Medicinal Plants of North-East India

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Aavishkar Publishers, Distributors
Jaipur 302 003 (Raj.) India

Preface

Wild herbaceous plants seen everywhere, may the habitat be dry, moist or wet, low or high altitude, forest or agricultural areas, road sides or waste places are utilized in our day to day life in manifold ways, especially for medicinal purposes, since the time immemorial. Many of these are valuable and useful but becoming threatened with extinction, because of overexploitation and habitat destruction. The objectives of the present study is to focus the traditional uses of herbs as medicinal plants made by indigenous tribals or non-tribals of North-East India and the present work is the result of studies conducted in different localities of the region over a period of twenty years. In this book 340 dicotyledonous, monocotyledonous and pteridophytic species have been described with their scientific and local (probable) names, nature of herbs, chromosome numbers (where possible), phenology, frequency of occurrence and their different medicinal uses. The uses of those species described in the book are the author's own experience, or data collected personally from village medicine men, elederly experienced men and women of rural/forest or remote hilly areas and different records published in books, journals, newsletters etc. of the region. Many of the plants described/ indicated here are poisonous in unprocessed form and self medication in wild form is not at all advisable and the medicinal uses of those plants to be made very carefully.

I would like to acknowledge the help which I, received from many publications for completing the book and much information was gleaned from the libraries of Dibrugarh University, Dibrugarh, Assam

Agricultural University, Jorhat and Institute of Science and Technology, North East India, Jorhat, Assam.

I am thankful to Dr. (Mrs.) Farhana Hasin, Department of Life Sciences, Dibrugarh University; Mr. Wahidud Zaman, M.Sc.; B.Ed., Senior Teacher, St. Marys School; M. Hasin and M. Z. Islam; for helping in different ways and for photographs to enrich the book. I appreciate the co-operation and support of Mr. Akshay Jain of Aavishkar Publishers, Distributors, Jaipur for publishing this book with keen interest and all the necessary care.

Suggestions, corrections or any constructive criticisms which might help for improvement of the future edition will be gratefully received by the author.

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Contents

Introduction

The use of medicinal plants to cure ailments is as old as the history of civilization and has been in vogue from very ancient days. Wild herbs utilized for medicinal purposes for different ailments in day to day life either traditionally or inherently as guru-shishya parampara or from one generation to the other, from the days of Vedas, ultimately reaching the home of the common people. The indigenous system of medicine, viz.-Ayurvedic, Siddha and Unani have been in existence for several centuries. In medical Sciences, Ayurveda reached the home of each family and hence today the villagers also have much knowledge about the health and curing of diseases. People of rural India, by and large, still dependent on traditional medicines for health care and treatment of diseases. Traditional medicines have developed through experience of many generations and have been primarily dependent upon locally available plants, animals and other materials. The traditional medicine on the other hand may be termed as 'Folk medicines'. Major percentage of our population tribals or non-tribals, residing in hilly and plain areas, villages, forests/rural areas etc., are accustomed with herbal medicines. Thus, our knowledge of medicinal plants, however, has mostly been inherited traditionally and use of plants confined not only to doctors but also to several ethnomedicinal man as—elderly/knowledgeable persons, men or women of villages, local tribals, farmers or a trained healer. Many interesting or secret matters are there to learn from the village medicine men to preserve

the knowledge of those medicinal plants and their uses are becoming important one for human existence.

Thus, the history of the use of plants in medicine can be traced back to the ancient civilizations or Pre-Rigvedic times as has been cited above. The earliest written records on the utilization of medicinal plants is in the *'Rigveda'* (4500-1600 BC), the earliest scriptures. In *'Atharvaveda'* which was a later work, the uses of medicinal plants described are more varied. This was followed by monumental contributions like *'Charak-Samhita'* (1000-800BC), *'Chauchurat Samhita'* (800-700BC) and *'Botanical Observations'* Bhagbhatta's *'Astenga-Hridaya'* etc. and several books have been written by several workers/scholars upto the British rule established in India.

Compilations on Indian medicinal plants started in early 19th century. The earliest contributions are by Sir William Jones *'On Selected Plants'* (1799) followed by John Flemming's *'Catalogue of Medicinal Plants'* (1810), Ainslie's *'Materia Medica of Hindustan'* (1813, 1826), Roxburgh's *'Flora Indica'* (1820-1832) and Royle's *'An essay on the Antiquity of Hindu Medicine'* and others. O'Shaaughnessey's *'The Bengal Dispensatory'* (1841) are the books dealing with the properties and use of the medicinal plants.

Dutta's *'Materia Medica of the Hindus'* (1877), Dymock's *'Vegetable Materia Medica of Western India'* (1883) and contributions made by Khori (1887) and Dey (1896) are valuable works relating to medicinal products indigenous to India. The two comprehensive works *'Pharmacographia India'* by Dymock, Warden and Hooper (1889-1893) and *'Dictionary of Economic Products of India'* George Watt (1889-1896) are the most valuable contributions of the 19th century. Simultaneously, valuable works were published eg., *'Indian Medicinal Plants'* (Kirtikar and Basu, 1916), *'Indian Materia Medica'* (Nadkarni, 1926), *'Indigenous Drugs of India'* (Chopra, 1993). *'Bharatiya Banaushadhi's'* (Biswas and Ghosh) (1950-52), *'Indian Pharmaceutical Codex'* (Mukherjee, 1953), *'A Review of Indian Medicinal Plants'*, (Chopra and Chopra, 1955) and *'Indigenous Drugs of India'*, (Chopra *et al.*, 1958).

More recent works like—*Medicinal Plants of India* (Satyavati *et al.*, 1976), *Cultivation and Utilization of Medicinal Plants* (Atal & Kapur, 1982), *Medicinal Plants* (Jain, 1985), *Medicinal Plants of India* (Jain and Phillips, 1991); *Major Medicinal Plants of India* (Thakur *et al.*, 1992), *Dictionary of Indian Medicinal Plants* (Hussain *et al.*, 1992), *Medicinal Plants, Their Bioactivity Evaluation* (Anonymous, 1998) and a large

number of research papers/works on different parts of India, especially the North-East India added to the Wealth of literature on Indian Medicinal Plants.

North-East India, a macro-geographical region of the country, comprised of Assam, Arunachal, Nagaland, Meghalaya, Mizoram, Manipur, Tripura and Sikkim, covering an area about 225036 sq. km., situated between 22°19'-29°4' North latitude and 89°42'-97° 12' East longitude, where wide variations in climate, soil and altitude exist with rich resources of biodiversity embracing a large number of diverse types of medicinal plants. These plants have valuable place in indigenous system of medicine and recently importance have been given on the collection and evaluation of these plants and their valuable constituents. These valuable germplasm may be lost or may become extinct, due to deforestation, shifting cultivation, over-exploitation, urbanisation etc. in different states. The region is inhabited by a large number of tribals of various ethnic groups as Abor, Apatani, Afala, Garo, Khashi, Kuki, Mikirs, Mishing, Rabha, Naga and various others. The inhabitants are well aware of the medicinal properties of the plants occurring on their surroundings and this knowledge was gained by trial and error. The information was passed on from one generation to the other, but in many cases the knowledge of medicinal plants is still limited. In the present exploratory work an ethnomedicinal study has been made since the last twenty years. During the study many field tours were made in different localities of the region from time to time, adopting all the necessary procedures to be followed. Frequent discussions were also made with the users/practitioners of wild herbaceous plants in different ailments. The plant species recorded are enumerated alphabetically in botanical/scientific names, local names, and families alongwith their habits, chromosome numbers(where possible), phenology, habitat and the plant parts or products used in the remedy of different ailments/diseases by the local peoples– tribal or non-tribals of the region. Modes of preparation of drugs, methods of administration as well as doses were noted even with the proper knowledge of the plant which are poisonous or non poisonous.

Wild plants/herbs recorded in the present study serving as first aid for tribals or rural folks, since the very old days, as these plants are proved very cheap and quick handy remedies, and easily available and for which causes, wild plants are still used in remote places and

rural areas by common people (tribals/non-tribals) of different parts of the country, especially of the Eastern Himalayan region.

The commonly occurring diseases/ailments of the region are- Gastro-intestinal disorders, stomach troubles, urinary troubles, skin diseases, cuts and injuries, insect and snake bites, bone fractures, eye and ear troubles and other internal or external troubles. The herbs commonly or widely used for curing the ailments are viz. : *Achyranthes aspera, Acorus calamus, Ageratum conyzoides, Andrographis paniculata, Boerhavia diffusa, Centella asiatica, Centipeda minima, Commelina benghalensis, Coptis teeta, Costus speciosus, Curcuma zedoaria, Cynodon dactylon, Drymaria cordata, Eclipta prostrata, Eupatorium odoratum, Houttuynia cordata, Kyllinga brevifolia, Leucas plukentii, Leonurus sibiricus, Ocimum gratissimum, Oldenlandia corymbosa, Oxalis corniculata, Phyllanthus urinaria, Plantago erosa, Plumbago rosea, Portulaca oleracea, Rawolfia serpentina, Scoparia dulcis, Sida acuta, Spilanthes paniculata, Verbena officinalis, Vetiveria zizanoides etc.*

The methods of application and usage of these different herbaceous plants in folk medicine are variable and most common one is the oral administration followed by topical or local applications. Smoking, bathing, snuffs, tying of body parts etc., are also applied occasionally.

Many plants utilised for medicinal purposes employed orally as decoction for treating sore throat, intestinal parasites, diarrhoea, dysentery, other gastro-intestinal diseases, bronchial troubles, fevers, jaundice, cough, cold, headache, general debility, leucorrhoea, spermatorrhoea, menorrhagia etc. Orally prescribed medicines included, are liquid preparations, non-formulated medicines, pills, medicines mixed with food stuffs etc.

Medicines applied topically are for treating skin diseases (scabies, leprosy etc.), wounds, rectal haemorrhoides, body swellings, eczema, insect and snake bites etc., and these medicines are applied in paste or liquid form and ointment or powder form.

Plants and plant parts carried along or tied to the body with the aim for protection against evil forces, snake bites, to arrest bleeding after delivery, rheumatism etc., In form of amulets and non-formulated medicinal substances used either as waist bands or small pieces of drugs.

Smoking is another method employed for the ailments of the

respiratory tracts, throat infection etc, in which non-formulated and powdered medicines are used to produce smokes.

Another interesting method is steaming or inhaling of vapours in which packets of medicinal plants/plant parts are boiled in water and the patient is allowed to sit under the blanket with the pot containing the boiled plants or plant parts and inhaling vapours cures the patient, like the modern methods in which ointments or balms used for cold and cough.

During the utilization of the plants it has also been noticed that- (i) some plants are often used for treating a number of different ailments, (ii) certain parts of the plants are used for treating different unrelated ailments, (iii) different parts of plants used in different ailments, and (iv) different parts used in same ailments. Use of different parts of plants for same ailments indicate the possibility of same active principle useful for the diseases.

All the plants are found in wild condition enumerated in the present list and most of them are handy and having the easily available remedy material which give effective results in many of the cases and as a result, both tribals or non-tribals, rurals of the remote/ forest areas etc. of many places are still not willing to approach doctors. Instead they treat themselves with plant material only, as per advise of the reliable persons, basing on traditional methods which are manual; quantities of ingredients are not specific, measurements are rough, not resemble those specified in present day organized pharmaceutical practices.

The people by trial and error developed their own traditional ways of diagnosis and treatment of diseases and fulfil their basic requirements from the nearby habitats, forest areas or sacred groves. As a result of long practices and experiences, it has become an effective way of accumulation of rich knowledge of medicinal plants amongst them. The tribals/rurals are well versed with the symptoms of various types of diseases and with their herbal remedies because they have carried on practices traditionally by verbal instructions. Moreover, it has been observed that, modern medical facilities though are available to a certain extent in approachable areas/ places, still they prefer to use herbal drugs owing to their confidence and belief in such treatments. The patients proceed to hospitals only when village medicine man is of no help.

Recent introduction of allopathic medicines in the areas and shift

in the on-firm activities from traditional to modern practices have significant effect on herbal medicinal usage. Developing infra-structure facilities and ever increasing population pressure have also accelerated the use of medicinal plants and other minor resources to the urban-industrial sectors and thus causing severe degradation to the traditional subsistence societies and forest based resources. Majority of the collectors were interviewed in different localities/areas and it has been viewed that the existence of medicinal plant resources are dwindling fast in recent years. However, local knowledge will have to be complemented by scientific knowledge on the cultivation and conservation of economically important medicinal plants and their pharmaceutical uses.

The traditional knowledge system in regards to the herbal medicine in India is fast eroding due to various reasons, as loss of biodiversity due to deforestation, loss of natural habitat, shifting cultivation, power and irrigation projects, unplanned management, influence of technology based modern society and several others. Now it is becoming an urgent need to record all the ethnobiological information exists among the diverse ethnic communities before the traditional cultures are completely lost and also to conserve and revitalization of the traditional beliefs, so that age old cultures are not lost. Ethnobiologists also have responsibilities to safeguard the traditional knowledge for misuse or overuse by the modern societies and they should have on behalf of the tribals, who should share the benefits of new discoveries, such as foods or medicines from plants (Boom, 1990; Cunninghum, 1993; Balick, 1996) and discharging their dual role between modern and traditional associates.

Conservation of biodiversity which nourishes the tribals and forest dwellers is also equally important, if traditional knowledge has to be preserved just like habitat conservation for species and as a whole if tribals are to be protected from extinction, forests are also to be preserved accordingly. Commercial collection of traditional medicinal plants from tribal dwelling, habitats also to be controlled. In India about 46, 000 licensed pharmacies collect traditional medicinal plants for preparation of herbal drugs (Alok, 1991 and Cunningham, 1993). Apart from the conservation of forests, tribals should be encouraged to raise their own ethnobiological gardens or herb gardens in their vicinity (Ballick, 1996). Such gardens serve the interests of the tribals and they at the same time ensure conservation of the depleting biodiversity in medicinal plants of India (Rao, 1996).

However, loss of such valuable plant wealth is definitely a serious concern and attempts should be based on priority basis to prevent their loss to posterity and therefore, the conservation of these plants need immediate attention through some certain measures:

(i) Preservation of Traditional Folk Beliefs of the Inhabitants

In primitive human societies, the conservation of plant resources was an ancient tradition, which leads to the conservation of medicinal plant wealth. They utilized the resources as much as required and the rest preserved for the future needs, as they are selfless and not greedy like the modern and developing societies. The inhabitants living, specially in remote areas have certain beliefs and myths regarding the surrounding vegetation. Many of the medicinal plant. species are believed to be sacred and ritually important. These religious beliefs play a significant role in proper management and preservation of these resources. This resulted injudicious utilization of medicinal plant wealth in the past.

During the study, it was observed that several medicinal plants are associated with magico-religious beliefs among the inhabitants of the religion. The plants like *Hedychium spicatum, Coix lachryma-jobi,* are not disturbed during the noon and night. It is believed that the planting of, *Eupatorium cannabinum, Acorus calamus, Alocasia indica* etc. near the house, protects the householder from the effect of evil spirits; the growth of *Curcuma caesia* is associated with bringing prosperity to the house holder. These believes may not have any relevance but these have certainly helped in conservation of medicinal plants. There are many sacred groves in the region and they have helped in the conservation of many rare and endangered plant species.

Thus, the traditional conservation methods, such as taboos, totems, sacred groves etc. prevent cutting or disturbing certain valuable types of plants, need to be appreciated as these have resulted in conservation of genetic resources of medicinal plants.

(ii) Establishment of Medicinal Plants Garden/Sanctuaries

Many important/rare/endangered medicnal plants becoming an urgent need for preservation/conservation for sustainable future, which may be made through establishing small or large medicinal plant gardens to all the possible localities of the region.

Certain plants as *Aconitum ferox, Coptis teeta, Gloriosa superba, Nardostachys Sp., Rauwolfia serpentina, Swertia chirata* etc., having

important medicinal properties may be preserved in medicinal plant gardens/sanctuaries in their natural habitat.

(iii) Cultivation and Establishment of Medicinal Plant Farms

Basing on the increasing demand of medicinal plants, commercially or pharmaceutically, certain plants are to be preserved through cultivation or by establishing medicinal plant farms. Cultivation of medicinal plants like-*Achyranthes aspera, Asclepias curassavica, Alpinia galanga, Amorphophallus campanulatus, Bacopa monnieri, Carthamus roseus, Centella asiatica, O. corniculata, Cleome viscosa, Centratherum anthelminticum, Coleus amboinicus, Costus speciosus, Curcuma aromatica, C. caesia, C. zedoaria, Cyperus rotundus, Eclipta prostrata, Euphorbia hirta, Hedychium coronarium, Kaempferia galanga, Kalanchoe laciniata, Mimosa pudica, Ocimum basilicum, Plumbago zeylanica, Polygonatum verticillatum, Rauwolfia serpentina, Rumex vesicarius R. maritimus Sida cordifolia, S. rhombifolia, Solanum nigrum S. surretense, Taraxacum officinale, Vanda tesselata, Vernonia cineria, Valeriana hardwickii, Zingiber zerumbet etc.* are met in valleys and low hills. The plant species like *Aconitum ferox, Berberis asiatica, Coptis teeta, Illicium grifithii Orchis latifolia, Potentilla fulgens, Swertia chirata* etc. are suitable for cultivation usually in high altitudes and species like *Acorus calamus* are suitable in marshy tracts and different other shrubby, climbers or arboreus plants are planted in medicinal plant gardens of the region. These may be included on priority basis for plantation in social forestry or Joint Forest Management Programme which may fulfil the pharmaceutical or other ethnomedicinal demands to a considerable extent which will also help directly or indirectly in conservation of biodiversity in the region.

□□□

Enumeration

Abutilon indicum (L.) Sweet — Malvaceae

Eng.: Country mallow; Indian mallow; **Ass.:** Jopa petari; **Hindi:** Kanghi; **Beng.:** Petari; **M.:** Kakching; **G.:** Hath-kopalia.

A large herb or under shrub.

2n = 42

Fls. & frs.: Rainy and cold season

Infrequently to frequently met in the region.

Uses

The root is diuretic, taken internally as sedative; infusion given in fevers and also used in piles. Leaves are demulcent, and their decoction is given in bronchitis, fevers and rheumatism. Leaf paste is used to burst boils. Seeds are aphrodisiac, expectorant and laxative. Useful in piles, calculi and spermatorrhoea and powdered seeds are given to kill threadworms. The herb is employed in urinary troubles and lumbago.

Acalypha indica L. — Euphorbiaceae

Eng.: Indian nettle; **Ass.:** Bishhori, patrasaki; **Beng.:** Mukta jhuri; **Hindi:** Khuppi.

An annual pubescent herb.

Fls. & frs.: June-November

Met infrequently to frequently in different parts of the region.

Uses

The plant is emetic, expectorant, anthelmintic, laxative and useful in the remedy of chronic bronchitis and asthma and also used in pneumonia and rheumatism by both the tribals and non- tribals.

Leaf paste is used in bed sores, skin diseases and also in snake bites.

Acanthospermum hispidum DC. — Asteraceae

A small herb.

Fls. & frs.: In most parts of the year.

Frequent to common in moist and waste places.

Uses

The plant is used in cut and injuries and also in skin diseases. The plant has got the antifungal and anti-bacterial properties.

Achyranthes aspera L. — Acanthaceae

Eng.: Prickly shaff flower; Ass.: Ulti-hot; Beng.: Apang; Hindi: Lat jira; M.: Khujumpere; Kh: Soh-byrthied; Mik: Non-phak-pi; G.: Champak-michael.

An annual herbaceous plant.

Fls. & frs.: In most parts of the year.

Frequently to commonly met in moist and wet places.

Uses

Root is pungent, purgative, diuretic, stomachic, depurative, pectoral and astringent. Its juice is given in diarrhoea, dysentery, piles, dropsy, rheumatism, inflammation of internal organs, skin diseases etc and also given in gynaecological trouble. Roots tied on the heads of the woman for easy delivery used by some tribal peoples. Root is useful in toothache and some tied to the ear for remedy of malarial fever. And also used in pyorrhoea and other gum complaints and powder is good for cough.

Leaf juice is used in piles, stomach ache and skin eruptions and in irregular menstruation.

Seeds are used in hydrophobia and snake bite.

Aconitum ferox Wall. — Ranunculaceae

Eng.: Indian aconite; **Ass.:** Bih, kalbih; **Beng.:** Katbish; **Hindi:** Mithazahar.

An erect herb with tuberous root.

Fls. & frs.: June-October

Infrequently met in the region.

Uses

The plant is alterative, antiarthritis, diuretic, expectorant, febrifuge, narcotic, nervine tonic and stomachic. Locally it is much used for rheumatism, leprosy and fever and in high doses it is poisonous.

A. napellus L. — Ranunculaceae

Eng.: Monk's hood, Aconite plant; **Ass.:** Kalbih; **Beng.:** Katbish; **Hindi:** Dudhia bih.

An aromatic herb.

Fls. & frs.: June-Septemberember

Met infrequently, also planted.

Uses

Dried roots are used medicinally as heart and nerve sedative.

Acorus calamus L. — Araceae

Eng.: Sweet flag; **Ass.:** Bach; **B&H:** Safed bach; **M.:** Ok-hidak

A marshy herb with creeping root-stock.

2n = 18, 24, 36, 48

Met wild and also cultivated and common throughout the region.

Fls. & Frs.: Rainy season

Uses

The root-stock is an aromatic, stimulant, bitter, tonic, emetic, nauscent, expectorant, laxative stomachic and diuretic and infusion

is given to children in diarrhoea, dysentery, bronchial and chest affections. The rhizome is locally used in skin affections and for hair washing.

In cold and cough of children, the roots are hung around the neck to relieve cough. It is snake repellent usually grown around the compounds for driving snake. In some places the juice is also used as insecticides.

Adenostemma laevania (L.) O. Ktze. Asteraceae

Kh: Soh- byrhit.

A hispidly hairy herb.

Fls. & frs.: Rainy to cold season.

Infrequently to frequently met in most parts of the region.

Uses

Leaf extract is applied to injuries and wounds and also applied to treat bites of poisonous insects and cater pillar.

Adiantum capillus-veneris L. Adiantaceae

A fern, herb like.

Infrequently to frequently met.

Uses

The plant is used as pectoral, demulcent, expectorant and tonic.

Ageratum conyzoides L. Asteraceae

Eng.: Goat weed; **Ass.:** Gondhera bon; **Beng.:** Dochunti; **Hindi:** Ajgondha; **M.:** Khongjai napi **N:** Imchenzira; **Ni:** Pashpan.

A strongly scented, hairy annual herb.

2n = 20, 40

Fls. & frs.: In most parts of the year.

Frequently to commonly met throughout the region from sea level to high altitude.

Uses

Leaf juice is used in cuts and injuries and also to check bleeding. The plant is used for a number of diseases, as-leprosy, piles, prolapse

of anus, swelling of body, uterine disorders, skin diseases etc, and also for removing hair lice both by tirbals and non-tribals.

The plant has anti-tetanic and styptic properties.

Agrimonia eupatoria L. — Rosaceae

Eng.: Agrimony.

A hairy herb with perennial and woody root-stock.

2n = 28

Fls. & frs.: April–September

Frequently to commonly met in Manipur and also in other parts of the region.

Uses

The juice is used against intestinal worms. The plant is astringent, diuretic and tonic.

A. pilosa Redeb. — Rosaceae

A hairy herb with perennial woody root-stock.

2n = 28

Fls. & frs.: April–October

Frequently to commonly met in Assam, Manipur, Meghalaya, Nagaland and upto 1500m altitude.

Uses

The root is chewed to ameliorate toothache. The leaves are aromatic, astringent, anthelmintic, diuretic and tonic and also used as a remedy for cough.

Ainslea angustifolia Hk. f. & Thoms. — Asteraceae

A small herb.

Fls. & frs.: October-February

Frequently met in forest areas.

Uses

Leaf paste is applied to wounds for healing.

Alisma plantago-aquatica L. — Alismataceae

Eng.: Water plantain; Ass.: Pani kola; M.: Kakthrum.

A scapigerous herb.

2n = 12, 14, 28

Fls. & frs.: September- January

Both aquatic and amphibious and infrequently met.

Uses

Root stock is stimulant, tonic and diuretic, used in dropsy, tumours and also in leukemia, leaves are used in urinary diseases. Pulp of raw fruit is applied to sore, ulcers and wounds. Seeds are used against beri-beri.

Allium chinense Don. — Liliaceae

N: Tej anglasing.

An annual herb.

2n = 32

Fls. & frs.: Cold season

Met in low elevations of hilly areas and infrequently in plain areas.

Uses

Bulb is crushed and boiled in mustard oil and rubbed on body to reduce fever. It is also used to cure stomachache.

A. tuberosum Rottl. Ex Spreng. — Liliaceae

M: Yenum- nakupi.

A cylindric bulbous herb.

2n = 32

Fls. & frs.: Winter and summer season

Met infrequently in Manipur, Meghalaya and Nagaland

Uses

Leaf decoction is given in urinary trouble and is considered to be diuretic.

Alocasia cucullata (Lour.) Schott. — Araceae

An annual herb.

2n = 28

Fls. : June–August

Met in Meghalaya upto 1500m height.

Uses

Leaves are eaten to cure bodyache.

Alpinia allughas (Retz.) Rosc. — Zingiberaceae

Ass.: Deo tana; Tara.

An erect herb with perennial tuberous root stock.

2n = 48

Fls. & frs.: May–October

Commonly met in swamps, marshy tracts and along the banks of sutis, bills etc.

Uses

Rhizome is used in fever, bronchitis and rheumatism. Fruits locally used to cure nail ring worm. The plant is stomachic, carminative, emollient and stimulant.

A. galanga (L.) Willd. — Zingiberaceae

Eng.: Greater galangan: **Ass.:** Gandha tara; **M.:** Kanghoo

A herbaceous plant with perennial root stock.

2n = 48

Fls. & frs.: June-November

Occurring in low lying areas of Assam, Arunachal, Nagaland and Manipur

Uses

The plant is stimulant, stomachic, carminative and abortifacient. Rhizome is usually used as condiment and medicinally in fever, rheumatism and catarrhal affection. The tribals and non-tribals locally applying rhizome to ringworms and other skin-diseases and seeds are used for diarrhoea and vomiting.

An annual herb.

2n = 34

Fls. & frs.: Throughout the year

Frequent to common throughout the region.

Uses

Leaves or young shoots commonly used as vegetables. Leaves are emollient and as cooling used in snake bite, and also good for scorpion sting.

Anagallis arvensis L. Primulaceae

Eng.: Pimpernal, blue pimpernel **Ass.:** Krishna nil.

An annual erect or procumbent herb.

2n = 40

Fls. & frs.: November–February

Infrequently to frequently met in most parts of the region.

Uses

The herb is useful in dropsy, epilepsy, hydrophoebia, cerebral affections etc. It is also used to expel leeches from nostrils of livestocks. In some cases it is used as an antidote against snake bite.

Anaphalis cinnamomea C.B. Clarke Asteraceae

A herb.

Fls. & frs.: Rainy to cold season

Infrequently to cold season.

Uses

Leaves are applied to cuts and injuries.

Andrographis paniculata (*Burm. f.*) Nees, Acanthaceae

Eng.: The king of bitter; **Ass.:** Kalmegh, Mohatita, Kalpatita, **Beng.:** Kal megh; **Hindi:** Kiriyat; **M.:** Vubati

An erect herb

2n = 50

Fls. & frs.: September–December

Met infrequently to frequently throughout the region.

Uses

The plant is considered alterative, anthelmintic, febrifuge, stomachic, and tonic. Useful in diarrhoea, dysentery, dyspepsia, bronchitis, influenza and stomach troubles. Roots and leaves are good tonic for irregular bowels, loss of appetite, gripe pain in children and anthelmintic and febrifuge. Plant is also used in dysentery, cholera, diabetes, influenza, itches and piles. Decoction is used for the treatment of jaundice and also used to cure fever (one tablespoonful twice daily).

Aneilima nudiflorum R. Br. Syn. *Murdania nudiflora* (L.) Brenan — Commelinaceae

Eng.: Crow foot grass; **Ass.:** Kona simolu; **Beng.:** Kenduli, **Hind:** Siyah musli; **M.:** Tandal pambi

A small much branched annual herb.

2n = 20

Fls. & frs.: June-January

Met frequently to commonly in most parts of the region.

Uses

The plant is useful in burns, sores and itches and the extract is prescribed in painful micturition. The plant is laxative used in eyelid boil.

Anisochilus carnosus Wall. — Lamiaceae

M.: Kangchup.

A small annual herb.

2n = 34

Fls. & frs.: Winter season.

Infrequently met.

Uses

The plant is stimulant, expectorant and diaphoretic. The extract is given for cough for children. Plant juice is given in urti caria associated with liver disorders.

Anisomales indica (L.) O. Ktze. — Lamiaceae

Syn. **A. ovata** R.Br.

Ass.: Bon til; **B&H:** Gobura; **M.:** Thoiding Angouba; **Kh:** Uneimias.

A large strongly scented herb or undershrub.

Fls. & frs.: September–February

Infrequent to frequent, met upto 1200 m altitude.

Uses

The plant has carminative, astringent and tonic properties. Seeds yield an essential oil used in uterine affections. It is also an appetiser.

Argemone mexicana L. — Papavaraceae

Eng.: Prickly poppy; **Ass.:** Kuhum kata; **B&H:** Shial kanta.

An erect prickly annual herb

2n = 28

Fls. & frs.: October-April

Frequently to commonly met in waste places throughout the region.

Uses

The root is alterative and stimulant, its decoction is given in cutaneous diseases, gonorrhoea and blenorrhagia; lotion for inflammatory swellings and as a mouthwash for toothache. Yellow latex of the plant is used in dropsy, jaundice, swellings, eczema and other skin diseases. Stem is considered diuretic and prescribed in vesicular calculus. The flower is narcotic.

Plant juice is applied to blisters, warts, herpetic eruptions, scabies, rheumatic joints and also for dropsy, jaundice and cutaneous affections and with milk is given in leprosy.

Seeds are laxative, emetic, narcotic, expectorant, and demulcent. It is used in pulmonary diseases, asthma, whooping cough, and other catarrhal affections. It is also applied to herpetic and other forms of skin diseases. Powder used in dropsy, colic and joint pains. Seeds are considered an antidote to snake venom.

Fruits are used in skin diseases of cattle.

Arisaema tortuosum (Wall) Schott. Araceae

Eng.: Snake lily, snake plant; M.: Leincheisu; Garo: Jinjok.

An erect spathaceous herb.

Fls. & frs.: July–October

Infrequently to frequently met.

Uses

Plant is poisonous; roots are used to kill worms in cattle; root is applied to snake bite. Juice of tuber is applied to various skin diseases and is given to animal in colic.

Artemisia nilgaricia Pamp.

Syn. *A. vulgaris* L. Asteraceae

Eng.: Motherwort, Fleabane: Ass.: Gondhoa bon; Beng.: Nagdona; Hindi: Dons; M.: Laibakngou; Ap: Kukuliyu; Garo: Khel bijak.

A tall aromatic, pubescent herb.

2n = 18

Fls. & frs.: August–October

Frequently to commonly met in most parts of the region.

Uses

The plant is anthelmintic, expectorant, stomachic and also considered as febrifuge and antilithic.

The leaves and floral parts are used as insect repellent both in inside and outside the houses and in cultivated fields and also used in museums as in Imphal. The shoots are also kept in cowsheds, piggeries, poultry cages etc. for the same insecticidal properties. Leaf paste is applied for skin diseases by the local inhabitants.

Leaves are used on burns, for cough and headache and sores by Arunachalis; on cuts and injuries and for hair wash by Manipuris; on cuts and wounds and for fevers by Naga peoples; for nose bleedings and measles by sikkimese and in skin diseases and Asthma by Assamese people.

The plant is considered as an antidote to snake bite and scorpion sting.

Arundinella benghalensis (Spreng.) Druce — Poaceae

Ass.: Topa soli; **Hindi:** Gangabena.

An erect stout perennial grass.

Fls. & frs.: September–December

Commonly met throughout the region

Uses

The plant is used in making lotion for washing wounds.

Arundo donax L. — Poaceae

Eng.: Giant reed, greater reed; **Ass.:** Nal; **Hindi:** Bara nal.

A tall stout perennial with creeping rhizome.

2n = 110

Fls. & frs.: September-February

Commonly met in wet places.

Uses

The plant is considered blood purifier, emollient and diuretic. The rhizome seen useful to stimulate the menstrual discharge and diminish the secretion of milk.

Juice of fresh shoot with honey is given to children suffering from worm-affections. Also seen useful in pneumonia and asthma. The plant juice with salt given diarrhoea of cattle.

Asparagus filicinus Buch-Ham ex D. Don. — Liliaceae

An unarmed erect herbaceous plant.

Fls. & frs.: Rainy to cold season.

Met infrequently.

Uses

Plant is astringent, tonic and diuretic.

Asphoedilus tenuifolius Cav. — Liliaceae

Eng.: Asphodal; **Hindi:** Piazi

A glabrous scapigerous herb

2n = 28

Fls. & frs.: January–May

Frequently met in moist and waste places.

Uses

Root fibres paste is seen used for rheumatic troubles.

Asteracantha longifolia Nees — Acanthaceae

Ass.: Kantakalia; **Beng.:** Kulia Khara; **Hindi:** Tal makahana.

A stout spiny herb.

Fls. & Frs.: June & February

Frequent to common in most places of the region.

Uses

Roots, leaves and seeds are diuretic; employed for jaundice, dropsy, rheumatism and diseases of urino-genital tract. Seeds are given for gonorrhoea and with milk and sugar is given for spermatorrhoea.

Bacopa monnieri (L.) Pennel — Scrophulariaceae

Eng.: Indian peanywort; **Ass.:** Brahmi; **Beng.:** Brahmi; **Hindi:** Jalnim, Safed chamni.

A much branched succulent creeping herb.

2n = 64

Fls. & frs.: Almost throughout the year

Met infrequently to frequently in wet condition and also cultivated.

Uses

Leaves are useful as nerve tonic and in constipation, also used as a remedy for bronchitis and cough of children, and given in rheumatism and jaundice. Leaves in liquid form given for urinary troubles.

Plant is cardiac tonic, useful in insanity and epilepsy and also considered blood-purifier. Plant is considered diuretic and aperient.

Barleria cristata L. — Acanthaceae

Ass.: Jinli; **Beng.:** Jhinti; Kanta janti; **Hindi:** Halda.

A large woody herb.

2n = 38

Fls. & frs.: August-January

Frequent to common in both plains and hilly areas.

Uses

The plant is diuretic, tonic, febrifuge and anticatarrhal and the decoction is given in dropsy.

Leaves and roots are used to reduce to swellings and infusion is given in cough. The leaf paste is applied on cuts, wounds, gums to stop bleeding. The leaf juice with honey given in catarrhal diseases of children. Seeds are used as an antidote against snake bite.

Begonia roxburghii A.DC. — Begoniaceae

M.: Joukibarut.

A succulent herb.

Fls. & frs.: Rainy to cold season.

Frequently to commonly met in forests of Assam, Manipur, Meghalaya, and Nagaland.

Uses

Plant extract is given in dysentery by Manipuris and to relieve fever by khashis. Leaf juice is poisonous to leeches.

Bidens biternata (Lour.) Merr. & Sherff. Syn. *B. pilosa* L. — Asteraceae

Eng.: Black-jack, Spanish needle; **Mik:** Bap- nak-he.

An erect branched annual herb.

2n = 72

Fls. & frs.: May–November

Frequently to commonly met throughout the region.

Uses

Leaf used for cut injuries for stopping bleeding by Naga and Assamese people, for headache by Mikirs and for cough by Boro and Rabha and also in eyelids and ears to cure eye and ear complaints. Crushed shoots for the treatment of rheumatism. Flowers in diarrhoea and seeds are anthelmintic.

The herb is tonic, stimulant, diuretic and febrifuge.

Biophytum sensitivum (L.) DC. — Oxalidaceae

Eng.: Sensitive wood sorrel; Ass.: Bon narenga.

A small annual herb.

2n = 20

Fls. & frs.: August–February

Found infrequently in lower parts of the region.

Uses

Leaves are diuretic and plant decoction is febrifuge. Decoction of root is given in gonorrhoea. Powdered seeds are applied to wound for quick healing.

Blechnum orientale L. — Blechnaceae

Mizo: Vomban.

A rhizomatous fern.

Fruiting season: November–March

Frequent to common in both plain and hilly areas.

Uses

Rhizome is used as poultice for boils and as an anthelmintic and also used for urinary complaints.

Blumea densiflora DC. — Asteraceae

M.: Karpur: Ass.: Karpur; Mizo: Khoangthli

A herb with stout stem.

Fls. & frs. : Dec- February

Frequent to common in both plains and hilly areas.

Uses

Leaf juice is applied in cut and injuries and in skin diseases; also utilized in washing hairs and as insect repellents, it is occasionally used. The plant yields camphor.

B. lacera DC. — Asteraceae

Ass.: Kukurshuta; Beng.: Kukurshunga; Hindi: Thanga.

A glandular pubescent strongly aromatic herb.

Fls. & frs.: November–February

Frequent to common in most parts of the region.

Uses

The plant is bitter, pungent, antipyretic, anthelmintic, astringent and febrifuge. The root mixed with black pepper is given in cholera and the root is also used to cure diseases of mouth. Leaf juice is used in skin diseases, cut and injuries, and with black pepper given in bleeding piles.

Leaf paste is used in hardening of gums of teeth, cleansing of teeth caries, tooth decay and pyorrhea.

Boerhavia diffusa L. Nyctaginaceae

Eng.: Spreading hogweed; **A & B:** Punarnava; **Hindi:** Thikri; **G.:** Samdelma.

A small annual herbaceous plant.

Fls. & frs.: In most parts of the year.

Met infrequently to commonly upto 1000m altitude.

Uses

Roots are considered expectorant, diuretic and laxative and good for bronchitis, asthma, gonorrhoea, jaundice and other liver complaints.

The plant is considered ophthalmic, emetic and it is useful in cough, cold, asthma, stomach trouble, heart and also urinary trouble, and the plant decoction with sugar is given to cure stomach pain.

Bonnaya brachiata Link. & Otto. Scrophulariaceae

Ass.: Haru kasidoria; **Beng.:** Bhui nim.

An erect annual herb.

Fls. & frs.: August-January

Infrequently met usually in moist conditions in both plains and hilly areas.

Uses

Leaf juice is extremely applied for ring worm diseases.

B. reptans Spreng. — Scrophulariaceae

Ass.: Kasidoria.

A prostrate creeping annual herb.

Fls. & Frs.: September–January

Frequent to common both in plains and hilly areas of the region.

Uses

Leaf juice is useful in curing the skin diseases.

Borreria articularis (L.F.) F.N. Will. — Rubiaceae

Eng.: Button weed; Ass.: Gahori bon; Hindi: Madanghati; G.: Ramasem.

A much branched procumbent or ascending herb

Fls. & frs.: July–November

Commonly met throughout the region.

Uses

Root is alterative, appetizer and its extract is used to cure stomach pain. Seeds are stimulant and demulcent, prescribed in diarrhoea and dysentery and leaf extract is used in haemorrhoides and gall stones.

Botrychium ternatum (Thunb.) Sw. — Ophioglossaceae

A small fern.

2n = 62

Fruiting: During winter season

Infrequent to common both in plains and hilly areas.

Uses

The plant is used as vulnerary and the root is prescribed in dysentery.

Canna orientalis Rosc.

Syn. *C. indica* var. *orientalis* Rosc. — Cannaceae

Eng.: Indian shot; Ass.: Parijat; Beng.: Sarbajaya; Hindi: Sabbajaya.

A perennial herb with tuberous root-stocks.

2n = 18, 27

Fls. & frs.: In most parts of the year.

The plant is native of Tropical America. Usually planted, sometimes met as an escape, and met upto 1500m altitude.

Uses

Root is diaphoretic, diuretic, demulcent and stimulant. Leaf-stalks are given to cattle as antidote for eating poisonous grasses.

Cannabis sativa L. — Cannbinaceae

Eng.: Hemp, Indian hemp; **A,B&H:** Bhang; **M.:** Ganja; **Kh:** Kynja

An erect annual, smelling herb with variable heights.

2n = 20

Fls. & frs.: In most parts of the year.

Met wild in most parts of the region.

Uses

The plant is a source of narcotics, bhang, Ganja and Charas. In action the drug is appetiser, antispasmodic, digestive, diuretic, exciting, narcotic, sedative, stimulant, stomachic and toxic.

The leaves and flowers are used in diarrhoea and dysentery. The paste of leaves are used as narcotic, and crushed leaves are also used in skin diseases.

Regular use leads to indigestion, wasting of the body, cough, melancholy, impotence and dropsy.

Canscora decussata (Roxb.) Schult — Gentianaceae

Beng.: Dunkuni; **Hindi:** Sankhaphuli.

A small herb.

Fls. & Frs.: August–November

Frequent to common in grassy habitat.

Uses

Fresh juice of the plant is prescribed in insanity, epilepsy and nervous debility.

C. diffusa (Vahl.) R. Br. — Gentianaceae

Beng.: Dankuni; Hindi: Sankhaphuli

A small herb.

Fls. & frs.:

Frequently to commonly met in grassy places.

Uses

Uses of the plant is same as the above species

Capsella bursa-pastoris (L.) Moench. — Brassicaceae

Eng.: Shepherd's purse; Ass.: Gangabena.

An annual small herb

2n = 32

Fls. & frs.: December-March

Frequent to common in moist places of the region.

Uses

The plant is used as astringent in diarrhoea and the plant is used for stopping bleeding. The fluid extract of the herb is given in dropsy as diuretic; inflorescence is considered to cure blenorrhagia; seeds stimulant and also given in chest trouble.

Carthamus tinctorius L. — Asteraceae

Eng.: Safflower; A, R& H: Kusum phul; M.: Kushumlei.

An erect herb with spinous leaves.

2n = 24

Fls. & frs.: Winter season.

Frequently to commonly met in waste places.

Uses

Leaves are purgative and useful in paralysis and rheumatism. Dried flowers are good for jaundice and used in other complaints as measles, fevers and skin diseases of children.

Cassia sophera L. — Caesalpiniaceae

Eng.: Sickle cassia, Foetid cassia; Ass.: Medelowa; Beng.: Kalkashunda; Hindi: Kashunda; M.: Thounam.

A large herb with foetid smell.

2n = 26, 28

Fls. & frs.: June-January

Common throughout the region.

Uses

The plant is alterative and depurative and as expectorant used in acute bronchitis.

Root with black pepper is given in snake bite. Leaf paste is good for ringworm and eczema. Leaves are also useful in rheumatism and also in inflammatory fever. Seed is cathartic and seed paste with sulphur powder is given in skin diseases.

C. tora L. — Caesalpiniaceae

Eng.: Sickle senna; **Ass.:** Medelowa, Bilokhoni; **Beng.:** Chakunda; **Hindi:** Chakunda; **M.:** Thounam; **Mik:** Hadi-dika arong; **Miz:** Kei-ba-an.

A much branched woody annual herb or undershrub.

2n = 26, 28

Fls. & frs.: July–December

Met wild in different parts of the region.

Uses

The plant is considered as aperient, antiparasitic and purgative. Leaf paste and powdered seeds are useful for ringworm, skin diseases and eczema. Root is given in snake bite.

Cenchrus catharticus Del. — Poaceae

A grassy herb.

Fls. & frs.: November-February

Infrequently to frequently met.

Uses

Fruits used as diuretic and pectoral.

Celosia argentea L. — Amaranthaceae

Ass.: Kukura johia phul.

An erect annual herb.

2n = 36, 72, 108

Fls. & frs.: September–March

Frequent to common in waste places, cultivated fields of plains and hilly areas of the region. Sometime cultivated or met as an escape.

Uses

Seeds are used to cure diarrhoea and mouth sores.

Centella asiatica (L.) Urban — Apiaceae

Eng.: Indian pennywort; **Ass.:** Bor manimuni; **Beng.:** Barathulkhuri; **Hindi:** Brahmamnadi; **M.:** Paruk; **N:** Imsen korokla; **Miz:** Lamabak; **Ni:** Hol-ow.

A moist loving prostrate annual herb.

2n = 18

Fls. & frs.: November-March

Commonly met throughout the region.

Uses

The whole plant is alterative, brain and cardiac tonic, diuretic, carminative, expectorant and febrifuge. The plant is useful in diseases of blood, nerves, skin, stomach trouble as gastric and others. Leaf paste is used in wound and injuries.

Leaf juice is used in cold, cough, diarrhoea, dysentery, stomach-ache and also in constipation. Leaves are useful for mentally retarded children and for developing memory and also useful for chronic rheumatism.

Centipeda orbicularis Lour. — Asteraceae

Ass.: Hasia bon; **Beng.:** Chikni; **Hindi:** Nakchikani.

A prostrate or sparsely annual herb.

2n = 22

Fls. & frs.: April–October

Frequently to commonly met in most parts of the region.

Uses

Leaves and seeds produce snuffs which is used for cold in head; useful in pains of joints and to expel worms; herb is boiled and made into a thick paste, applied to cheeks to cure toothache. The powdered herb and minute seeds are used as a sternutatory.

Centratherum anthelminticum Kuntze

Asteraceae **Kuntze**

Eng.: Kinka oil plant: Ass.: Kolajira; B& H: Somraj.

An erect annual herb.

Fls. & frs.: October-February

Met infrequently to frequently in most parts of the region.

Uses

Seeds are anthelmintic, diuretic, stimulant and antiseptic. Seeds are also used for leucoderma, leprosy and skin diseases. Juice of leaves are used to cure phlegmatic discharges from the nostrils.

An effective drug for thread, hook and round worm infection and also helpful in curing ring worm. A good cattle medicine for stomach swelling.

Ceratophyllum demersum L. Ceratophyllaceae

Eng.: Coon tail; Ass.: Sirolia; Beng.: Sheoyala; Hindi: Sivara.

A submerged much branched rootless aquatic herb.

2n = 24

Fls. & frs.: May–October

Commonly met in ponds, lakes, jheels etc.

Uses

The plant is cooling and useful in biliousness. Also useful in scorpion sting.

Ceratopteris siliquosa Copeland Ceratopteridaceae

An aquatic herb.

Fls. & frs.: Rainy to summer season.

Common in fresh water aquatic bodies, as ponds, lakes etc.

Uses

Fronds are used as poultice for skin complaints.

The plant is also used as tonic and styptic.

Cheilanthes farinosa Kaulf. — Cheilanthaceae

N: Inchentong Rani, sinka.

A small tufted fern.

Fruiting: Cold to hot season.

Met mostly in the hilly areas.

Uses

Roots used in eczema, menstrual disorders and stomachache. Leaves are used in seasonal fever and cold. Methanolic extract of the fresh fern is antibacterial.

Chenopodium album L. — Chenopodiaceae

Eng.: Pig weed, Lamb's quarter; Ass.: Jil-mil hak; Beng.: Chandan batu; Hindi: Bathua; M.: Mon shaobi

A small annual herb.

2n = 18, 32, 36, 54.

Fls. & frs.: November–March

Frequent to common, met upto 1500m altitude.

Uses

The plant is considered to be anthelmintic and laxative. Leaves are recommended in leucoderma and enlargement of liver. Plant juice is useful in piles, and seeds are for boils and sores.

C. ambrosioides L. — Chenopodiaceae

Eng.: Worm seed; Mexican tea; Ass.: Koswa goch; M.: Monshaobimobi; N: Kerosenemanumba; G.: Chisik-bol.

An erect perennial inodorous herb.

2n = 32.

Fls. & frs.: November–February

Met in many parts of the region, suitable more in sandy-loamy soil.

Uses

Seed oil is useful in expulsion of intestinal parasites as round-worm, hook-worm and intestinal amoeba in low doses as prescribed, but in excess it is poisonous and toxic such as dizziness, vomiting,

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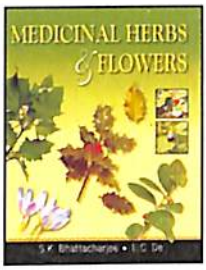

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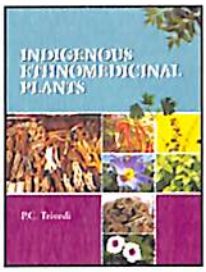

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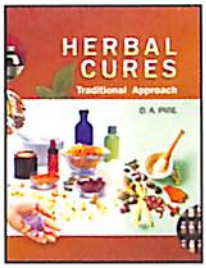

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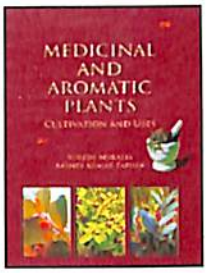

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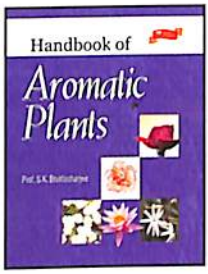

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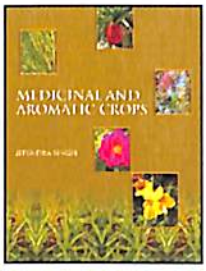

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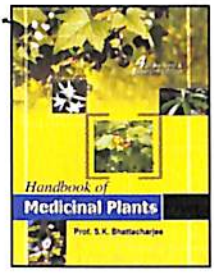

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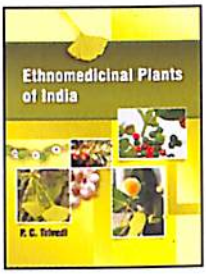

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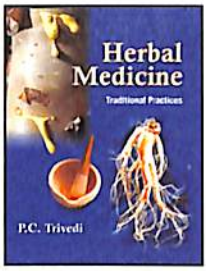

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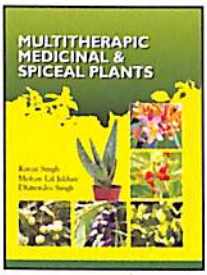

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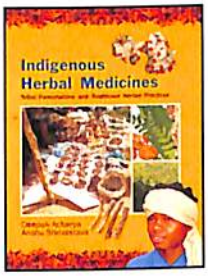

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ISBN 978-81-7910-254-
9 788179 102541