

Medicinal Plants of North-East India



M. Islam

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About 80% of the world's population of the developed and developing countries rely on traditional herbal medicine, for the primary health care because of their great efficacy and little or no side effects. Traditional system of medicine, popularly termed as 'Folk medicine' is accustomed since the days of ancient civilizations and playing a significant role in the health care system. In modern days also, it is also becoming popular, as the tribals and rural populations of our country is highly dependent on medicinal plant therapy for meeting their health care needs, and which attracted the attention of Botanists, Plant Scientists, Researchers and other Active/Interested workers.

The present work is an outcome of the exploration of different cultivated, non-cultivated, forest/village and other areas of plains and hilly areas, for over a period of twenty years and forms a distinct contributions towards a herbal medicines, based on the studies/observations made on the utilisation of wild herbs in medical therapy in day today life of tribal and non-tribal peoples of the north-eastern region, India. Angiospermic and pteridophytic plants only have been considered in the present study. For each species correct nomenclature, local names, habit, chromosome number (where possible), flowering and fruiting season, ecological situations and medicinal uses of the plants have been discussed alongwith the illustrations of 32 photos for easy understanding of the work. Thus, present work provides excellent glimpses of the traditional knowledge of medicine of North-East India.

The author hopes that, the present book will serve not only as reference material, but also as practical guide for herbal healers, research workers, students and all others interested in the field of medicinal plants.

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MEDICINAL PLANTS OF NORTH-EAST INDIA

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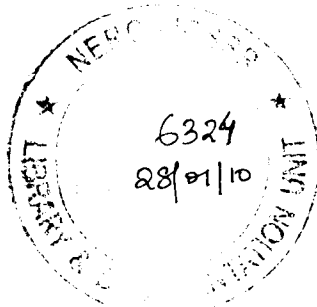
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Contents

<i>Preface</i>	<i>vii</i>
<i>Colour Plates</i>	<i>xxi</i>
<i>Abbreviations</i>	<i>xxiii</i>
1. Introduction	1
Enumeration	9
– <i>Abutilon indicum</i> (L.) Sweet	9
– <i>Acalypha indica</i> L.	9
– <i>Acanthospermum hispidum</i> DC.	10
– <i>Achyranthes aspera</i> L.	10
– <i>Aconitum ferox</i> Wall.	11
– <i>A. napellus</i> L.	11
– <i>Acorus calamus</i> L.	11
– <i>Adenostemma laevania</i> (L.) O. Ktze.	12
– <i>Adiantum capillus-veneris</i> L.	12
– <i>Ageratum conyzoides</i> L.	12
– <i>Agrimonia eupatoria</i> L.	13
– <i>A. pilosa</i> Redeb.	13
– <i>Ainslea angustifolia</i> Hk. f. & Thoms.	13
– <i>Alisma plantago-aquatica</i> L.	14
– <i>Allium chinense</i> Don.	14

– <i>A. tuberosum</i> Rottl. Ex Spreng.	14
– <i>Alocasia cucullata</i> (Lour.) Schott.	15
– <i>Alpinia allughas</i> (Retz.) Rosc.	15
– <i>A. galanga</i> (L.) Willd.	15
– <i>Alternanthera philoxeroides</i> Griseb.	16
– <i>A. sessilis</i> DC.	16
– <i>Alysicarpus monilifer</i> DC.	16
– <i>A. rugosus</i> DC.	17
– <i>A. vaginalis</i> (L.) DC.	17
– <i>Amaranthus spinosus</i> L.	17
– <i>A. viridis</i> L.	17
– <i>Anagallis arvensis</i> L.	18
– <i>Anaphalis cinnamomea</i> C.B. Clarke	18
– <i>Andrographis paniculata</i> Nees,	18
– <i>Aneilima nudiflorum</i> R. Br. Syn.	19
– <i>Murdania nudiflora</i> (L.) Brenan	19
– <i>Anisochilus carnosus</i> Wall.	19
– <i>Anisomales indica</i> (L.) O. Ktze.	20
– <i>Argemone mexicana</i> L.	20
– <i>Arisaema tortuosum</i> (Wall) Schott.	21
– <i>Artemisia nilgaricia</i> Pamp.	21
– <i>Arundinella benghalensis</i> (Spreng.) Druce	22
– <i>Arundo donax</i> L.	22
– <i>Asparagus filicinus</i> Buch-Ham ex D. Don.	22
– <i>Asphoedilus tenuifolius</i> Cav.	22
– <i>Asteracantha longifolia</i> Nees	23
– <i>Bacopa monnieri</i> (L.) Pennel	23
– <i>Barleria cristata</i> L.	23
– <i>Begonia roxburghii</i> A.DC.	24
– <i>Bidens biternata</i> (Lour.) Merr. & Sherff.	24
– <i>Biophytum sensitivum</i> (L.) DC.	25
– <i>Blechnum orientale</i> L.	25
– <i>Blumea densiflora</i> DC.	25

— <i>B. lacera</i> DC.	25
— <i>Boerhavia diffusa</i> L.	26
— <i>Bonnaya brachiata</i> Link. & Otto.	26
— <i>B. reptans</i> Spreng.	27
— <i>Borreria articularis</i> (L.F.) F.N. Will.	27
— <i>Botrychium ternatum</i> (Thunb.) Sw.	27
— <i>Canna orientalis</i> Rosc.	27
— <i>Cannabis sativa</i> L.	28
— <i>Canscora decussata</i> (Roxb.) Schult.	28
— <i>C. diffusa</i> (Vahl.) R. Br.	29
— <i>Capsella bursa-pastoris</i> (L.) Moench.	29
— <i>Carthamus tinctorius</i> L.	29
— <i>Cassia sophera</i> L.	29
— <i>C. tora</i> L.	30
— <i>Cenchrus catharticus</i> Del.	30
— <i>Celosia argentea</i> L.	30
— <i>Centella asiatica</i> (L.) Urban.	31
— <i>Centipeda orbicularis</i> Lour.	31
— <i>Centratherum anthelminticum</i> (Willd)	32
— <i>Ceratophyllum demersum</i> L.	32
— <i>Ceratopteris siliquosa</i> Copeland.	32
— <i>Cheilanthes farinosa</i> Kaulf.	33
— <i>Chenopodium album</i> L.	33
— <i>C. ambrosioides</i> L.	33
— <i>Chloris virgata</i> Sw.	34
— <i>Chrysopogon aciculatus</i> Trin.	34
— <i>Cirsium arvense</i> (L.) Scop.	34
— <i>Cnicus arvensis</i> Hoffm.	35
— <i>Coix lachryma-jobi</i> L.	35
— <i>Coleus amboinicus</i> Lour.	36
— <i>Coelogyne stricta</i> (D. Don.) Schl.	36
— <i>Colocasia esculenta</i> (L.) Schott.	36
— <i>Commelina benghalensis</i> L.	37

– <i>C. Paludosa</i> Bl.	37
– <i>Coptis teeta</i> Wall.	37
– <i>Corchorus acutangulus</i> Lamk.	38
– <i>C. Trilocularis</i> L.	38
– <i>Costus speciosus</i> (Koenig.) Sm.	38
– <i>Crinum defixum</i> Ker-Gawl.	39
– <i>Curcuma angustifolia</i> Roxb.	39
– <i>C. aromatica</i> Salisb.	39
– <i>C. zedoaria</i> Rosc.	40
– <i>Cyanotis axillaries</i> Roem & Schult.	40
– <i>Cyathula prostrata</i>	140
– <i>Cymbidium aloifolium</i> Sw.	41
– <i>Cymbopogon nardus</i> (L.) Rendle.	41
– <i>Cynodon dactylon</i> (L.) Pers.	41
– <i>Cyperus esculentus</i> L.	42
– <i>C. haspan</i> L.	42
– <i>C. iria</i> L.	42
– <i>C. rotundus</i> L.	43
– <i>Dactyloctenium aegyptium</i> Beauv.	43
– <i>Desmodium gangeticum</i> DC.	43
– <i>D. laxiflorum</i> (L.) DC.	44
– <i>D. triflorum</i> (L.) DC.	44
– <i>D. triquetrum</i> DC.	44
– <i>Desmostachya bipinnata</i> Stapf.	45
– <i>Dichrocephala latifolia</i> DC.	45
– <i>Dicranopteris linearis</i> (Burm. F.) Und.	45
– <i>Diplazium esculentum</i> (Retz.) Sw.	45
– <i>Dipterocanthus suffructicosa</i> Voigt.	46
– <i>Drosera burmanii</i> Vahl.	46
– <i>Drymaria cordata</i> Willd.	46
– <i>Drynaria quercifolia</i> (L.) J. Smith.	47
– <i>Drymoglossum carnosum</i> Hook.	47
– <i>Dryopteris filix-mas</i> (L.) Schott.	47

– <i>Dysophylla auricularia</i> B1.....	47
– <i>Echinochloa colonum</i> (L.) Link.....	48
– <i>E. crus-galli</i> P. Beauv.	48
– <i>E. stagnina</i> Beauv.....	48
– <i>Echinops echinatus</i> Roxb.	49
– <i>Eclipta prostrata</i> L.	49
– <i>Eelphantopus scaber</i> L.	49
– <i>Eleusine indica</i> Gaertn.	50
– <i>Elsholtzia blanda</i> Benth.....	50
– <i>E. ciliata</i> (Thunb.) Hyland	51
– <i>Emilia sonchifolia</i> DC.....	51
– <i>Enhydra fluctuans</i> Lour.....	51
– <i>Epilobium angustifolium</i> L.	52
– <i>Equisetum arvense</i> L.	52
– <i>E. debile</i> Roxb. ex Vaucher	52
– <i>Erigeron canadensis</i> L.	53
– <i>Erechthites valerianaefolia</i> (Wolf.) DC. Prod.	53
– <i>Eryngium foetidum</i> L.....	53
– <i>Ethulia conyzoides</i> L.F.	54
– <i>Eulophia campestris</i> Wall ex Lindl.	54
– <i>Eupatorium cannabinum</i> L.....	54
– <i>E. odoratum</i> L.....	55
– <i>Euphorbia hirta</i> L.....	55
– <i>E. hypericifolia</i> L.....	55
– <i>E. thymifolia</i> L.	56
– <i>Euryale ferox</i> Salisb.	56
– <i>Evolvulus alsinoides</i> (L.) L.....	56
– <i>Fagopyrum cymosum</i> Meissn.....	57
– <i>F. esculentum</i> Moench.	57
– <i>Fimbristylis falcate</i> (Vahl.) Kunth.....	57
– <i>Fleurya interrupta</i> Gaudich	57
– <i>Floscopa scandens</i> Lour.	58
– <i>Fragraria indica</i> Andr.	58

– <i>Fumaria indica</i> Pugsley	58
– <i>Galinsoga parviflora</i> Cav.	59
– <i>Geranium nepalense</i> Sweet	59
– <i>Gleichenia dichotoma</i> Willd.	59
– <i>Glinus lotoides</i> L.	60
– <i>G. oppositifolia</i> (L.) A.DC.	60
– <i>Gnaphalium luteo-album</i> L.	60
– <i>G. polycaulon</i> Pers.	60
– <i>Grangea maderaspatana</i> Poir.	61
– <i>Gynura bicolor</i> (Willd.) DC.	61
– <i>Gynandropsis gynandra</i> (L.) Merr.	61
– <i>Guizottia abyssinica</i> (L.F.) Cass.	62
– <i>Hedychium coronarium</i> Koenig	62
– <i>H. spicatum</i> Buch-Ham	63
– <i>Hedyotis costata</i> Roxb. Kurz	63
– <i>H. hispida</i> Retz.	63
– <i>Heliotropium indicum</i> L.	64
– <i>Helminthostachys zeylanica</i> (L.) Hook.	64
– <i>Houttuynia cordata</i> Thunb.	64
– <i>Hydrilla verticillata</i> Casp.	65
– <i>Hydrocharis dubia</i> (B1.) Baker	65
– <i>Hydrocotyle javanica</i> thunb.	65
– <i>H. sibthorpioides</i> Lam.	66
– <i>Hygrophila auriculata</i> (Schum.) Heine	66
– <i>H. salicifolia</i> Nees	66
– <i>Hygroryza aristata</i> Nees	67
– <i>Hymenachne amplexicaulis</i> (Rudge) Nees	67
– <i>Hypericum japonicum</i> Thunb.	67
– <i>Hypoxis aurea</i> Lour.	68
– <i>Hyptis suaveolens</i> Poit.	68
– <i>Impatiens balsamina</i> L.	68
– <i>I. roylei</i> Walp.	69
– <i>I. tripetala</i> Roxb.	69

– <i>Imperata cylindrica</i> (L.) P. Beauv.	69
– <i>Juncus effusus</i> L.	70
– <i>Justicia simplex</i> D. Don.	70
– <i>Kaempferia galanga</i> L.	70
– <i>K. rotunda</i> L.	70
– <i>Kalanchoe pinnata</i> Pers.	71
– <i>Knoxia roxburghii</i> (Spreng.) M.A. Rau	71
– <i>Kyllinga brevifolia</i> Rottb.	72
– <i>Launaea asplenifolia</i> Hk.f.	72
– <i>Lasia spinosa</i> (L.) Thw.	72
– <i>Leersia hexandra</i> Sw.	73
– <i>Lemna paucicostata</i> Hagelm.	73
– <i>Leonurus japonicus</i> Houtt.	73
– <i>Lepidagathis incurva</i> D. Don.	74
– <i>Leucas plukentii</i> (Roth) Spreng.	74
– <i>L. lavendulaefolia</i> Rees	74
– <i>Limnophila indica</i> (L.) Druce	75
– <i>L. rugosus</i> (Roth.) Merr.	75
– <i>Lindenbergia urticaefolia</i> Lehm.	75
– <i>Lindernia anagallis</i> (Burm. F.) Pers.	75
– <i>L. crustacea</i> F. Muell.	76
– <i>Ludwigia octovalvis</i> var. <i>sessiflora</i> (Mich.)	76
– syn. <i>Jussiae suffruticosa</i> L.	76
– <i>L. Perrennis</i> L.	76
– <i>Lycopodium cernuum</i> L.	77
– <i>L. clavatum</i> L.	77
– <i>Marsilea minuta</i> L.	77
– <i>M. quadrifolia</i> L.	77
– <i>Mazus pumilus</i> (Murm. f.) Van Steenis	78
– <i>Melochia corchorifolia</i> L.	78
– <i>Mimosa pudica</i> L.	78
– <i>Mirabilis jalapa</i> L.	79
– <i>Mollugo lotoides</i> O. Ktze	79

– <i>Monochoria hastaeifolia</i> Presl.	80
– <i>M. vaginalis</i> Presl.	80
– <i>Nasturtium Indicum</i> DC.	81
– <i>Nelumbo nucifera</i> Gaertn.	81
– <i>Neptunia oleracea</i> Lour.	82
– <i>Nephrolepis cordifolia</i> (L.) Presl.	82
– <i>Nicotiana plumbaginifolia</i> Viv.	82
– <i>Nymphaea alba</i> L.	82
– <i>N. lotus</i> (L.) Hook. F.	83
– <i>N. stellata</i> Willd.	83
– <i>Nymphoides hydrophyllum</i> (Lour.) O. Ktze.	84
– <i>N. indicum</i> (L.) O. Ktze.	84
– <i>Ocimum canum</i> Sims.	84
– <i>O. gratissimum</i> L.	85
– <i>Oenanthe javanica</i> (Bl) DC.	85
– <i>Oldenlandia corymbosa</i> L.	85
– <i>O. diffusa</i> Roxb.	86
– <i>Onychium siliculosum</i> (Desv.) C. Chr.	86
– <i>Ophiopogon japonicum</i> Ker-Gawl.	86
– <i>O. intermedius</i> D. Don.	87
– <i>O. spiralis</i> (Lour.) Merr.	87
– <i>Osbeckia capitata</i> Benth.	87
– <i>Ottelia alismoides</i> Pers.	88
– <i>Oxalis acetosella</i> L.	88
– <i>O. corniculata</i> L.	88
– <i>Parthenium hysterophorus</i> L.	89
– <i>Paspalum scrobiculatum</i> L.	89
– <i>Peristrophe bicalyculata</i> Nees.	89
– <i>Peperomia pellucida</i> HB. & K.	90
– <i>Perilla frutescens</i> (L.) Britton.	90
– <i>Pholidota imbricata</i> Lindl.	90
– <i>Phylla nodiflora</i> (L.) Greene.	91
– <i>Phyllanthus acidus</i> (L.) Skeels.	91

– <i>P. fraternus</i> Web.	91
– <i>P. virgatus</i> Forst. F.	92
– <i>P. urinaria</i> L.	92
– <i>Phrynium pubinerve</i> Bl.	93
– <i>Physalis minima</i> L.	93
– <i>Pistia stratiotes</i> L.	93
– <i>Plantago erosa</i> Wall.	94
– <i>Plectranthus coetsa</i> Buch-Ham.	94
– <i>P. striatus</i> Benth.	94
– <i>Plumbago rosea</i> L.	95
– <i>P. zeylanica</i> L.	95
– <i>Pogonathorum crinitum</i> kunth.	96
– <i>P. panicum</i> Hack.	96
– <i>Pogostemon benghalensis</i> Kuntze.	96
– <i>P. purpurescens</i> Dalz.	96
– <i>Polycarpon prostratum</i> (Forsk.) Aschers & Schw.	97
– <i>Polygala persicariaefolia</i>	97
– <i>Polygonum barbatum</i> L.	97
– <i>P. chinensis</i> L.	98
– <i>P. hydropiper</i> L.	98
– <i>P. orientale</i> L.	98
– <i>P. Pabejum</i> R.Br.	99
– <i>Portulaca oleracea</i> L.	99
– <i>P. quadrifida</i> L.	99
– <i>Potentilla fragarioides</i> L.	100
– <i>Pouzolzia indica</i> Gaud.	100
– <i>Psilotum nudum</i> Beauv.	100
– <i>Pteridium aquilinum</i> kuhn.	101
– <i>P. ensiformis</i> Burm. f.	101
– <i>Ranunculus scleretus</i> L.	101
– <i>Rauwolfia serpentina</i> Benth. Ex. Kurz.	101
– <i>Rhynchosyilis retusa</i> Bl.	102
– <i>Rorripa dufia</i> L.	102

– <i>Rotala baccifera</i> koehne	102
– <i>Rumex maritimus</i> L.	103
– <i>R. nepalensis</i> Spreng.	103
– <i>R. vesicarius</i> L.	103
– <i>Rungia pectinata</i> (L.) Nees	104
– <i>R. repens</i> Nees	104
– <i>Saccharum arundinaceum</i> Retz.	104
– <i>S. spontaneum</i> L.	105
– <i>Sagittaria sagittifolia</i> L.	105
– <i>Salvia plebeja</i> R.Br.	105
– <i>Sansevieria roxburghiana</i> Schult.	106
– <i>Scirpus grossus</i> L.F.	106
– <i>S. lacustris</i> L.	106
– <i>Scleria levis</i> Retz.	107
– <i>Scoparia dulcis</i> L.	107
– <i>Scutellaria discolor</i> colebr.	107
– <i>Selaginella ciliaris</i> (Retz.) Spreng.	107
– <i>Setaria planifolia</i> Stapf.	108
– <i>Seseli indicum</i> W & A	108
– <i>Sida acuta</i> Burm. F.	108
– <i>S. cordifolia</i> L.	109
– <i>Siegesbeckia orientalis</i> L.	109
– <i>Solanum indicum</i> L.	109
– <i>S. myriacanthus</i> Dunal.	110
– <i>S. nigrum</i> L.	110
– <i>S. spirale</i> Roxb.	111
– <i>S. surretense</i> Burm. f.	111
– <i>Sonchus asper</i> (L.) Hill	111
– <i>S. brachyotus</i> DC.	112
– <i>S. oleraceous</i> L.	112
– <i>Sonerilla maculata</i> Roxb.	112
– <i>Spermacoce hispida</i> L.	113
– <i>Sphaeranthus indicus</i> L.	113

– <i>Spergula arvensis</i> L.	113
– <i>Sphenoclea zeylanica</i> L.	114
– <i>Spilanthes clava</i> L.	114
– <i>Stellaria media</i> (L.) Vill.	114
– <i>Steuandra virosa</i> (Kunth) Prain	115
– <i>Thalictrum foliolosum</i> DC.	115
– <i>Torenia flava</i> F. Ham ex Benth.	115
– <i>T. vagans</i> Roxb.	116
– <i>Trapa natans</i> L. var. <i>bispinosa</i> (Roxb.) Makino	116
– <i>Trianthema portulacastrum</i> L.	116
– <i>Tribulus terrestris</i> L.	117
– <i>Tridax procumbens</i> L.	117
– <i>Triumfetta bartramia</i> Roxb.	117
– <i>T. pilosa</i> Roth	118
– <i>Typha elephantina</i> Roxb.	118
– <i>Uraria hamosa</i> Wall ex	118
– <i>U. lagopoides</i> Desv.	119
– <i>Urena lobata</i> L.	119
– <i>Urginea indica</i> (Roxb.) Kunth.	119
– <i>Urtica ardens</i> Link.	120
– <i>U. dioica</i> L.	120
– <i>Utricularia stellaris</i> L.F.	120
– <i>Valeriana hardwickii</i> wall ex Roxb.	121
– <i>Vanda roxburghii</i> R. Br.	121
– <i>V. tessellata</i> Lodd. ex Loud.	121
– <i>Verbena officinalis</i> L.	122
– <i>Vernonia anthelmintica</i> Willd.	122
– <i>V. cinerea</i> Less.	122
– <i>Vetiveria zizanoides</i> (L.) Nash	123
– <i>Viola pilosa</i> Bl.	123
– <i>Xanthium strumarium</i> L.	123
Glossary of Therapeutic Terms	125
References	135

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'Shaughnessey'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(when 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 zizanioides* 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 haemorrhoids, 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; Cunningham, 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 region. 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 beliefs 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 medicinal 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*, *Centratherrum 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 tessellata*, *Vernonia cineria*, *Valeriana hardwickii*, *Zingiber zerumbet* etc. are met in valleys and low hills. The plant species like *Aconitium ferox*, *Berberis asiatica*, *Coptis teeta*, *Illicium griffithii* *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 arboreous 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.

