.P., Aasra, K.G. (1984) Effect of Vardhman Pippali (*Piper longum*) on patients with respiratory disorders. Sachitra Ayurveda, 37, 47–49.
Atal, C.K., Zutshi, U., Rao, P.G. (1981) Scientific evidence on the role of Ayurvedic herbals on bioavailability of drugs. Journal of Ethnopharmacology, 4, 229–232.
Bano, G., Amla, V., Raina, R.K., Zutshi, U., Chopra, C.L. (1987) The effect of piperine on pharmacokinetics of phenytoin in healthy volunteers. Planta Medica, 53, 568–569.
Dahanukar, S.A., Karandikar, S.M. (1984) Evaluation of antiallergic activity of *Piper longum*. Indian Drugs, 21, 377–383.
Dahanukar, S.A., Karandikar, S.M., Desai, M. (1984) Efficacy of *Piper longum* in childhood asthma. Indian Drugs, 21, 384–388.
Dasture, A.V. (1994) Screening of two Ayurvedic preparations for usefulness in treatment of muscular weakness. Deerghayu International, 1, 3–8.
D'Hooge, R., Pei, Yinquan, Raes A., Lebrun, P., van Bogaert, P.P., de Deyn, P.P. (1996) Anticonvulsant activity of piperine on seizures induced by excitatory amino acid receptor agonists. Arzneimittel Forschung, 46,

557–560.

- Eun, J.S. (1986) A study on the mechanism of analgesic action of piperine. *Yakhak Hoeji*, 30, 169–173.
- Ghoshal, S., Prasad, B.N.K., Laksmi, V. (1996) Antiamoebic activity of *Piper longum* fruits against *Entamoeba histolytica* in vitro and in vivo. *Journal of Ethnopharmacology*, 50, 167–170.
- Gursahani, H.I., Vasudevan, T.N. Antiulcer activity of piperine. Proceedings 46th Indian Pharmaceutical Congress, Chandigarh, India, 28–30 December 1994.
- Kapil, A. (1993) Piperine: a potent inhibitor of *Leishmania donovani* in vitro. *Planta Medica*, 59, 474.
- Koul, I.B., Kapil, A. (1993) Evaluation of the liver protective potential of piperine, an active principle of black and long peppers. *Planta Medica*, 59, 413–417.
- Lee, E.B., Shin, K.H., Woo, W.S. (1984) Pharmacological study on piperine. *Archives Pharm. Research*, 7, 127–132.
- Majumdar, A.M., Dhuley, J.N., Deshmukh, V.K., Raman, P.H., Thorat, S.L., Naik, S.R. (1990) Effect of piperine on pentobarbitone-induced hypnosis in rats. *Indian Journal of Experimental Biology*, 28, 485–487.
- Majed, M., Badmaev, V., Rajendran, R. Use of piperine to increase the bioavailability of nutritional compounds. Patent to Sabinasa Corporation, Piscataway, N.J., U.S. Patent 5,536,506, dated 19 July, 1996.
- Ray, K.P.S. (1979) Pepper. *Indian Drugs*, 16, 199–203.
- Reen, R.K., Singh, J. (1991) In vitro and in vivo inhibition of pulmonary cytochrome, P 450 activity by piperine, a major ingredient of *Piper* species. *Indian Journal of Experimental Biology*, 29, 556–573.
- Shirwalker, A., Kumar, A.V., Sreenivasan, K.K., Gundu Rao, P. Evaluation of a marketed antihepatotoxic Ayurvedic preparation. Proceedings of 42nd Annual Indian Pharmaceutical Congress, Manipal, 28–30 December 1990.
- Shoba, G., Joy, D., Joseph, T., Majeed, M., Rajendra, R., Srinivasan, P.S.S.R. (1998) Influence of piperine on the pharmacokinetics of curcumin in animals and human volunteers. *Planta Medica*, 64, 353–356.
- Shoji, N., Umajawo, A., Saito, N., Talemoto, T., Rajiwara, A., Ohizumu, Y. (1986) Dehydrop-peronaline: an amide possessing coronary vasodilating activity isolated from *Piper longum* L. *Journal of Pharmaceutical Science*, 75, 1188–1189.
- Singh, I.P., Guru, L.V. (1972) A preliminary study on the effect of alcoholic extractive of Pippali Rasayana on serum proteins of experimental animals. *Journal of Research in Indian Medicine*, 7, 81–84.
- Singh, J., Reen, R.K., Wiebel, F.J. (1994) Piperine, a major ingredient of black and long peppers, protects against AfB1-induced cytotoxicity and micronuclei formation in H4IEC3 rat hepatoma cells. *Cancer Letters*, 86, 195–200.
- Singh, N., Kulshrestha, Srivatava, R.K., Kohli, R.P. (1973) Studies on the analeptic activity of some *Piper longum* alkaloids. *Journal of Research in Indian Medicine*, 8, 1–9.
- Tripathi, A.K., Jain, D.C., Sushil Kumar (1996) Secondary metabolites and their biological and medicinal activities of *Piper* species plants. *Journal of Medicinal and Aromatic Plant Sciences*, 18, 302–321.
- Tripathi, P., Tripathi, G.S., Tripathi, Y.B. (1989) Thyrogenic response of *Piper nigrum*. *Fitoterapia*, 60, 539–542.
- Zutshi, U., Kaul, J.L. (1982) The impact of ayurvedic herbals on drug bio-availability. *Indian Drugs*, 19, 476–479.

Punernava

- Appa Rao, M.V.R., Rajagopalan, S.S., Srinivasan, V.R., Sarangan, R. (1969) Study of Mandooparni and Punernava for their Rasayana effect on normal healthy adults. *Nagarjun*, 12, 33.
- Appa Rao, M.V.R., Usha, S.P., Rajagopalan, S.S., Sarangan, R. (1967) Six months' result of double blind clinical trial to study effect of Mandooparni and Puneranava on normal adults. *Journal of Research in Indian Medicine*, 2, 79.
- Chakraborti, K.K., Handa, S.S. (1989) Antihepatotoxic investigations on *Boerhaavia repand* Willd. *Indian Drugs*, 27, 161–166.
- Goswami, P., Salma, T.C. (1992) Effect of *Boerhaavia diffusa* Linn. extracts on the activities of enzyme systems. *Journal of Research in Ayurveda and Siddha*, 13, 135–140.
- Jain, G.K., Khanna, N.M. (1989) Punarnavoside, a new antifibrinolytic agent from *Boerhaavia diffusa* Linn. *Indian Journal of Chemistry*, 28B, 163–166.
- Lami, N., Kadota, S., Kikuchi, T., Momose, Y. (1991) Constituents of the roots of *Boerhaavia diffusa* L. III Identification of Ca 2+ channel antagonistic compound from the methanol extract. *Chemical and Pharmaceutical Bulletin*, 39, 1551–1555.
- Mudgal, V. (1974) Comparative studies on the anti-inflammatory and diuretic action with different parts of the plant *Boerhaavia diffusa* Linn. (Punernava). *Journal of Research in Indian Medicine*, 9, 57–58.
- Mudgal, V. (1975) Studies on medicinal properties of *Convolvulus pluricaulis* and *Boerhaavia diffusa*. *Planta Medica*, 28, 62–68.
- Mungantiwar, A.A., Nair, A.M., Shinde, U.A., Saraf, M.N. (1997) Effect of stress on plasma and adrenal Cortisol levels and immune responsiveness in rats: modulation by alkaloidal fraction of *Boerhaavia diffusa*. *Fitoterapia*,

- 68, 498–500.
- Rajagopalan, S.S., Appa Rao, M.V.R., Rao, T.K., Sitaraman, R., Lakshmipathi, A. (1977) Effects of *Punernava* on longevity, growth and tissue composition of albino rats. *Nagarjun*, 20, 23–27.
- Rawat, A.K.S., Mehrotra, S., Tripathi, S.C., Shome, U. (1997) Hepatoprotective activity of *Boerhaavia diffusa* L. roots – a popular Indian ethnomedicine. *Journal of Ethnopharmacology*, 56, 61–66.
- Sharma, K., Pasha, V.K., Dandiya, P.C. (1991a) Effect of *Boerhaavia diffusa* on behavioural, biochemical and pathological manifestations of stress. Proceedings 24th Indian Pharmacological Society Conference, Ahmedabad, 29–31 December 1991.
- Sharma, K., Pasha, V.K., Dandiya, P.C. (1991b) Effect of *Boerhaavia diffusa* Linn on GABA levels of the brain during stress (abstract). Conference of Pharmacology and Symposium on Herbal drugs, New Delhi, 15 March 1991.
- Singh, A., Singh, R.G., Singh, R.H., Mishra, N., Singh, N. (1991) An experimental evaluation of possible teratogenic potential in *Boerhaavia diffusa* in albino rats. *Planta Medica*, 57, 315–316.
- Singh, R.H., Udupa, K.N. (1972a) Studies on the indigenous drug *Punernava* (*Boerhaavia diffusa* Linn.). Part I Identification and pharmacognostical studies. *Journal of Research in Indian Medicine*, 7, 1–12.
- Singh, R.H., Udupa, K.N. (1972b) Studies on the indigenous drug *Punernava* (*Boerhaavia diffusa* Linn.). Part III. Experimental and Pharmacological studies. *Journal of Research in Indian Medicine*, 7, 17–27.
- Singh, R.H., Udupa, K.N. (1972c) Studies on the indigenous drug *Punernava* (*Boerhaavia diffusa* Linn.). Part IV. Preliminary controlled trials in nephrotic syndrome. *Journal of Research in Indian Medicine*, 7, 28–33.
- Singh, R.P., Shukla, K.P., Pandey, B.L., Singh, R.G., Usha Singh, R.H. (1992) Recent approach in clinical and experimental evaluation of diuretic action of *Punarnava* (*Boerhaavia diffusa*) with special reference to nephrotic syndrome. *Journal of Research and Education in Indian Medicine*, 11, 29–36.
- Singh, S.P. (1991) Therapeutic activity of *Punarnava* (*Boerhaavia repanda* Willd) root powder. *Journal of Research and Education in Indian Medicine*, 10, 23–25.
- Surange, S.R., Pataskar, R.D., Pendse, G.S. (1973) Comparative pharmacological studies on roots of genuine and commercial samples of *Boerhaavia diffusa* Linn. (*Punernava*). *Journal of Research in Indian Medicine*, 8, 4.
- Thakur, R.S., Puri, H.S., Akhtar Hussain Major Medicinal Plants of India. Central Institute of Medicinal and Aromatic Plants, Lucknow, India 1989.

Pushkarmul

- Arora, R.C., Agarwal, N., Arora, S., Kanchan, S.N. (1995) Evaluation of CT (cardioprotective drug) in subjects of coronary artery diseases, hypertension, and diabetes mellitus. *Flora and Fauna*, 1, 203–205.
- Bourrel, C., Vilarem, G., Perinean, F. (1993) Chemical analysis, bacteriostatic and fungistatic properties of the essential oil of Elecampane (*Inula belenium* L.). *Journal of Essential Oil Research*, 5, 411–417.
- Chaturvedi, P., Shukla, S., Tripathi, P., Chaurasia, S., Singh, S.K., Tripathi, Y.B. (1995) Comparative study of *Inula racemosa* and *Saussurea lappa* on the glucose levels in albino rats. *Ancient Science of Life*, 15, 62–70.
- Chunekar, K.C. Pandey, G.S. Bhavprakash Nighantu (in Hindi). Chowkhamba Vidyabhawan, Varanasi India, 1969.
- Dwivedi, S., Chansouria, J.P.N., Mani, P.N., Udupa, K.N. (1987) Influence of certain indigenous drugs on the prostaglandin E2 like activity in the ischaemic aorta. *Indian Drugs*, 24, 378–382.
- Ojha, J.K., Sharma, P.V., Bajpai, H.S. (1977) *Inula racemosa* (pushkarmul) – a hypolipid agent, an experimental and clinical study. *Indian Journal of Pharmacy*, 39, 176.
- Rao, K.S., Mishra, S.H. (1997) Hepatoprotective activity of *Inula racemosa* root. *Fitoterapia* 68, 510–514.
- Sati, R.B., Sharma, R.K. (1990) Management of congestive cardiac failure with cardiac drugs. *Aryavaidyan*, 4, 123–126.
- Sharma, S.D., Gupta, V.K. (1983) A clinical assessment of *Commiphora mukul* (Guggulu) and *Inula racemosa* (Pushkarmula) for the treatment of coronary heart disease (Hridroga). *Journal National Integrated Medicine Association*, 25, 384–393.
- Sharma, S.D., Upadhyay, B.N., Tripathi, S.N. (1986a) A new Ayurvedic compound for the management of ischaemic heart disease (Hrdyoga). *Ancient Science of Life*, 5, 161–167.
- Sharma, S.D., Upadhyay, B.N., Tripathi, S.N. (1986b) Ayurvedic therapy for coronary heart disease (hridyaroga). *Journal National Integrated Medical Association*, 26, 249–253.
- Singh, N., Nath, R., Gupta, M.L., Kohli, R.P. (1980) An experimental evaluation of antiasthmatic potentialities of *Inula racemosa*. (*Puskar Mul*). *Quarterly Journal of Crude Drug Research*, 18, 89–96.
- Singh, R., Singh, R.P., Batliwala, P.G., Upadhyaya, B.N., Tripathi, S.N. (1991) Pushkar Guggal an antianginal and hypolipidemic agent in coronary heart disease (CHD). *Journal of Research in Ayurveda and Siddha*, 12, 1–18.
- Singh, R.P., Singh, R., Ram, P., Batliwala, P.G. (1993) Use of Pushkar Guggal, an indigenous, ant ischemic combination in the management of ischaemic heart disease. *International Journal of Pharmacology*, 31, 147–160.

- Singh, T.N., Upadhyay, B.N., Tewari, C.M., Tripathi, S.N. (1985) Management diabetes mellitus (Premeha) with *Inula racemosa* and *Cinnamomum tamala*. Ancient Science of Life, 5, 9–16.
- Tripathi, S.N., Upadhyaya, B.N., Gupta, V.K. (1984b) Beneficial effect of *Inula racemosa* (Pushkarmoola) in Angina pectoris: A preliminary report. Indian Journal of Physiology and Pharmacology, 28, 73–75.
- Tripathi, S.N., Upadhyay, B.N., Sharma, S.D., Gupta, V.K., Tripathi, Y.B. (1984a) Role of Pushkara Guggal in the management of ischaemic heart disease. Ancient Science of Life, 4, 9–19.
- Tripathi, T.B., Tripathi, P., Upadhyay, B.N. (1988) Assessment of the andenergic beta-blocking activity of *Inula racemosa*. Journal of Ethnopharmacology, 23, 3–9.
- Tripathi, Y.B., Chaturvedi, P. (1995) Assessment of endocrine response of *Inula racemosa* in relation to glucose homeostasis in rats. Indian Journal of Experimental Biology, 33, 686–689.

Salai Guggal

- Ammon, H.P.T., Safayhi, H., Mack, T., Sabieraj, J. Potent inhibitors of prostaglandin and/or leucotriene synthesis from turmeric and Salai Guggal. International Seminar-Traditional Medicine, Calcutta, 7–9 November 1992.
- Ammon, H.P.T., Safayhi, H., Mack, T., Sabieraj, J. (1993) Mechanism of antiinflammatory actions of curcumin and boswellic acids. Journal of Ethnopharmacology, 38, 113–119.
- Duwiejua, M., Zeitlin, I.J., Waterman, P.G., Chapman, J., Mahnago, G.J., Provan, G.J. (1993) Antiinflammatory activity of resin from some species of plant family Burseraceae. Planta Medica, 59, 12–16.
- Etzel, R. (1996) Special extract of *Boswellia serrata* (H-15) in the treatment of rheumatoid arthritis. Phytomedicine, 3, 91–94.
- Gupta, V.N., Yadav, D.S., Atal, C.K. (1987) Chemistry and Pharmacology of gum resin of *Boswellia serrata* (Salai Guggal). Indian Drugs, 24, 221–223.
- Kar, A. (1977) Effect of the gum resin of *Boswellia serrata* Roxb. on the cardiovascular system and isolated tissues. Indian Drugs and Pharmaceutical Industry, 12, 17–20.
- Knaus, U., Wagner, H. (1996) Effects of boswellic acid of *Boswellia serrata* and the other triterpenic acids on the complement system. Phytomedicine, 3, 77–81.
- Kulkarni, R.R., Patki, P.S., Jog, V.P., Gandage, S.G., Patwardhan, B. (1991) Treatment of osteoarthritis with a herbomineral formulation: a double blind, placebo-controlled, crossover study. Journal of Ethnopharmacology, 33, 91–95.
- Kulkarni, R.R., Patki, P.S., Jog, V.P., Gandage, S.G., Patwardhan, B. (1992) Efficacy of an Ayurvedic formulation in rheumatoid arthritis: A double blind placebo controlled cross over study. Indian Journal of Pharmacology, 24, 98–101.
- Menon, M.K., Kar, A. (1971) Analgesic and psychopharmacological effects of gum resin of *B. serrata*. Planta Medica, 19, 333–341.
- Pachnanda, V.K., Shashi Kant, Deedar Singh, Singh, G.B., Gupta, O.P., Atal, C.K. (1980) Clinical evaluation of Salai guggal in patients of arthritis. XIII Annual Conference of Indian Pharmacological Society, Chandigarh, 26 December 1994.
- Shao Yu, Ho, VhiTang, Chin CheeKok, Badmaev, V., Ma Wei, Huang MouTuan (1998) Inhibitory activity of boswellic acids from *Boswellia serrata* against human leukemia HL-60 cells in culture. Planta Medica, 64, 328–331.
- Sharma, M.L., Kharjuria, A., Kaul, A., Singh, S., Singh, G.B., Atal, C.K. (1988) Effect of Salai guggal ex *Boswellia serrata* on cellular and humoral immune responses and leucocyte migration. Agents and Actions, 24, 161–164.
- Sharma, M.L., Kaul, A. Khajuria, A., Singh, S., Singh, G.B. (1996) Immunomodulatory activity of boswellic acids (pentacyclic triterpene acids) from *Boswellia serrata*. Phytotherapy Research, 10, 107–112.
- Singh, G.B., Atal, C.K. (1986) Pharmacology of an extract of Salai Guggal ex-*Boswellia serrata*, a new non-steroidal anti-inflammatory agent. Agents Actions, 18, 407–412.
- Singh, G.B., Surjeet Singh, Sarang Bani (1996) Anti-inflammatory actions of boswellic acids. Phytomedicine, 3, 81–85.
- Singh, G.B., Surjeet Singh, Sarang Bani., Kaul, A. (1992) Boswellic acid: a new class of antiinflammatory drugs with a novel mode of action. International Seminar-Traditional Medicine-Calcutta, India, 7–9 November 1992, 81–82.
- Zutshi, U., Rao, P.G., Ravi, S., Singh, G.B., Surjeet Singh, Atal, C.K. (1986) Mechanism of cholesterol lowering effects of Salai guggal ex *Boswellia serrata* Roxb. Indian Journal of Pharmacology, 18, 182–183.

Salep

- Ageel, A.M., Islam, M.W., Ginawi, O.T., Al Yahya, M.A. (1994) Evaluation of the aphrodisiac activity of the *Litsea chinensis* (Lauraceae) and *Orchis maculata* (Orchidaceae) extracts in rats. *Phytotherapy Research*, 8, 103–105.
- Khan, N.A., Rahman, S.Z. The effect of Majoon Salab on male sexual function. *Proceedings National Seminar on Unani Medicine, Hyderabad (India)*, 22–24 July 1994.
- Nadkarni, K.M. *Indian Materia Medica*, Vol I. Popular Prakashan, Bombay 1954.
- Puri, H.S. (1970) Salep: The drug from orchids. *American Orchid Society Bulletin*. 39, 723.
- Puri, H.S. (1971a) Pharmacognostic investigations on the root of *Orchis latifolia*. *Indian Drugs*, 8, 15–18.
- Puri, H.S. (1971b) Macro- and micromorphology of the tuber of *Eulophia hormusjii* Duthie. *American Orchid Society Bulletin*, 40, 704–706.
- Trivedi, V.P., Dixit, R.S., Lal, V.K., Joshi, P. (1974) Clues for identification of a controversial drug (Mumjataka) from ancient literature. *Journal of Research in Indian Medicine*, 9, 56–65.

Semal Musli

Thakur, R.S., Puri, H.S., Akhtar Hussain Major Medicinal Plants of India. Central Institute of Medicinal and Aromatic Plants, Lucknow India 1989.

Shankpushpi

- Dandekar, U.P., Chandra, R.S., Dalvi, S.S., Joshi, M.V., Gokhale, P.C., Sharma, A.V., Shah, P.U., Kshirsagar, N.A. (1992) Analysis of a clinically important interaction between phenytoin and Shankpushpi, an Ayurvedic preparation. *Journal of Ethnopharmacology*, 35, 285–288.
- Deshpande, P.S., Lalta Prasad (1978) Role of indigenous drugs before anaesthesia. *Journal of Research in Indian Medicine, Yoga and Homoeopathy*, 13, 9–12.
- Goldman, A., Message, B., Tepfer, D., Molyneux, R.J., Duclos, O., Boyer, F.D., Pan, Y.T., Elbein, A.D. (1996) Biological activities of the nortropine alkaloid, calystegine B2, and analogs: structure-function relationships. *Journal of Natural Products*, 59, 1137–1142.
- Kushwaha, H.K., Sharma, K.P. (1992) Clinical evaluation of Shankpushpi syrup in the management of depressive illness. *Sachitra Ayurveda*, 45, 45–50.
- Mishra, A.S., Verma, J., Kumari, N. (1995) Studies on medicinal properties of *Convolvulus pluricaulis* and *Boerhaavia diffusa*. *Biojournal*, 61, 31–36.
- Mudgal, V., Rai, V., Singh, R.H., Udupa, K.N. (1977) Neurohumoral changes under the influence of Shankpushpi. *Journal of Research in Indian Medicine, Yoga and Homoeopathy*, 12, 58–61.
- Mudgal, V., Srivastava, D.N., Singh, R.H., Udupa, K.N. (1972) Hypotensive action of *Convolvulus pluricaulis*. *Journal of Research in Indian Medicine, Yoga and Homoeopathy*, 7, 74–77.
- Mudgal, V., Udupa, K.N. (1977a) Hypotensive activity with different doses of extracts of various parts of *Convolvulus microphyllus* (Shankpushpai). *Journal of Research in Indian Medicine, Yoga and Homoeopathy*, 12, 124–126.
- Mudgal, V., Udupa, K.N. (1977b) Anti-convulsive action of Shankpushpi. *Journal of Research in Indian Medicine, Yoga and Homoeopathy*, 12, 127–129.
- Parikh, M.D., Pradhan, P.V., Shah, L.P., Bagadia, V.N. (1984) Evaluation of indigenous psychotropic drugs – a preliminary study. *Journal of Research in Ayurveda and Siddha*, 5, 12–17.
- Prasad, G.C., Gupta, R.C., Srivastava, D.N., Tandon, A.K., Wahi, R.S., Udupa, K.N. (1974) Effect of Shankpushpi on experimental stress. *Journal of Research in Indian Medicine*, 9: 19–27.
- Purohit, M.G., Shanthaveerappa, B.K., Shrishailappa, B., Swamy, H.K.S. (1996) Antiulcer and anticonvulsant activity of alcoholic extract of *Evolvulus alsinoides* (Convolvulaceae). *Indian Journal of Pharmaceutical Sciences*, 58, 110–112.
- Shukla, S.P. (1981) Anti-anxiety agents of plant origin. *Probe*, 20, 201–208.
- Singh, R.H., Agrawal, V.K., Mehta, A.K. (1977a) Studies on the effect of Medhya Rasayana drug, Shankpushpi (*Convolvulus pluricaulis*). Part III. Pharmacological studies. *Journal of Research in Indian Medicine, Yoga and Homoeopathy*, 12, 48–52.

- Singh, R.H., Mehta, A.K. (1977) Studies on psychotropic effect of the Medhya Rasayana drug, Shankhpushpi (*Convolvulus pluricaulis*). Part I. Clinical Studies. Journal of Research in Indian Medicine, Yoga and Homoeopathy, 12, 18–25.
- Singh, R.H., Mehta, A.K., Sarkar, F.H., Udupa, K.N. (1977b) Studies on psychotropic effects of the Medhya Rasayana drug, Shankhpushpi (*Convolvulus pluricaulis Chois.*). Part II. Experimental Studies. Journal for Research in Indian Medicine, Yoga and Homoeopathy, 12, 42–47.
- Sinha, S.N., Dixit, V.P., Madnawat, A.V.S., Sharma, O.P. (1989) The possible potentiation of cognitive processing on administration of *Convolvulus microphyllus* in rats. Indian Medicine, 1, 1–6.
- Todd, F.G., Stermitz, F.R., Schultheis, P., Knight, A.P., Traub-Dargatz, J. (1995) Tropine alkaloids and toxicity of *Convolvulus arvensis*. Phytochemistry, 39, 301–303.
- Upadhye, A.S., Kumbhojkar, M.S. (1993) Studies on the Ayurvedic drug Shankhpushpi from western Maharashtra: Medico-botanical aspect. Bulletin of Medico-Ethnobotanical Research, 14, 64–69.

Shatawari

- Bharati Maheshwari, C.M., Tewari, S.K. (1996) A clinical study of Parinamasula and its treatment with Satavari (*Asparagus racemosus* Willd). Ancient Science of Life, 15, 162–165.
- Dahanukar, S.A., Date, S.G., Karandikar, S.M. (1983) Cytoprotective effect of *Terminalia chebula* and *Asparagus racemosus* on gastric mucosa. Indian Drugs, 20, 442–445.
- Dahanukar, S.A., Thatte, U., Pai, N., More, P.B., Karandikar, S.M. (1986) Protective effect of *Asparagus racemosus* against-induced abdominal sepsis. Indian Drugs, 24, 124–128.
- Dhuley, J.N. (1997) Effect of some Indian herbs on macrophage functions in ochratoxin A treated mice. Journal of Ethnopharmacology, 58, 15–20.
- Dwivedi, M., Tewari, P.V. (1991) Dhatriyadi Yoga in obstetrics-efficacy and cost. Sachitra Ayurved, 44, 360–362.
- Khurana, K.L., Balvinder Kumar, Khanna Sudhir, Maniya Anju. (1996) Effect of herbal galactagogue Payapro on milk yield in lactating buffaloes. International Journal of Animal Sciences, 11, 239–240.
- Kishore, P., Pandey, P.N., Pandey, N.S., Dash, S. (1980) Treatment of duodenal ulcer with *Asparagus racemosus* Linn. Journal of Research in Ayurveda and Siddha, 1, 409–416.
- Pande, T.N., Rajgopalan, S.S. (1994) Comparative study of three regimen containing Satavari on Amlapitta (acid dyspepsia with or without ulcer). Journal of Research in Ayurveda and Siddha, 15, 23–24.
- Samanta, S.K. Modulation of male infertility by Ayurvedic drugs. International Seminar on Traditional Medicine, Calcutta, 7–9 November 1992.
- Seena, K., Kuttan, G., Kuttan, R. (1993) Anticancer activity of selected plant extracts. Amala Research Bulletin, 13, 41–45.
- Sekine, T., Ikegami, F., Fukasawa, N., Kashimagi, Y., Aizawa, T., Fuji, Y., Ruangrungsi, N., Murakoshi, I. (1995) Structure and related stereochemistry of a new polycyclic alkaloid asparagamine A showing anti-oxytocin activity, isolated from *Asparagus racemosus*. Perkin Transection 1, No 4, 391–393.
- Sekine, T., Kukasawa, N., Kashiwagi, Y., Ruangrungsi, N., Murakoshi, I. (1994) Structure of asparagamine A, a novel polycyclic alkaloid from *Asparagus racemosus*. Chemical and Pharmaceutical Bulletin, 42, 1360–1362.
- Shao, Yu, Chin Cheekok, Ho Chi Tang, Ma Wei, Garrison, S.A., Hunag, Mou Tuan (1996) Anti tumour activity of the crude saponin obtained from Asparagus. Cancer Letter, 104, 31–36.
- Sholapurkar, M.L. (1986) Lactare: for improving lactation. Indian Practitioner, 39, 1023–1026.
- Siddiqui, M.Y., Hakim, M.H. (1994) Effect of Safoof-e-Satawar in acid peptic disorder (Hurqat-e-Meda). Hamdard Medicus, 37, 131–136.
- Singh, K.P., Singh, R.N. (1986) Clinical trial on Satavari (*Asparagus racemosus* Willd.) in duodenal ulcer disease. Journal of Research in Ayurveda and Siddha, 7, 91–100.
- Tennekoon, K.H., Karunanayake, S.H., Mahindaratna, M.P.D. (1987) Evaluation of the galactagogue activity of *Asparagus falcatus*. Ceylone Journal of Medical Science, 30, 63–67.
- Thatte, U., Chhabria, S., Karandikar, S.M., Dahanukar, S. (1987) Immunotherapeutic modification of *E. coli*-induced abdominal sepsis and mortality in mice by Indian medicinal plants. Indian Drugs, 25, 95–97.
- Vihan, V.S., Panwar, H.S. (1988) A note on galactagogue activity of *Asparagus racemosus* in lactating goats. Indian Journal of Animal Health, 27, 177–178.

Som Ras

- Puri, H.S. Medicinal Plants of India (in Punjabi). Punjab State University Text Book Board, Chandigarh India 1977.
- Schultes, R.E., Hofmann, A. Plants of the Gods. Their Sacred, Healing and Hallucinogenic Powers. Healing Arts Press, Rochester, Vermont 1992.
- Wasson, R.G. Soma: Divine Mushroom of Immortality. Harcourt Blace Jovanovich Inc. USA 1972.

Sonth

- Bhaskar, P.A., Rao, K.S., Rao, M.V.R., Venkatachalam, M.S. (1984) Effect of spices in food on blood cholesterol. Current Medical Practitioner, 29, 96–97.
- Billing, J., Sherman, P.W. (1998) Antimicrobial functions of spices, why some like it hot. Quarterly Review of Biology, 73, 3–49.
- Bone, K. (1997) Ginger. British Journal of Phytotherapy, 4, 110–120.
- Cheng, C.P., Chang, J.Y., Wang, F.Y., Chang, J.G. (1995) The effect of Chinese medicinal herb *Zingiber rhizome* extract on cytokine secretion by human peripheral blood mononuclear cells. Journal of Ethnopharmacology, 48, 13–19.
- Giri, J., Sakthi Devi, T.K., Meeranai, S. (1984) Effect of ginger on serum cholesterol levels. Indian Journal of Nutrition and Dietetician, 21, 433–436.
- Kiuchi, F., Iwakami, S., Shibuya, M., Hanaoka, F., Sankawa, U. (1992) Inhibition of prostaglandin and leukotriene biosynthesis by gingerols and diarylheptanoids. Chemical and Pharmaceutical Bulletin, 40, 387–392.
- Maheshwari, A.K., Tiwari, M.P., Pant, M.C. (1995) Hypouricemic effect of *Zingiber officinale* (ginger) extract. Indian Journal of Hospital Pharmacy, 32, 18–20.
- Mustafa, T., Srivastava, K.C. (1990) Ginger (*Zingiber officinale*) in migraine headache. Journal of Ethnopharmacology, 29, 267–273.
- Nanda, G.C., Tewari, N.S., Prem Kishore (1985) Clinical studies on the role of Sunthi in the treatment of Grahni Roga. Journal of Research in Ayurveda and Siddha, 6, 78–87.
- Nanda, G.C., Tewari, N.S., Prem Kishore (1993) Clinical evaluation of Sunthi (*Zingiber officinale*) in the treatment of Grahni Roga. Journal of Research in Ayurveda and Siddha, 14, 34–44.
- Puri, H.S. (1988) Ginger: nature's remedy for heart patients. Quarterly Newsletter of American Herb Association, 6, 8–9.
- Sambiah, K., Srinivasan, K. (1989) Influence of spices and spice principles on hepatic mixed function oxygenase system in rats. Indian Journal of Biochemistry and Biophysics, 26, 254–258.
- Sambiah, K., Srinivasan, K. (1991) Secretion and composition of bile in rats, fed diet containing spices. Journal of Food Science and Technology, 28, 35–38.
- Shogi, N. (1982) Cardiotonic principles of ginger (*Zingiber officinale*). Journal of Pharmaceutical Sciences, 71, 1174–75.
- Tanabe, M., Chen, U.D., Saito, K.I., Kano, Y. (1993) Cholesterol biosynthesis inhibitory component from *Zingiber officinale*. Chemical and Pharmaceutical Bulletin, 41, 710–713.

Talamkhana

- Mazumdar, U.K., Malaya Gupta, Maiti, S., Mukherjee, D. (1997) Antitumour activity of *Hygrophila spinosa* on Ehrlich ascites carcinoma and sarcoma 180 induced in mice. Indian Journal of Experimental Biology, 35, 473–477.
- Singh, A., Handa, S.S. (1995) Hepatoprotective activity of *Apium graveolens* and *Hygrophila auriculata* against paracetamol and thioacetamide intoxication in rat. Journal of Ethnopharmacology, 49, 119–126.

Tulsi

- Ahumada, F., Tricado, M.A., Arellano, J.A., Hancke, J., Wikman, G. (1991) Effect of certain adaptogenic plant extracts on drug-induced narcosis in female and male mice. Phytotherapy Research, 5, 29–31.
- Bantwal, H.V., Mardikar, B.R. Clinical study of the effect of Krishna Tulsi to hospitalised leprosy patients (Abstract). Proceedings of 42th Indian Pharmaceutical Congress, Manipal, 28–30 December 1990.

- Bhargava, K.P., Singh, N. (1981) Antistress activity of *Ocimum sanctum* Linn. Indian Journal of Medical Research, 73, 443–451.
- Bhattacharya, P., Banerjee, R., Roy, U., Banerjee, B.P. (1994–1995) Modulation of blood sugar level of stress-induced albino rats with *Ocimum sanctum*. International Conference on Progress in Medicinal and Aromatic Plant Research, Calcutta, India. 30 December 1994.
- Chattopadhyaya, R.R. (1993) Hypoglycaemic effect of *Ocimum sanctum* leaf extract in normal and streptozotocin diabetic rats. Indian Journal of Experimental Biology, 31, 891–893.
- Dadkar, V.N., Joshi, A.G., Jagusta, V.S., Billimoria, F.R., Dhar, H.L. (1988) Antistress activity of *Ocimum sanctum* (Tulsi). Indian Drugs, 25, 172–175.
- Ganasoundari, A., Uma Devi, P., Rao, B.S.S. (1998) Enhancement of bone marrow radioprotection and reduction of WR-2721 toxicity by *Ocimum sanctum*. Mutation Research, Fundamental and Molecular Mechanisms of Mutagenesis 397, 303–312.
- Ganasoundari, A., Uma Devi, P., Rao, M.N.A. (1997a) Protection against radiation-induced chromosome damage in mouse bone marrow by *Ocimum sanctum*. Mutation Research, Fundamental and Molecular Mechanisms of Mutagenesis, 373, 271–276.
- Ganasoundari, A., Zare, S.M., Uma Devi, (1997b) Modification of bone marrow radiosensitivity by medicinal plant extracts. British Journal of Radiobiology, 70, 599–602.
- Godhwani, S., Godhwani, J.L., Vyas, D.S. (1988) *Ocimum sanctum*: a preliminary study evaluating its immunoregulatory profiles in albino rats. Journal of Ethnopharmacology, 24, 193–198.
- Jangde, C.R., Ladukar, O.N., Maske, D.K., Patil, G.D. (1996) Effect of *Ocimum sanctum* Linn. on bleeding time in rabbits. International Journal of Animal Sciences, 11, 249–250.
- Kantak, N.M., Gogate, M.G. (1992) Effect of short term administration of Tulsi (*Ocimum sanctum*) Linn. on reproduction behaviour of adult male rats. Indian Journal of Physiology and Pharmacology, 36, 109–111.
- Kozlovskaya, M.M., Blednov, Y.A., Czabak-Garbacz, R., Kozlovsky, I.I., Arefolov, V.A. (1996) Stress correction effects of *Ocimum sanctum* L.: a psychopharmacological and neurochemical study. Herba Polonica, 42, 289–294.
- Kumaravelu, P., Shanthi, S., Dakshinamoorthy, D.P., Devraj, N.S. (1996) The antioxidant effect of eugenol on CC14-induced erythrocyte damage in rats. Journal of Nutritional Biochemistry, 7, 23–28.
- Mandal, S., Das, D.N., Ray, K.D., Chaudhury, S.B., Sahana, C.C., Choudhuri, M.K. (1993) *Ocimum sanctum* Linn. A study of gastric secretion in rats. Indian Journal of Physiology and Pharmacology, 37, 91–92.
- Mediratta, P.K., Dewan, V., Maiti, P.C., Sen, P. (1988) Effect of *Ocimum sanctum* Linn. on humoral immunoresponses. Indian Journal of Medical Research, 87, 384–386.
- Prashar, Ritu., Ashok Kumar (1995) Chemopreventive action of *Ocimum sanctum* on 2,12 dimethylbenz (a) anthracene DMBA-induced papillomagenesis in the skin of mice. International Journal of Pharmacognosy, 33, 181–187.
- Sadekar, R.D., Pimprikar, N.M., Bhandarkar, A.G., Barmase, B.S. (1988) Immunomodulating effect of *Ocimum sanctum* Linn. Dry leaf powder on humoral immune response in poultry naturally infected with IBD virus. Indian Veterinary Journal, 75, 73–74.
- Sakina, M.R., Dandiya, P.C., Hamdard, M.E., Hameed, A. (1990) Preliminary psychopharmacological evaluation of *Ocimum sanctum* leaf extract. Journal of Ethnopharmacology, 28, 148–150.
- Savargaonkar, V.V., Karanjkar, A.M., Kulkarni, P.H. (1990) Action of *Sushama* (Suksma medicine). Deerghayu International, 6, 5
- Singh, N., Misra, N., Srivastava, A.K., Dixit, K.S., Gupta, G.P. (1991) Effect of antistress plants on biochemical changes during stress reaction. Indian Journal of Pharmacology, 23, 137–142.
- Singh, N., Tomar, V.S., Chandra, T., Gupta, G.P. (1989) A comparative evaluation of the effects of some species of *Ocimum* on anoxia tolerance in albino rats. Planta Medica, 55, 95.
- Singh, S., Agrawal, S.S. (1991) Anti-asthmatic and anti-inflammatory activity of *Ocimum sanctum*. International Journal of Pharmacognosy, 29, 306–310.
- Singh, S., Majumdar, D.K. (1995) Analgesic activity of *Ocimum sanctum* and its possible mechanism of action. International Journal of Pharmacognosy, 33, 188–192.
- Singh, V., Singh, A., Nath, R., Mishra, N., Dixit, K.S., Singh, N. (1991) Effect of some anti-stress plant drugs on the intestinal transit. Journal of Biological and Chemical Research, 10, 601–602.
- Subbulakshmi, G., Sarvaiya, S.R. (1991) Hypotensive effect of *Ocimum sanctum*. Bombay Hospital Journal, 33, 39–43.
- Tandan, S.K., Chandra, S., Jawahar Lal (1989) Pharmacological screening of the essential oil of *Ocimum sanctum* leaves. Indian Journal of Pharmaceutical Sciences, 51, 71–72.
- Trivedi, V.P., Singh, S.K., Sharma, S.C., Singh, N. (1995) A clinical evaluation of Tulsi (*Ocimum sanctum* Linn) leaf powder in cases of laryngopharyngitis and coryza (common cold and cough). Seminar on Research in Ayurveda and Siddha, CCRAS, New Delhi, 20–22 March 1995.
- Uma Devi, P., Ganasoundri, A. (1995) Radioprotective effect of leaf extract of Indian medicinal plant *Ocimum sanctum*. Indian Journal of Experimental Biology, 33, 205–208.

Vacha

- Alankara Rao, G.S.J.G., Rajendra Prasad, Y. (1981) Antimicrobial property of *Acorus calamus* Linn. In vitro studies. Indian Perfumers, 15, 4–6.
- Badam, I. (1995) In vitro studies on the effect of *Acorus calamus* extract and beta-asarone on Herpes viruses. Deerghayu International, 11, 16–18.
- Bruneton, J. Pharmacognosy, Phytochemistry, Medicinal Plants. Lavoisier Publishing, Paris France 1995.
- Dasgupta, S.R., Patra, B.B., Sikdar, S. (1977) Preliminary studies of the effect of chloroform extracted factor from *Acorus calamus* on the behaviour of conscious rhesus monkeys. Science and Culture, 43, 218–219.
- Evans, W.C. Trease and Evan's Pharmacognosy. 18 Edition., Baillier and Tindall, London 1988.
- Keller, K., Odenthal, K.P., Leng Peschlow, E. (1985) Spasmolytic activity of iso asorone from Calamus. Planta Medica, 51, 6–9.
- Khare, A.K., Sharma, M.K. (1982) Experimental evaluation of antiepileptic activity of acorus oil. Journal Scientific Research on Plants and Medicine, 3, 100–103.
- Mamgian, P., Singh, R. H. (1994) Controlled clinical trial of the Lekhaniya drug vaca (*Acorus calamus*) in cases of ischaemic heart diseases. Journal for Research in Ayurveda and Siddha, 15, 35–51.
- Martis, G., Rao, A., Karanth, K.S. (1991) Neuropharmacological activity of *Acorus calamus*. Fitoterapia, 62, 331–337.
- Prasad, H.C., Chakraborty, R. Acorus calamus Linn- A medicinal plant having hypotensive activity in experimental study. International Seminar – Traditional Medicine, Calcutta, 7–9 November 1992, p. 157.
- Rafatullah, S., Tariq, M., Mossa, J.S., Al-Yahya, M.A., Al-Said, M.S., Ageel, A.M. (1994) Anti-secretagogue, anti-ulcer and cytoprotective properties of *Acorus calamus* in rats. Fitoterapia, 65, 19–23.
- Rajagopalan, V. Effect of Ayushman-2 in Manasa Mandata (mental retardation). Seminar on Research in Ayurveda and Siddha, CCRAS, New Delhi, P 34, 20–22 March 1995.
- Rajasekharan, S., Srivastava, P.N. (1977) Ethnobotanical study on vacha and its preliminary clinical trial in bronchial asthma. Journal of Research in Indian Medicine, Yoga and Homoeopathy, 12, 92–96.
- Ratsch, Christian Plants of Lowe. The History of Aphrodisiacs and a Guide to their Identification and Use. Ten Speed Press, Berkeley CA, USA 1997.
- Sharma, R.D., Chaturvedi, C., Tewari, P.V. (1985) Helminthiasis in children and its treatment with indigenous drugs. Ancient Science of Life, 4, 245–247.
- Siddiqui, M.T.A., Asif, M. Anti-inflammatory activity of *Acorus calamus* Linn (Abstract). Conference of Pharmacology and Symposium on Herbal drugs, New Delhi (India), 15 March 1991.
- Vohora, S.B., Shah, S.A., Dandiya, P.C. (1990) Central nervous system studies on ethanol extract of *Acorus calamus* rhizome. Journal of Ethnopharmacology, 28, 53–62.
- Vohora, S.B., Shah, S.A., Sharma, K., Naqvi, S.A.H., Dandiya, P.C. (1989) Antibacterial, antipyretic, analgesic and antiinflammatory studies on *Acorus calamus* Linn. Annals of the National Academy of Medical Sciences (India), 25, 13–20.
- Zanolli, P., Avallone, R., Baraldi, M. (1997) Sedative and hypothermic effects induced by beta asarone, a main component of *Acorus calamus*. Proceedings of the Second International Symposium on Natural Drugs, Maratea, Italy, 28 Sept.-1 Oct., 1997. (edited by Capasso, F., Pasquale, R., Evans, F.J., Mascolo, N.J. (1998) Phytotherapy Research, 12 Supp. S114–116).
- Zhang, Y.X., Saito, H., Nishiyama, N. (1994) Improving effects of DX-9386, a traditional Chinese medicinal prescription on thymectomy-induced impairment of learning behaviour in mice. Biological and Pharmaceutical Bulletin, 17, 1199–1205.
- Zhou Daxing, Li Changyu, Lin Qinnliang (1992) Facilitatory effects of *Acorus gramineus* on learning and memory in mice. Traditional and Herbal Drugs, 2, 417–419.

Vata Vriksh

- Augusti, K.T., Daniel, R.S., Cherian, S., Sheela, C.G., Sudhakaran Nair, C.R. (1994) Effect of leucopelargonin derivative from *Ficus bengalensis* Linn on diabetic dogs. Indian Journal of Medical Research, 99, 82–86.
- Bipul De, Maiti, R.N., Joshi, V.K., Agrawal, V.K., Goel, R.K. (1997) Effect of some Sitavirya drugs on gastric secretion and ulceration. Indian Journal of Experimental Biology, 35, 1084–1087.
- Cherian, S., Augusti, K.T. (1993) Antidiabetic effects of a glycoside of leucopelargonidin isolated from *Ficus bengalensis* Linn. Indian Journal of Experimental Biology, 31, 26–29.
- Cherian, S., Augusti, K.T. (1995) Insulin sparing action of leucopelargonidin derivatives isolated from *Ficus bengalensis* Linn. Indian Journal of Experimental Biology, 33, 608–611.
- Daniel, R.S., Mathew, B.C., Devi, K.S., Augusti, K.T. (1998) Antioxidant effect of two flavonoids from the bark of *Ficus bengalensis* Linn in hyperlipidemic rats. Indian Journal of Experimental Biology, 36, 902–906.
- Mandal, S.C., Maity, T.K., Das, J., Saha, B.P., Pal, M. (1998) *Ficus racemosa* affords antihepatotoxic activity against paracetamol-induced acute liver damage in rats. Natural Product Sciences, 43, 174–179.

- Mousa, O., Vuorela, P., Kiviranta, J., Abdel Wahab, S., Hiltunen, R., Vuorela, H. (1994) Bioactivity of certain Egyptian *Ficus* species. *Journal of Ethnopharmacology*, 41, 71–76.
- Mukherjee, P.K., Saha, K., Murugesan, T., Mandal, S.C., Pal, M., Saha, B.P. (1998) Screening of anti-diarrhoeal profile of some plant extracts of a specific region of West Bengal, India. *Journal of Ethnopharmacology*, 60, 85–89.
- Neera Singh, Tyagi, S.D., Agarwal, S.C. (1992) Study of antidiabetic effects of alcoholic extract of *Ficus bengalensis* (Linn.) on alloxan diabetic albino rats. *Journal of Research in Ayurveda and Siddha*, 13, 56–62.
- Sannd, B.N., Krishna Kumari (1992) A preliminary clinical trial of Vatavrakasha Curna on Svetapardara. *Journal of Research in Ayurveda and Siddha*, 13, 82–88.
- Shukla, R., Anand, K., Parbhu, K.M., Murthy, S. (1995) Hypocholesterolemic effect of water extract of the bark of banyan tree, *Ficus bengalensis*. *Indian Journal of Clinical Biochemistry*, 10, 14–18.
- Vinod Kumar, R., Augusti, K.T. Insulin sparing activity of a leucocyanidin derivative isolated from *Ficus bengalensis* Linn. *Amala Research Bulletin*, 13 August, 1993, pp. 32–36.

Vatsnabh

- Chang, J.G., Shih, P.P., Chang, C.P., Chang, J.Y., Wang, F.Y., Tseng, J. (1994) The stimulating effect of radix aconiti extract on cytokines secretion by human mononuclear cells. *Planta Medica*, 60, 576–578.
- Dong, Y.L., Chen, W.Z. (1995) Effect of Guan-Fu base A on experimental cardiac arrhythmias and myocardial contractility. *Pharmaceutica Sinica* 30, 577–582.
- Mehra, P.N., Puri, H.S. (1970) Pharmacognostic investigations on aconites of *Ferox* group. *Research Bulletin of the Panjab University (N.S.)* 21, 473–493.
- Murayama, M., Mori, T., Bando, H., Amiya, T. (1991) Studies on the constituents of *Aconitum* species. IX. The pharmacological properties of pyro type aconitine alkaloids, component of processed aconite powder *Kakobushimastu*, analgesic, antiinflammatory and acute toxic activities. *Journal of Ethnopharmacology*, 35, 159–164.
- Puri, H.S. (1974a) Distribution of aconites in India. *Journal of Research in Indian Medicine*, 9, 41–43.
- Puri, H.S. (1974b) Uses of aconites. *Journal d'Agriculture Tropicale et de Botanique Appliquée*, 21, 239–246.
- Puri, H.S. (1975) Botanical studies on aconites. *Herba Hungarica*, 14, 123–133.
- Stapf, O. (1905) The aconites of India. A monograph. *Annals Royal Botanical Gardens, Calcutta (India)*, 10, 115–119.
- Singh, L.B., Singh, R.S., Bose, R., Sen, S.P. (1985) Studies on the pharmacological action of aconite in the form used in Indian medicine. *Bulletin Medico Ethnobotanical Research*, 6, 115–123.

Vibhitaki

- Abhimanyu Kumar (1994) Role of certain Ayurvedic herbal drugs in management of T.P.E. in children. *Indian Medicine*, 44, 5–10.
- Anand, K.K., Singh, B., Saxena, A.K., Chandan, B.K., Gupta, V.N. (1994) Hepatoprotective studies of a fraction from the fruits of *Terminalia belerica* Roxb. on experimental liver injury in rodents. *Phytotherapy Research*, 8, 287–292.
- Nandi, M., Sharma, R.C., Gupta, S.K., Arora, R.B. (1975) Chemical and Biological assay of *Terminalia belerica* Roxb. – A comparative study of three samples. *Journal of Research in Indian Medicine*, 10, 27–36.
- Padam, S.K., Grover, I.S., Majar Singh (1996) Antimutagenic effects of polyphenols isolated from *Terminalia bellerica* myrobalan in *Salmonella typhimurium*. *Indian Journal of Experimental Biology*, 34, 98–102.
- Raghavan, V., Pushpagandan, P., Smitt, U.W., Andersewn, A., Christensen, S.B., Sittie, A., Nyman, U., Nilesen, C., Olsen, C.E. (1997) New anti-HIV-1, antimalarial, and antifungal compounds from *Terminalia bellerica*. *Journal of Natural Products*, 60, 739–742.
- Siddiqui, H.H. (1961) Studies on *Terminalia belerica* Roxb. *Indian Journal of Pharmacy*, 25, 297.
- Siddiqui, H.H. (1963) Studies on *Terminalia belerica* Roxb. Effect on bile secretion and pharmacodynamic properties. *Indian Journal of Pharmacy*, 27, 297–302.
- Tariq, M., Hussain, S.J., Asif, M., Jahan, M. (1977) Protective effects of fruit extracts of *Emblica officinalis* (Gaertn.) and *Terminalia belerica* Roxb., in experimental myocardial necrosis in rats. *Indian Journal of Experimental Biology*, 5, 485–486.
- Thakur, R.S., Puri, H.S., Akhtar Hussain Major Medicinal of Plants of India. CIMAP, Lucknow India 1989.
- Trivedi, V.P., Nesamany, S., Sharma, V.K. (1982) A clinical study of the antitussive and antiasthmatic effects of Vibhitakaphal Churna (*Terminalia belerica* Roxb.) in the cases of Kasa-Swasa. *Journal of Research in Ayurveda and Sidha*. 3, 1–8.

Yokozawa, T., Fujioka, K., Oura, H., Tanaka, T., Nonaka, G., Nishioka, I. (1995) Confirmation that tannin containing crude drugs have a uraemic decreasing action. *Phytotherapy Research*, 9, 1–5.

Vidari Kand

- Araro, T., Udayama, M., Kinjo, J., Nohara, T. (1998) Preventive effects of saponins from the *Pueraria lobata* root on in vitro immunological liver injury of rat primary hepatocyte cultures. *Planta Medica*, 64, 413–415.
- Cho, E.H., Kim, I.H. (1985) Studies on the concurrent administration of medicine. I Anti-inflammatory and analgesic action of Galgun-tang and aspirin. *Korean Journal of Pharmacognosy*, 16, 7–11 (in Korean).
- Fan, L., O'Keefe, D.D., Powell, W.J. Jr (1984) Effect of puerarin on regional myocardial blood flow and cardiac haemodynamics in dogs with acute myocardial ischaemia. *Acta Pharmaceutica Sinica*, 19, 801–807.
- Fan, L., O'Keefe, D.D., Powell, W.J. Jr. (1985) Pharmacologic studies on radix puerariae. Effect of puerarin on regional myocardial blood flow and cardiac hemodynamics in dogs with acute myocardial ischemia. *Chinese Medical Journal*, 98, 821–832.
- Fang Qicheng (1980) Some current study and research approach relating to the use of plants in the traditional Chinese medicine. *Journal of Ethnopharmacology*, 2, 57–63.
- Furusawa, J., Nohara, T. (1987) New ingredients of *Puerariae radix*. *Journal of Pharmaceutical Sciences*, 76, p S 197.
- Keung, W.M., Lazo, O., Kunze, L., Vallee, B.L. (1996) Potentiation of the bioavailability of diadzin by an extract of Radix puerariae. *Proceedings of the National Academy of Sciences USA*, 93, 4284–4288.
- Keung, W.M., Vallee, B.L. (1993) Daidzin and daidzein suppress free choice ethanol intake by Syrian golden hamsters. *Proceedings of National Academy of Sciences, USA*, 90, 10008–10012.
- Keung, W.M., Vallee, B.L. (1998) Kudzu root: an ancient Chinese source of modern antidipsotropic agents. *Phytochemistry*, 47, 499–506.
- Khirana, K.L., Balvinder Kumar, Khanna, S., Manuja, A. (1996) Effect of herbal galactagogue Payapro on milk yield in lactating buffaloes. *International Journal of Animal Sciences*, 11, 239–240.
- Nikam, S.T., Sonurlikar, U.A., Bhide, M.B. (1977) Steroidal neuromuscular blocking agent from *Pueraria tuberosa*. *Indian Journal of Pharmacy*, 39, 161.
- Overstreet, D.H., Lee, Y.W., Rezvani, A.H., Criswell, H.E. Research Society on Alcoholism. Symposium Skipper Bowles Centre for Alcohol Studies, University of North Carolina, Chapel Hill, USA 1993.
- Sato, T., Kawamoto, A., Tarsumi, Y., Fujii, T. (1992) Mechanism of antioxidant action of *Pueraria* glycoside (PG)-I (an isoflavanoid) and mangiferin (a xanthonoid). *Chemical and Pharmaceutical Bulletin*, 40, 721–724.
- Shen, X.L., Witt, M.R., Nielsen, M., Sternner, O. (1996) Inhibition of (3H) flunitrazepam binding to rat brain membrane in vitro by puerarin and diadzein. *Acta Pharmaceutica Sinica*, 31, 59–62.
- Shibata, S.T., Murakami, Y., Harada, M. (1959) The constituents of *Pueraria* root. *Chemical and Pharmaceutical Bulletin*, 7, 134–136.
- Shukla, Sangeeta (1995) Toxicological studies of *Pueraria tuberosa*, a potent antifertility plant. *International Journal of Pharmacognosy*, 33, 324–329.
- Shukla, Sangeeta, Jonathan, S., Sharma, A. (1996) Protective action of butanolic extract of *Pueraria tuberosa* DC against carbon tetrachloride-induced hepatotoxicity in adult rats. *Phytotherapy Research*, 10, 608–609.
- Sohn, D.H., Ann, H.S., Shin, S.D. (1985) Pharmacological effects of Puerarie radix butanol extract on cadmium toxicity in rats. *Yakhak Hoeji*, 29, 206–215.
- Speroni, E., Guerra, M.C., Rossetti, A., Pozzetti, L., Sapone, A., Paolini, M., Cantelli-Forti, G., Pasini, P., Roda, A. (1996) Anti-oxidant activity of *Pueraria lobata* (Willd.) in the rats. *Proceedings of the VIII Congresso nazionale della Societa Italiana di Farmacognosia and 1st joint meeting of Belgian, Dutch, Spanish and Italian Research groups on Pharmacognosy*, Napels, Italy, 9–14th June 1996. Capasso, F., Evans, F.J., Mascolo, N. (eds.) *Phytotherapy Research* (Supplement 1), S 95–97.
- Xiuxian, G., Xuiqin, L. (1979) Radix Puerariae in migraine. *Chinese Medical Journal*, 92, 260–262.

Vidhara

- Agarwal, S.K., Rastogi, R.P. (1974) Ergometrine and other constituents of *Argyreia speciosa* Sweet. *Indian Journal of Pharmacy*, 36, 118–119.
- Chao, J., Dermarderian, A.H. (1973) Identification of ergoline alkaloids in the genus *Argyreia* and related genera and their chemotaxonomic implication in Convolvulaceae. *Phytochemistry*, 12, 2435–2440.
- Ratsch, Christian Plants of Love. The History of Aphrodisiacs and a Guide to their Identification and Use. Ten Speed Press, Berkley, CA USA 1997.

Some Rasayana formulations

Tripathi, J.S., Singh, R.H. (1995) Clinical evaluation of Smritisagar Rasa in cases of residual schizophrenia. Seminar on Research in Ayurveda and Siddha, CCRAS, New Delhi. P.35, 20–22 March 1995.