emergent
Life Sciences Research

Review Article

Northeast India: A treasury of medicinal plants

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Abstract

The North-eastern region of India encompasses eight states viz. Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura. It is perhaps the most extravagant store of medicinal plants in the World. It is considered that the medicinal plants are the foundation of the conventional medicine. Almost 80% of the world populaces depend on conventional medications for essential medical services, a large portion of which include the utilization of extracts of medicinal plants. This conventional practice of medication assumes a significant part in the medical care of rural people for a wide range of diseases. They practice their own traditional healthcare system as they have an in-depth knowledge and understanding about plants, both conventional and non-conventional for their food and for medicine. This review thus underlines the different medicinal plants found across the entire north-eastern region and their respective potential uses or medicinal plant utilization for the significant well-being of mankind.

Keywords Northeast India, medicinal plants, pharmacology

Received: 06 October 2021
Accepted: 27 December 2021
Online: 20 January 2022

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Emer Life Sci Res (2022) 8(1): 5-21

E-ISSN: 2395-6658
P-ISSN: 2395-664X

DOI: https://doi.org/10.31783/elsr.2022.810521

Introduction

India is known for its significant inheritance of natural and therapeutic knowledge. The ethnic individuals and tribals living in the distant backwoods territories actually rely upon the native frameworks of the remedy. The North East of India encircles the states namely Arunachal Pradesh, Assam, Mizoram, Manipur, Meghalaya, Nagaland, Tripura, and Sikkim [1]. The region is characterized by diverse physiography, ranging from plains, plateaus, and mountains with associated valleys [2]. The ordinary temperature all through the summer season remains 30 °C and ranges between 16 to 20°C during winter. The valleys and the sloping parts show a significant climatic divergence between them.

Therefore, tropical monsoon humid climates beat the north-eastern states. During the month of June -September the region gets incredibly heavy rainfall which is the South-west monsoon season, and in the long stretch of June, the region receives the maximum rainfall [3]. The richness of its land, good climatic condition, topographical, environmental diverseness, and vivid communities make the North East of India very unique and different from other subcontinent parts. Northeast India is consequently the geological 'entryway' for a lot of India's widely varied greenery, and as a result, the province is perhaps the wealthiest space of India in natural qualities [4]. The region is considered as one of the biodiversity hotspots of the world comprising about half of India’s biodiversity hence it forms a unique biogeographic territory including significant biomes. Starting with prairie, marshes, swamps, muggy evergreen timberlands, deciduous woodlands also all types of alpine and temperate vegetation are found here. The diverse

woodlands types found in the area are home to various plants and creatures [5]. For its high biodiversity and conventional knowledge, the north-eastern part has been at the center of attention, also this region has been a preference for driving preservation and protection organization of the world. The locale is rich in therapeutic plants and numerous other limited as well as endangered taxa [6]. An enormous number of ethnic individuals or clans are likewise possessed in this side of India. A broad traditional insight or information on compelling natural medicines are acquired by the tribes of the northeast, which was obtained through the experience, are typically passed on by oral practices as a protected mystery of specific families [7]. The greater part of the therapeutic plants utilized by tribes and local people of the province of Assam are native and are likely unknown to the huge world of phytochemical research and science. The dynamic fixings and intense phytochemicals with promising pharmacological properties present in those plants are beneficial to human health and few are yet to be investigated [8]. Perhaps some lifesaving drug formulation can be found from one or a few of those native medicinal plants of the northeast which are being utilized with trust and certainty by a large number of individuals, the villagers, and the tribes living in the northeast and can be a milestone in the realm of drug sciences and a gift to humankind everywhere on the globe [9]. Their recognizable proof, preservation of medicinally significant plant species, conventional information is a supreme prerequisite for our time. Even though many ethnomedicinal studies on Northeast of India has been completed by various scientist, yet at the same time, it is accepted that utilization of various plant for medical services is caught in the isolated space of the area [10].

Climatic condition

Northeast India gets the most noteworthy measure of rainfall in the world in the course of June to September, despite, it is encountering a fast parching over the most recent thirty years. This land is regarded as one of the biodiversity hotspots of the world and is confronting the biggest risks from anthropogenic exercises and climate variation. Since the rich vegetation, fauna, agricultural management has genuine ramifications on the biodiversity and subsistence of the occupants of this land [11]. It is considered that the moisture pattern of North Eastern India has gone through observed transformation in the new past. Tea crops experience the ill effects of dampness stress during the dry time followed by insufficient moisture [12]. The communications between the biotic components such as harvest plants, weeds, insect-pests, microorganisms, nematodes and so on and the abiotic components, for example, temperature, dampness, day-length, moisture, soil boundaries, etc. rule the ambience of a biological system. When take place together the abiotic stress elements regulate the impacts of biotic burdens and radically impact crop development and efficiency [13].

Tribes and traditional knowledge

An enormous number of native and worker ethnic and tribal communities are inhabited in this area with inexplicable physical and societal attributes. In the North-eastern states, in an excess of 200 unique clans with area lingo, custom, faith, inheritance, and socio-strict practice got resolved. It is accepted that this piece of India utilized as an essential hallway for human movements including, possibly, the primary relocations from Africa towards East Asia and Australia over 40,000 years prior [2,10]. The rates of ancestral populace change altogether in the northeastern region of India. The percentages of tribal population in the states of Manipur, Tripura and Assam are 34.41%, 30.95% and 12.82% respectively to the total populace. On the other hand, the percentage of tribal population in Arunachal Pradesh, Meghalaya, Mizoram and Nagaland are very high, where Mizoram itself holds 94.75% of the tribals to the total state's populace [14]. India consists of a total of 427 tribal groups out of which 180 important ones are nurtured by the eight states of the North-Eastern region. The tribal of the region exercise their own conventional wellness practice. They have immense knowledge about both traditional and novel food and medication and also inside and out comprehension about plants [15]. The Khasis, Bodos, Khyniams and Pnars, Mizos, Garos, Mishings and Karbis are the largest of all tribes in the northeast region. The Bodos stretch out from North Bengal toward the western Nagaon and the western Darrang. The biggest of the relative multitude of clans are the Bodos, Khasis, Khynriams and Pnars, Garos, Mizos, Karbis and Mishings. The Bodos stretch

out from North Bengal toward the western Nagaon and the western Darrang [16]. The Mizos are basically found in Mizoram and Cachar-Manipur line. The Karbis spread over north-eastern Meghalaya, western Nagaland and Karbi-Anglong. In Nagaland, Konyak, Sema, Aoand Angami are the biggest ancestral communities whereas Thado, Tangkhul, Kabui and Hmar are the significant ancestral communities of Manipur. In Arunachal Pradesh, the biggest gatherings are Galong, Nishi, Wancho and Adi. The north-eastern locale has outrageous heterogeneity as far as dissemination of ancestral populaces in various parts, their social constructions and cultural motif. Every single tribe has a spatial variety in tribal characteristics. For instance, the sub-divisions of the Khasis, namely the Wars, Khynriams, Pnars and Bhois are regional gatherings as well as every one of them has obtained recognizable diverse socio-social characteristics. The Dimasa Kacharis are conveyed in places of Assam and in the adjoining territory of Nagaland. The Dimasa Kacharis living in the North Cachar Hill area seem to have held a lot of their customary ancestral mores. On the other hand, on account of the Dimasa Kacharis living in Nagaon locale of Assam, the impact of Assamese culture is a lot perceptible, and thereby the Dimasa Kacharis living in the Cachar area of Assam, the impact of Bengali culture can be noticed in them. The level of acculturation in various areas of socio-cultural existence of the clans is unique [17]. Ethnic groups have consistently produced, refined and gave conventional apprehension from one age to another. This information depends on their requirements, sense, perception, experimentation and long insight. Such information is regularly a significant piece of their social personalities. Conventional information has played and still plays, an indispensable part in the day-by-day lives of those individuals. Customary information is fundamental for food security, safe house, custom and medical care framework. An enormous number of ethnic individuals are still live on distant woods and slopes. Farming through 'Jhum' of 'Moving' developments is the primary occupation of individuals. They are profoundly subject to regular assets including backwoods. The particular clans of the locale have their own and rich conventional information and using climate in day-by-day life. The information and method of usage of nearby plants differ with ethnic gatherings. The utilization of restorative plants assumes a fundamental part in the medical care of ancestral individuals [10].

Significance of medicinal plants

For ages medicinal plants are in use for human health management and still today through various scientific assessments it is serving the need with stability according to the necessity for the management of diseases. Likewise, it has made the stage for investigation and identification of the plants in various climatic zones, regions, areas, and at the state level [18]. The importance of medicinal plants and the traditional well-being system has an expanding focus on taking care of the health care issues of the world. During the investigation in various north-eastern states, it was seen that therapeutic plants are categorized in the structure having an entrenched system of medicines like Ayurveda, Unani, Siddha, Homeopathy, also, current remedy, and besides, the plants utilized by locals give wellbeing administrations by getting locally accessible herbs from nature. Therefore, northeast India addresses an amazingly different ecological community wealthy in the medicinal plant [19]. Among these numerous species of therapeutic plant, the northeast beginning has reformed the allopathic frameworks of medication. The medicinal plants likewise have basically connected with a significant situation in the socio-culture, profound and therapeutic field of individuals in the area. As per the World Health Organization (WHO), 80% of the provincial populace in Asian and African nations uses locally accessible therapeutic plants for their essential medical care needs. About 90% of the therapeutic plants of India are found in timberland territories, while just 10% of the therapeutic plants are conveyed among other scene components like open fields, horticultural fields, squander land, and in and around new water bodies [20]. Conventional clinical practice is a fundamental segment of the culture of individuals of North East India. Despite this condition, classical medical services endured difficulty during modernized human advancement, industrialization and lost support, especially in metropolitan regions. There is a escalate target around the significance of therapeutic plants and systems of traditional healthcare in taking care of the medical services issues of the world [21]. Natural items are acquiring worldwide owing to this advanced, occupied, and violated climate. As compared to the synthetic components, traditional herbal medication, enhancements, and beautifying agents are better, as they are

Table 1. List of medicinal plants from North East India and their uses

Botanical Name	Local Name	Medicinal Value	Reference
Abelmoschus manihot	Usipak	Improves renal inflammation and glomerular injury in chronic kidney disease	[26]
Abelmoschus moschatus	Gorokhia koroi	Insulin sensitivity	[27]
Abies spectabilis	Talishpatra	Expectorant, bronchial sedative, decongestant, anticatarrhal, antiseptic, carminative	[28]
Abroma augusta	Gorokhia koroi	Beneficial effect on diabetes	[29]
Abrus precatorius	Latumoni	Antiasthmatic property	[30]
Abutilon indicum	Pera petari	Analgesic, hepatoprotective, hypoglycemic properties	[31]
Acacia catechu	Khair	Anti-inflammatory, chemoprotective properties	[32]
Acacia concinna L.	Shikakai	Malaria, jaundice	[33]
Acacia polyacantha	Samaidh	Gastrointestinal infections	[34]
Acalypha indica	Mukuta-manjari	Antiulcer, bronchitis, asthma, wound healing	[35]
Achyranthes aspera	Hatisur	Arthritis, joint inflammation	[36]
Achyranthes bidentata Blume	Apamarga	Cures osteoporosis	[37]
Aconitum heterophyllum	Vatsanabh	Urinary infections, diarrhea	[38]
Aconitum palmatum	Visha	Antidiarrheal, antirheumatic, antiperiodic	[39]
Acorus calamus L.	Vacha, Bhadra	Constipation, asthma, fevers, bronchitis	[40]
Acronychia pedunculata (L.) Miq.	Laojan	Treats scabies, sores, ulcers, and intestinal infection	[41]
Actinodaphne angustifolia	Petarichawa	Urinary disorder, diabetes	[42]
Adiantum capillus-veneris L.	Hansraj	Antidiabetic, anticonvulsant, analgesic, hypocholesterolemic, goitrogenic, anti-thyroidal, wound healing, antiobesity, anti-asthmatic	[43]
Adiantum lunulatum Burm. f.	Hansavati	Cures atrophy, cachexia, emaciation, erysipelas	[44]
Aegle marmelos	Bel	Treatment and prevention of cancer.	[45]
Ageratum conyzoides L.	Puspaya	Antidysenteric property	[46]
Agrimonia pilosa Ledeb.	Roiseng	Cures astringent, hepatic, cholagogue, mild haemostatic, intestinal tract infection, gall bladder diseases	[47]
Ajuga bracteosa	Nilakantha	Anti-inflammatory, analgesic, antidepressant, anticoagulant properties	[48]
Alpinia allughasRosc.	Taraka	Cures rheumatism, bronchial catarrh, dyspepsia	[49]
Alstonia scholaris R. Br.	Saptaparan	Cardiotonic, antiarthritic, antidiabetic, antiplasmodial, analgesic properties	[50]
Alternanthera sessilis (L.) R.Br.	Matsyakshi	Febrifuge, galactagogue, cholagague	[47]
Altingia excelsa	Jutuli	Cures skin disorders	[51]
Amaranthus spinosus L.	Tenduliya	Antipyretic, antileprotic, leucorrhoea, acute bronchitis	[52]
Amomum subulatum Roxb.	Sthulela	Stomachic, antiemetic, antibilious, astringent	[47]
Abrus precatorius	Latumoni	Neuroprotective, abortifacient, nephroprotective, immunomodulator, immunostimulatory properties, antidiabetic effect	[53]
Aristolochia indica L.	Ishvari	Cures cholera, bowel troubles, menstrual problems, antineoplastic,	[54]

		abortifacient	
Artemisia vulgaris L.	Nagadamani	Menstrual regulator, nervine, stomachic, anthelmintic, choleretic, diaphoretic	[47]
Atlantia monophylla	Liimbu	Antibilious property	[47]
Bacopa monnieri (L.) Penn	Nira-brahmi	Treats skin diseases	[55]
Bambusa arundinacea (Retz.) Willd.	Vams	Anthelmintic, astringent, antiulcer, anti-diabetic properties	[56]
Barleria cristata L.	Hemtacho	Cures anaemia	[47]
Bauhinia purpurea L.	Kovidar, Vanaraja	Astringent, antidiarrhoeal, dysentry,	[47]
Berberis wallichiana DC.	Daru haridra	Treats diarrhoea	[57]
Boerhavia diffusa L	Punarnava	Diuretic, antiarthritic, anticonvulsant, analgesic properties	[47]
Brugmansia suaveolens L.	Dhattura	Treats asthma	[47]
Buddleja asiatica Lour.	Ointapin	Cures inflammation, rheumatism, skin disease, malaria	[58]
Butea monosperma (Lam.) Kuntze	Palasha	Antidiarrhoeal, dermal wound healing, antidiabetic, anticonvulsive, antihepatotoxic, antiestrogenic and anthelmintic activities	[59]
Caesalpinia crista L.	Lata Karanja	Anti-tumour, anticancer, anti-diabetic, anti-inflammatory, analgesic, cardioprotective, wound healing, anthelmintic, antipyretic and antiulcer activities	[60]
Callicarpa arborea Roxb.	Priyangu	Anti-diabetic activity	[61]
Callicarpa macrophylla Vahl.	Priyangu	Anti-inflammatory property	[62]
Calotropis gigantea (L.) R.Br.ex Ait.	Arka	Treats bronchial asthma, dyspepsia, constipation, flatulence	[47]
Cassia alata L.	Dadmardan	Cures skin diseases, bronchitis and asthama	[63]
Cassia fistula L.	Aragvadha	Treats constipation, convulsions, diarrhoea, dysuria and epilepsy	[64]
Cassia occidentalis L.	Kasmarda	Antidiabetic, anti-inflammatory, anticancerous, antimutagenic and hepatoprotective activity	[65]
Centella asiatica (L.)	Urban Brahmi	Anticancer, anti-inflammation, neuroprotection, antioxidant, wound healing, and antidepressant activities	[66]
Chenopodium ambrosioides L.	Mexican tea	Used to rid the body of parasitic intestinal worms	[67]
Chloranthus offlcinalis Blume	Lakangtaklang	Treats fracture	[68]
Cinnamomum tamala Nees and Eb.	Tamalaka	Carminative antidiarrhoeal, spasmolytic, hypoglycaemic activities	[69]
Cissampelos pareira L.	Ambastha	Analgesic antipyretic, diuretic, antilithic and emmenagogue properties	[70]
Cissus repens Lam.	Puraini	Treats sloughing, fetid ulcerations, boils and small abscess	[71]
Citrus maxima (Burm.) Merrill.	Madhukarkati	Treats convulsive cough, chorea, epilepsy, also in the treatment of haemorrhagic diseases	[47]
Citrus reticulata Blanco	Airavata	Dyspepsia, gastro-intestinal distension, cough with profuse phlegm, hiccup and vomiting	[72]
Cleome gynandra L.	Surjavarta	Epilepsy, irritable, bowel syndrome and in protozoal and worm infection	[73]
Clerodendrum serratum (L.) Moon.	Bharangi	Diuretic, gastric acidity	[47]
Clerodendrum viscosum Vent.	Bhantaka	Cough and cold, itching, effective against indigestion and abdominal pain	[74]
Coccinia indica W. and A.	Bimbi	Carminative, antipyretic, galactagogue,	[47]

		antidiabetic properties	
Coptis teeta Wall.	Mamira/ Mishmiteeta	Dyspepsia, dysentery and intestinal catarrh	[47]
Cordia dichotoma Forst.	Lasora	Astringent, demulcent, expectorant, diuretic, anthelmintic, mucilaginous properties	[47]
Crataevanurvela Buch-Ham	Varuna	Diuretic property	[47]
Croton caudatus Grisel.	Sonaphuli	Anticancer	[47]
Cryptolepis buchanani Roem. and Schult	Karanta	Blood-purifier, treats rickets	[47]
Curculigo orchioides Gaertn.	Talamuli	Nervine, adaptogenic, sedative, anticonvulsive, androgenic, anti-inflammatory and diuretic properties	[47]
Curcuma aromatica salisb	Sugandh Haldi	Antimicrobial, antifungal and anthelmintic properties	[47]
Curcuma caesia Roxb.	Narkachura	Carminative	[47]
Cyclea arnotii Miers.	Pathabheda	Treats smallpox, bone fractures, malarial fever, jaundice, stomachache.	[47]
Cynoglossum wallichii G. Don.	Lakshamana	Check bleeding	[76]
Datura metel L.	Sadah-dhatura	Antitumour, antirheumatic, anti-inflammatory, antiasthmatic, anticatarrhal, febrifuge, antidiarrhoeal, antidermatosis properties	[47]
Deeringia amaranthus Merrill	Latman	Cures sores	[77]
Desmodium triflorum (L.) D.C.	Kudaliya	Galactagogue, diarrhoea, diuretic properties	[47]
Dillenia indica L.	Bhavya	Laxative, carminative, bechic, febrifuge, antispasmodic, astringent properties	[47]
Dioscorea bulbifera L.	Vaarahi	Treats swellings, boils, ulcers, dysentery, piles, venereal sores	[47]
Diospyros kaki L. f.	Shimbi	Hypotensive, hepatoprotective, dyspnoea	[47]
Drymariadiandra Blume.	Kadokara	Treats ant febrile	[78]
Drynaria quercifolia (L.) J. Smith	Asvakarti	Treats chest diseases, cough, hectic fever, dyspepsia, loss of appetite, chronic jaundice and cutaneous affections	[47]
Eclipta prostate L.	Bhringaraja	Antihepatotoxic, anticatarrhal, febrifuge properties	[47]
Elaeocarpus sphaericus (Gaertn) Sch.	Rudraksha	Epileptic fits and headache	[47]
Embeliaribes Burm. f.	Vidanga	Ascaricidal, anthelmintic, carminative, diuretic, astringent, anti-inflammatory, antibacterial, febrifuge properties	[47]
Emilia sonchifolia (L.) DC.	Shashshruti	Analgesic, anti-inflammatory, antioxidant, anti-diarrheal anti diabetic, hepatoprotective, anti-anxiety, anti-convulsion and anti-cataract	[79]
Euphorbia hirta L.	Pusitoa	Pectoral, anti-asthmatic, antispasmodic properties	[47]
Euphorbia nerifolia L.	Snuhi	Diuretic, anti-asthmatic properties	[47]
Euphorbia thymifolia L.	Laghudugdhika	Antispasmodic, bronchodilator, anti-asthmatic, amenorrhoea properties	[47]
Exacum tetragonum Roxb.	Ava-chiratta, Kiratatikta	Stomachic, febrifuge, antifungal properties	[47]
Ficus carica L.	Falgu/bhadrodumbara	Analgesic, anti-inflammatory properties	[47]
Ficus hispida L.	Kokadumbara	Galactagogue, purgative properties	[47]

Ficus racemosus L	Udambara	Astringent, menorrhagia, leucorrhoea, urinary disorders, skin diseases, swellings, boils, haemorrhages.	[47]
Flemingia strobilifera R.Br.	Kushtunthi	Epilepsy, hysteria, insomnia	[80]
Gentiana kurroo Royle	Keri	Treats jaundice, nausea, vomiting, diarrhoea, malaria	[47]
Girardinia heterophylla Decne.	Bichhua	Treats swollen joints	[47]
Gmelina arborea Roxb.	Gambhari	Stomachic, laxative, antibilious, demulcent, galactagogue, anticephalalgic, febrifuge	[47]
Gnaphalium luteo-album L.	Shutamento	Astringent, haemostatic	[47]
Hedyotis corymbosa (L.) Lamk.	Parpata	Purifies blood, improves digestion, stimulates action of liver.	[47]
Hedyotis scandens Roxb. ex D. Don.	Shimbi	Treats bone fracture	[81]
Heracleum lanatum Michx.	Chem-mem	Stimulant, nervine tonic, spasmolytic.	[47]
Hibiscus abelmoschus L.	Latakasturi	Diuretic, antispasmodic, stomachic, nervin	[47]
Hibiscus esculentus L.	Gandhamula	Syphilis, catarrhal infections, ardorurinae, dysuria, gonorrhoea	[82]
Hibiscus rosa-sinensis L.	Japa	Bronchial catarrh, emmenagogue, menorrhagia	[47]
Houttuynia cordata Thunb.	Masundari	Anti-inflammatory	[83]
Hydnocarpus kurzii (King) Warb.	Tuvarakpratinidhi	Antileprotic, dermatic, febrifuge, sedative	[47]
Hydrocotyle javanica Thunb.	MandookaparniBheda	Blood purifier, indigestion, dysentery	[47]
Hydrocotyle rotundifolia Roxb	Mandukaparni	Treats diarrrhoea, dysentery	[84]
Hypodematium crenatum Forsk. Kuhn	Bhutkeshar	Dysentry	[78]
Illicium griffithii Hook. f. Thomson	Lissi	Carminative	[85]
Indigofera tinctoria L.	Nilika	Hepatoprotective, hypoglycaemic, nervine tonic, skin diseases, piles, anti-inflammatory, diuretic, hepatitis.	[47]
Jatropha curcas L.	Kanakeranda	Cures scabies, ringworm, eczema, whitlow, warts, syphilis.	[47]
Juglans regia L.	Aksoda	Laxative, antiseptic, mild hypoglycaemic, anti-inflammatory, antiscrofula	[47]
Kaempferia angustifolia Rosc.	Chandramulika	Cold, stomach ache, dysentery, and cough	[47]
Kalanchoe pinnata (Lamk.) Pers.	Patharchura	Anti-inflammatory, antifungal, antibacterial, burns, boils, swellings.	[47]
Lagerstromia parviflora Roxb.	Arjuna pratinidhi	Astringent, fungitoxic.	[47]
Lantana indica L.	Chaturangi	Treats cancer and tumors	[87]
Laportea crenulata Gaud	Utigun	Cures swellings and abscesses.	[47]
Leea indica (Burm. f.) Merrill	Karkatajihva	Antidiarrhoeal, antidysenteric, antispasmodic	[47]
Leucas indica L Nees	Pushpin	Antidiarrhoeal, antidysenteric, antispasmodic, cooling, sudorific.	[47]
Leucas lavandulaefolia Nees	Dronapushpi	Sedative in nervous disorders, stomachic and vermifuge	[47]
Lindenbergia indica (L.) Oktze.	Bheetchatti	Chronic bronchitis	[47]
Litsea cubeba BI.	Santu	Anticancer, anti-inflammatory, antidiabetic activity	[88]
Lobelia nicotianifolia Heyne	Devanala	Anti-asthmatic, antispasmodic, broncho-dilator, expectorant, mild sedative	[47]

Ludwigia octovalvis (Jac.) Raven	Shulavanga	Antidiabetic	[89]
Luffa acutangula (L.) Roxb.	Rajkoshataki	Splenic enlargement, cough and asthma	[47]
Luffa aegyptiaca (Mill.) L.	Dhamargava	Pharyngitis, rhinitis, mastitis, oedema, swellings and burns, chronic bronchitis.	[47]
Lycopodium clavatum L.	Nagbeli	Sedative, antispasmodic, diuretic.	[47]
Lygodium flexuosum Sw.	Kali jhanta	Carbuncles, treatment of jaundice	[90]
Mahonia napalensis DC	Tamen	Antiprolific, antipsoriatic, demulcent, diuretic, antidysenteric.	[47]
Melastoma malabathricum L.	Lakhori	Antidiarrhoeal, antiseptic, astringent, anti-leucorrhoeic	[47]
Mesua ferrea L.	Nagakeshara	Antidysenteric, astringent, haemostatic, anti-inflammatory, stomachic.	[47]
Michelia champaca L.	Champaka	Diarrhea, cough, bronchitis, hypertension, dyspepsia, fever, rheumatism, abscesses, dysmenorrhea and inflammation	[91]
Mirabilis jalapa L.	Krishnakeli	Used for treating uterine discharge, as poultice for abscesses and boils, inflammations and bruises	[47]
Mollugo pentaphylla L.	Paraptaka	Anti-inflammatory, analgesic, antipyretic	[92]
Morus alba L.	Tula/Tuda	Used for sore throat, dyspepsia, melancholia, expectorant, diuretic, hypotensive, hypoglycaemic, anti-inflammatory, emollient, diaphoretic	[47]
Mucuna pruriens (L.) DC.	Atmagupta	Astringent, nervine tonic, local stimulant, used in urinary troubles, leucorrhoea	[47]
Myrica esculenta Buch. D. Don.	Katphala	Carminative, antiseptic, used in fever, cough and asthma, also as a snuff in catarrh with headache, used externally for ulcers, pectoral, sedative.	[47]
Nicotiana tabacum L.	Tamahu	Arthralgia, lumbago, rheumatism and gout	[47]
Oenanthe javanica (Blume) DC.	Komprek	Strong antimutagenic and antitumour activity	[47]
Oganum vulgare L.	Van Tulasi	Anticancer, anti-inflammatory, antioxidant and antimicrobial activities.	[93]
Opuntia dillenii Haw.	Nagaphani	Applied as poultice to allay inflammation and heat	[47]
Oroxylum indicum Vent.	Shyonaka	Carminative, stomachic, spasmolytic, antidiarrhoeal, used for amoebic dysentery	[47]
Oxalis corniculata L.	Amlika	Tympanitis, dyspepsia, biliousness and dysentery anti-inflammatory, analgesic, antipyretic and antiscorbutic	[47]
Oxalis debilis H.B.K.	Changeribhed	Cuts/injuries and fire burn	[94]
Paederia foetida L.	Prasarani	Carminative, anti-inflammatory, astringent, spasmolytic, anti-diarrhoeal, diuretic, anti-inflammatory. Used for rheumatic affections, piles, inflammations of the liver, spleen	[47]
Panax pseudoginseng	Ginseng	Antiarrhythmic, digestive relaxant	[47]
Pandanus fascicularis Lamk.	Ketaki	Carminative, stomachic, antiseptic, ulcers, dysuria, scabies and other skin diseases.	[47]

Papaver somnifera L.	Ahiphena	Narcotic, sedative, hypnotic, analgesic, sudorific, anodyne, antispasmodic	[47]
Paris polyphylla Sm.	Mithi Vacha	Sedative, analgesic, haemostatic, anthelmintic	[47]
Pavetta indica L.	Parpata	Fomenting piles and for haemorrhoidal pains	[47]
Pericampylus glaucus (Lam.) Merill	Barakkanta	Treats asthma and high fever	[47]
Phlogacanthus thyrsiflorusNeesa	Chuhai/Titavasa	Whooping cough and menorrhagia	[47]
Phyllanthus reticulatus Poir	Krishna kambhoja	Astringent, diuretic, antidiabetic, antiviral, anticancer, antiplasmodial, hepatoprotective, antibacterial and anti-inflammatory	[95]
Phyllanthus urinaria L.	Tamar Valli	Diuretic, astringent, anti-inflammatory, styptic, used in prescriptions for dyspepsia, indigestion, chronic dysentery, urinary tract diseases, diabetes, skin eruptions	[47]
Physalis angulata Ham.	Phooligach	Diuretic	[47]
Pinus roxberghii L.	Saral	Cough and cold remedies	[47]
Piper longum L.	Pippali	Used for diseases of the respiratory tract, as sedative, cholagogue	[47]
Piper nigrum L.	Maricha	Stimulant, carminative, diuretic, antiasthmatic, used in fevers, dyspepsia, flatulence, indigestion, and as mucous membrane and gastro-intestinal stimulant	[47]
Plantago erosa Wall.	AshvagolBhed	Constipation, improves digestion, astringent, demulcent, diuretic, expectorant, anti-inflammatory	[96]
Podophyllum hexandrum Royle	Bankakri	Antineoplastic, strongly irritant to skin and mucous membranes	[47]
Pongamia pinnata (L.)	Pierre Karanj	Scabies, herpes, leucoderma and other cutaneous diseases	[47]
Portulaca oleracea L.	Lonika	Refrigerant, mild spasmodic, diuretic, antiscorbutic, used in scurvy and in diseases of liver, spleen, kidney and bladder, also in dysuria, stomatitis and dysentery	[47]
Potentilla sundaica (Bl.) Okbze	Vajradanti	Sore throat and cough	[97]
Pouzolzia viminea Wedd.	Phutibum	Root paste is applied on haemorrhages and as haemostastic	[98]
Premna latifolia Roxb.	Agnimanthabhed	Diuretic, spasmolytic, hypoglycaemic.	[47]
Punica granatum L.	Dadima	Astringent, stomachic, digestive, diarrhoea, dysentery, dyspepsia, uterine disorders	[47]
Rauvolfia serpentina	Chotachand	Insomnia and schizophrenia	[99]
Rauvolfia tetraphylla L.	SarpagandhaBhed	Sedative, hypotensive	[47]
Rhododendron arboreum Sm.	Kurbak	Anticephalalgic, spasmolytic, used in diarrhoea and dysentery.	[47]
Ricinus communis L.	Eranda	Purgative, dermatosis and eczema	[47]
Rorippa indica L.	Hiern	Antiscorbutic, stimulant, diuretic, laxative, prescribed in the treatment of asthma	[47]
Rumex maritimus L.	Jungli Palak	Catharitic, externally applied to burn	[47]
Rungia pectinata (L.) Nees	Pindi	Febrifuge, refrigerant	[47]
Saccharum officinarum L.	Ikshu	Laxative, demulcent, diuretic, antiseptic, haemophilic conditions, jaundice and urinary diseases.	[47]

Saccharum spontaneum L	Kash	Astringent, diuretic, galactagogue, dysuria, dyscrasia, kidney and bladder stones, dysentery, bleeding piles, galactagogue.	[47]
Sambucus hookeriRehder	Utikhamal	Cures fever	[105]
Saraca asoca L.	Ashoka	Uterine tonic, haemorrhagic dysentery, bleeding piles	[47]
Saurauia armata Kurz.	Poparar	Leaves applied on the wounds	[100]
Saussurea lappa C.B. Clark.	Kuth	Antispasmodic, expectorant, carminative, astringent, antiseptic	[47]
Schima wallichii (DC.)	KorthChilauni	Anthelmintic, rubefacient	[47]
Sida acuta Burm. f.	Bala	Astringent, stomachic, febrifuge, diuretic, demulcent	[47]
Smilax glabra Roxb.	Bari Chobchini	Syphilis, venereal diseases and sores	[47]
Smilax ovalifolia Roxb.	Maitri	Urinary infections, rheumatism, dysentery	[47]
Solanum nigrum L.Medd	Kakamachi	Anti-inflammatory, antispasmodic, sedative, diuretic, laxative, antiseptic	[47]
Solanum torvum Gaertn.	Swetkantakari	Digestive, diuretic, sedative	[47]
Solanum verbascifolium L.	Vidari	Skin disease and as an abortivum	[101]
Solanum viarum Dunal	Khasianum	Treatment of cancer therapy, rheumatism, chronic asthma, skin disease, obesity, and leukaemia	[102]
Spermacoce hispida L.	Madanaghanti	Astringent in haemorrhoids, gall stones, diarrhoea and dysentery	[47]
Stephania glandulaefolia Miers	Rotunda	Heals knee joint during rheumatic arthritis	[103]
Stephania japonica (Thunb.)	Rajpatha/ Vanatiktika	Malarial fever, stomach and cardiac disorders, and diabetes	[104]
Stereospermum chelonoides (L.f.) DC.	Patoli	Oedema and retention of urine	[47]
Symplocos racemosa Roxb	Lodhra	Remedy for uterine complaints, vaginal diseases and menstrual disorders, menorrhagia, leucorrhoea	[47]
Syzygium cumuni (L.) Skeel	Jambu	Stomachic, carminative, diuretic, antidiarrhoeal, hypoglycaemic	[47]
Tamarindus indicus L.	Chincha	Carminative, laxative, antiscorbutic, infusion prescribed in febrile diseases and bilious disorders	[47]
Taxus wallichiana L.	Talisa Patra	Antiepileptic, anti-inflammatory, anticancer, antipyretic, analgesic	[105]
Tephrosia candida DC.	Mashaparni	Antitumor	[106]
Terminalia arjuna (Roxb. ex DC.) W and A.	Arjuna	Cardioprotective and cardiotonic, as a diuretic in cirrhosis of liver and for symptomatic relief in hypertension, externally in skin diseases, Herpes and leukoderma	[47]
Terminalia bellirica (Gaertn.) Roxb.	Bahera	Diarrhoea, dyspepsia, biliousness, cough, bronchitis and upper respiratory tract infections, tropical pulmonary eosinophilia and allergic eruptions	[47]
Terminalia chebula Retz	Haritaki	Constipation, diarrhoea, dysentery, cyst, vomiting, enlarged liver and spleen, cough and bronchial asthma, and for metabolic harmony, diuretic	[47]
Thalictrum foliolosum DC.	Pitamulikapratinidh	Used against gout and rheumatism, febrifuge, antiperiodic	[47]
Thevetia peruviana (pers.) Merill.	Karvira	Bitter cathartic, emetic	[47]
Thunbergia grandiflora Roxb.	Kakanasa	Treats cut, wounds, gastric ulcers	[107]
Tinospora cordifolia (Willd.)	Guduchi	Antipyretic, antiperiodic, anti-	[47]

Miers		inflammatory, antirheumatic, spasmolytic, hypoglycaemic, hepatoprotective	
Toddalia asiatica (L.) Lamk.	Kanchana	Febrifuge, diuretic, antispasmodic, antipyretic, diaphoretic, antiperiodic	[47]
Trichosanthes anguina L.	Shwetraji	Antibilious, vermifuge, antidiarrhoeal, improve appetite, cure biliousness	[47]
Trichosanthes tricuspidata (Lour.) Voight	Mahakala	Asthma, earache andozoena	[108]
Triumfetta rhomboids Jacq.	Jhinjhirita	Astringent, anticholerin, demulcent, Used in diarrhoea and dysentery, diuretic, galactogenic	[47]
Urena lobata L.	Vanabheda	Diuretic, emollient, antispasmodic, antirheumatic	[47]
Valeriana jatamansi Wall.	Tagara	Remedy for hysteria, sedative	[47]
Vanda coerulea	Bhatouphul	Effect against glaucoma and cataract	[109]
Vernonia albicans DC	Sahadevi	Treat earache problems	[110]
Viola pilosa Bl.	Vanafsha	Expectorant, anti-inflammatory, diaphoretic, antipyretic, diuretic	[47]
Vitex negundo (L.)	Nirgundi	Anti-inflammatory, analgesic, astringent, febrifuge, antidiarrhoeic	[47]
Zanthoxylum armatum DC	TumbruBheda	Treats diarrhoea, carminative, antispasmodic, anthelmintic, dyspepsia and skin diseases	[47]
Ziziphus mauritiana Lamk	Tumbru	Astringent, stomachic, styptic, expectorant, antidiarrhoeal, antispasmodic, antiemetic, diaphoretic	[47]

effectively accessible, cost-effective, better viable with physiological verdure, and in particular, have no side effects [22]. Aside from medical care, the underprivileged communities trade the medicinal plant as an alternate income profound source. Thus, enhancing this area may benefit and improve the ways of life and everyday comforts of destitute people [23]. The need of great importance is to saddle this normal asset economically for the financial advancement of the nearby and native individuals while securing the biodiversity simultaneously. The procedures like planting of medicinal plants merged with viable collection use from the wild would be valuable in accomplishing this objective. In the 21st century, preservation, practical utilization of therapeutic plants of North East India will enrich the confidence of millions for India's own wellbeing needs and has worldwide significance. In contrast, many species of medicinal plants are used in animal husbandry as an essential source of health care in this region [24]. The dependence on medicinal plants is likewise because of cultural inclinations. Medicinal plants have strong acknowledgment in religious practices of local communities in north-eastern states, who worship the plants as different divine [25]. In view of different identification and review medicinal of plants, researchers have made various reports on it. Likewise, a broad investigation of medicinal plants in various North-eastern states and archived data on those plants which are utilized in the administration of different afflictions in the human body are described.

Discussion

Medicinal plants are assets of conventional medicines and a large number of the advanced drugs are created by implication from plants. They have additionally assumed a fundamental part in the improvement of human civilization. Since the beginning of history, man has depended much on therapeutic plants for wellbeing and food needs. There was conventional utilization of medicinal plants for relieving and forestalling diseases, together with the advancement of both physical and profound prosperity among individuals. The utilization of herbs to cure illness is practically all-inclusive among non-industrialized social orders and the decency and mending properties of herbal plants were examined by individuals for ages. The regional community has a long history of conventional plant use for therapeutic purposes. Indeed, the antiquated man was absolutely reliant upon green plants for his everyday requirements of medicaments.

The more we find out about plants, the more we discover approaches to utilize them to help wellbeing. At an extremely fundamental level, we can also utilize them in the preparation of food. Medicinal plants are significant components of native clinical frameworks everywhere in the world.

All societies have a background marked by natural medication use, typically utilizing the plants found nearest to home. Indeed, even today in the hours of trend-setting innovation, clinical science actually relies upon plants for their mending. Northeast India has the most extravagant supply of plant variety in India and is one of the 'biodiversity areas of interest' which falls underneath the Himalaya and the Indo-Burma biodiversity, shaping a novel biogeographic territory holding onto significant biomes perceived on the planet. This area is likewise notable for different cultures of human races and is occupied by countless tribals of different ethnic classes. These ethnic networks are wealthy in conventional learning and honing conventional mending since the days of yore. There is an immense potential to do ethnobotanical exploration in the area, principally, in light of the fact that, a big part of the complete Indian ancestral people inhabit and exercise their traditions in their own novel manner. Conventional mending is the primeval type of organized strategy for medication that depends on elemental ideology and the set of fundamentals by which it is exercised. Ethnic people have consistently created, refined and gave conventional information from one age to another. This information depends on their necessities, intuition, perception, experimentation and long insight. Such information is frequently a significant piece of their social characters. Conventional information has played and still plays, an imperative job in the everyday lives of these individuals. The helpful action of such plants has made a remarkable commitment in the beginning and development of numerous customary herbal treatments, yet such society conventional framework they had or acquired as an inheritance is disappearing quick or contaminated with the effect of advancement. The bio-assets alongside the rich native information frameworks are exhausting so quickly because of different anthropogenic exercises and fast urbanization. A portion of the therapeutic plants is circulated in high power while certain others continue draining from their natural environment. This consumption is because of the high pressing factors for their un-foundational abuse through shifting cultivation extension of urbanization, horticultural land and street advancement just as some regular catastrophes like land sliding, and so on. Subsequently, it needs critical precise examination utilizing biotechnological devices to validate and establish new novel medications from the rich bio-assets of the land. Logical methodology for their examination, use, protection and worth expansion might be the central issues for business venture improvement by abusing the native innovation information. In light of the above study, it very well may be presumed that therapeutic or medicinal plants are incredible practical herbs, which are for the most part gainful to mankind. It is the various synthetic component, which dwells inside the therapeutic plants that bring out a specific physiological activity on the human body. For the most part, synthetic compounds which are available inside the medicinal plants are phenolic, alkaloids, flavonoids and tannins and so forth.

Conclusion

Nevertheless, the boundless utilization of medicinal plants is not limited to developing countries. The resurrection of the natural remedies, which, has occurred in the developing nations, occurred on account of the restoration of interests in the logical data of plants. The doctors cannot overlook the utilization of herbal medications. They ought to acknowledge is that an enormous number of patients are actually utilizing herbal medications. The divulgence from the patients utilizing natural medicines may divert them to utilize therapeutic plants for the cure as well. The patients and the doctors ought to go into a conversation and should analyze the aptness of herbal medications over pharmaceutical drugs.

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