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An Ethnobotanical Survey Of Medicinal Plants Used By Mising Tribe Of The Gohpur Sub-Division Of Biswanath District, Assam

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ABSTRACT

Aim: Medicinal plants are often used as alternative remedies for the treatment of a number of diseases. The current research focuses on the usage of various medicinal plants by the Mising tribe in Gohpur sub-division of Biswanath district, Assam.

Methods: An ethnobotanical survey was conducted from April 2021 to August 2021, and data was collected from 25 villages, which are predominantly inhabited by the mising population. A total of 47 informants were interviewed in a face-to-face manner with the help of a readymade questionnaire.

Results: A total of 113 medicinal plant species were documented from the study area. which are divided into 102 genera and 56 families. Malvaceae and Poaceae has the most medicinal plants (6 species each), followed by Asteraceae with 5 species, Lamiaceae; Solanaceae; Moraceae; Euphorbiaceae and Zingiberaceae with 4 species each, Fabaceae; Liliaceae; Aracaceae; Apocynaceae; Piperaceae; Combretaceae; Cucurbitaceae; Lauraceae and Caesalpiniaceae with 3 species each. The remaining 10 families have 2 species each, and the remaining 29 families have 1 species each. Most of the reported species were herbs (50%), followed by trees (21%), shrubs (14%), climbers (10%) and grass (5%). Juice preparation (40.70%) and leaves (44%) were the most common methods of preparation of drugs and the most commonly used parts of medicinal plants, respectively.

Conclusion: In the study area, a wide range of medicinal plants were identified, and these plants play a key role in mising people's healthcare systems. Some medicinal plants are declining rapidly due to various developmental activities and other environmental effects.

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INTRODUCTION

The use of plants as traditional medicines to treat diseases is an age-old practise all over the world. According to the World Health Organization (2003), almost 80% of the world's population, mainly in rural areas, relies on herbal medicine for their healthcare requirements. Plants have always been a reliable source of medicine since the dawn of civilisation. Many of the medicines on the market today are produced directly or indirectly from plants (Arumugam et al., 2013). Plants are a rich source of bioactive molecules that can be used to develop new therapeutics (Mahmud et al., 2010). Due to the lack of modern healthcare facilities in undeveloped countries, traditional medicine provides a low-cost alternative to primary health care (Aziz et al., 2018). More than 50% of India's tribal population uses various forms of traditional medicine, providing it with considerable cultural relevance and value for diverse tribal groups (Mishra et al., 2009). On the basis of species rarity and endemism, India is one of the world's 12 mega biodiversity countries, with two hotspots - the Eastern Himalayas and the Western Ghats. Arunachal Pradesh (83,743 sq km) contains the majority of the Indian Eastern Himalaya, a world biodiversity hotspot and 500 medicinal plant species described from Arunachal Pradesh alone (Myers et al, 2000), (Haridasan et al., 2003).

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The northeastern region of India (NER) covers 262,230 km2 and is made up of eight constituent states viz. Assam, Arunachal Pradesh, Manipur, Mizoram, Meghalaya, Nagaland, Tripura, Sikkim and Tripura. NER is one of the world's 35 biodiversity hotspots, having a diverse flora and fauna. According to the 2011 Indian census, NER is the residence of over 220 ethnic groups who speak over 220 different languages (Mittermeier et al., 2011). Assam is one of the most culturally diverse states in North East India, with a land area of 78,523 square kilometres and latitudes ranging from 24°2' to 88°8' to 96° E. The number of ethnic tribes including Bodo, Mising, Karbi, Rabha, Dimasha, Tiwa, Ahom, Sonowal Kachari, Tai Turung, Deori, Chutia, Koch, Moran and Motok.

The Mising are an Indo-Mongoloid and East Asian group that originated in Tibet's Eastern Himalayas and finally settled in Assam's Brahmaputra valley (Panging and Sharma, 2017). They were previously known as the “Miri” and are the second largest tribal group in Assam in terms of population and played an important role in the culture and economy of Assamese society with a population of around 6.8 lakh people (2011 census report) (Pandey et al., 2015). The conventional religious view of the Mising is animistic. The Mising people believe that they are descended from the sun and the moon. Don:yi (sun) is considered their mother, and Po: lo (moon) is considered their father (Borah et al., 2021)

Most Mising people still live in flood-affected and remote places with ancient traditions, and contemporary society has generally ignored them in many aspects. Although the majority of them continue to live in rural areas, it has been observed that rural to urban migration, either temporarily or permanently, for better socioeconomic conditions, career opportunities, accessibility, and other reasons, has gained popularity among the Misings in recent years, resulting in the adoption of a new urban culture at the expense of age-old cultural traditions. In terms of Mising societies, while the Misings keep traditional practices, some changes in their lives and culture have been seen, which are impacting the essence of their culture (Pandey et al., 2015). They live primarily in the Assam districts of Dhemaji, North Lakhimpur, Biswanath, Tinsukia, Dibrugarh, Sibsagar, Sonitpur, Jorhat, and Golaghat. They have a rich traditional knowledge of the medicinal and nutritional uses of plants. Due to their remoteness and lack of communication, people evolved traditional medicinal procedures to protect themselves from many ailments in the past. The residents of this community continue to prepare for the ancient healing procedures of those days in the present period. The discovery of therapeutic medications from medicinal plants practised by the Mising community is still a research area and an untapped resource, with systematic research potentially leading to a variety of pharmacological targets.

Water-borne diseases such as diarrhoea, dysentery, jaundice, and other lethal diseases are common among the Mising tribe who live near river banks. As a result, traditional medicinal practises were created to protect them from various diseases. They employ crushed juice, decoctions of medicinal portions, powdered medicine for oral intake, and paste for local application on skin illnesses and wounds made from locally accessible plants. They also believe in divines and worship to heal illnesses. Each of them has their unique diagnostic approach. Traditional healthcare providers use medicinal plants that are easily available and economical in the local area to cure all diseases in people of all ages. Their treatment, which can be natural or ritual, is very thorough and successful, as well as curative and protective. The main objective of the study is the documentation of indigenous knowledge of plant against various diseases used by mising tribe of Gohpur sub-division of Biswanath district, Assam.

MATERIALS AND METHODS

Study area description

Biswanath is the district of Assam, spread over an area of 1415.185 sq. Km on the north bank of Brahmaputra River. The Biswanath district lies between 92° 16’E and 93° 43’E longitude and 26° 30’N and 27° 01’N latitude and is surrounded by Lakhimpur district in east and Sonitpur district in west, Arunachal Pradesh in north and the Brahmaputra River in south. The district’s climate is sub-tropical with warm and humid summers with average temperature of 29°c and cool and dry winters with average temperature of 16°c and annual rainfall ranging from 2600mm to 3000mm. The vegetation of biswanath district is tropical rain forests and includes mixed deciduous and semi evergreen forests.

For administrative purposes, the Biswanath district has been divided into two sub-divisions (Gohpur and Biswanath) and eight community development blocks (CDB), where (1) Pub Chaiduar (2) Chaiduar CD Block are part of the Gohpur Sub-division and (3) Baghmara (4) Behali (5) Sakomata (6) Biswanath (7) Sootea (8) Naduar are part of the Biswanath Sub-

division. Out of which 95 percent (estimated) of mising population of Biswanath district inhabited in Pub chaiduar and Chaiduar CD block.

Data collection and identification of plants

A field survey was carried out during the period from April, 2021 to August, 2021 in order to document medicinal plant species of 25 villages in the Gohpur sub-division of Biswanath district, predominantly inhabited by the Mising tribe. 20 villages from Pub-Chaiduar CDB and 5 villages from Chaiduar CDB were surveyed. The medicinal plant information was collected along with the photograph with the help of a village traditional healers and older village inhabitants who were familiar with the traditional medicinal plants. The information was taken through face-to-face interviews with the use of pre-made questionnaires (Figure 2). Informants were asked to provide their bio-data, plant (s) part (s) used, formulation techniques, and route of administration. The plants were collected based on the informants' information. A total of 47 informants from 25 different villages in the Gohpur sub-division were interviewed. With the help of traditional healers, samples of plants were collected and prepared for scientific identification. Herbarium sheets were prepared for identification of the plants and submitted to the Department of Botany, Chaiduar College, Gohpur.

Data analysis

All statistical computations, graphs, and other graphics were prepared using Microsoft Excel. The data was evaluated by comparing a number of criteria, including the number of plant species, families, plant parts used, mode of administration, habit, and of the plant species.

RESULTS

In this study, 47 local healers from 25 distinct villages in 2 CDBs in Biswanath district were interviewed. Out of the 47 informants, 33 were male and 14 were female. Table 1 shows the names of the CDBs, Informant villages, and their geographical locations. The maximum numbers of informants were recorded in Pub Chaiduar CDB, followed by Chaiduar. The different locations of data collection sites are depicted in figure 1. The majority of the informants who shared their knowledge were aged persons. Around 67.5 percent of the total informants were over the age of 50, with another 42.5 percent in the age range of 40 to 50. In terms of literacy, it was found that a level education, 14% had a college majority of the informants (63%) had a school level education, and 25% had no formal education at all.

A total of 113 medicinal plant species were documented from the study area. Which are belonging to 102 genera and 56 families. Among the families, Malvaceae and Poaceae contribute most medicinal plant with 6 species each, Asteraceae with 5 species, Lamiaceae; Solanaceae; Moraceae; Euphorbiaceae and Zingiberaceae with 4 species each, Fabaceae; Liliaceae; Aracaceae; Apocynaceae; Piperaceae; Combretaceae; Cucurbitaceae; Lauraceae and Caesalpiniaceae were represented by 3 species in each families, Rutaceae; Anacardiaceae; Apiaceae; Amaranthaceae; Vitaceae; Scrophulariaceae; Rubiaceae; Myrtaceae; Acanthaceae, and Araceae were represented by 2 species in each families. The other 29 families represented by one species each.

Out of 113 documented plants, most cited plants life forms are herbs with 56 (50%) species, followed by tree with 24 (21%) species, shrubs with 16 (14%) species, climbers with 11 (10%) species and grass with 6 (5%) (Figure 3). For the preparation of traditional medicine, leave 51 (45%) species were the most commonly used plant part followed by root 12 (11%) species, fruit; stem and whole plant with 10 (9%) species each, bark 8 (7%) species, rhizome 5 (4%) species, flower 4 (3%)species and seed 3 (3%) species (Figure 5). Based on the data we can classify remedies into two categories: those that employ (1) a single plant, and (2) more than one plants (table 3). Most traditional remedies are made with water as the main ingredient.

According to our investigation and records, medicinal plants were applied to cure 50 human diseases or ailments in the study area. Out of 113 documented plants, 20 plant species are used to cure jaundice, 15 plant species for dysentery, 13 plant species to cure leucorrhea, 11 plant species for gas trouble, 10 plant species for cough, 9 plant species for cancer, 8 plant species for menstrual problem, 7 plant species for piles, 6 plant species for urine pain, 5 plant species for boils, for internal injury; joint pain; asthma; pneumonia and tooth ache used 4 plant species each, for burn skin; kidney stone; muscle pain; ear pain; dandruff hypertension; tonsillitis; cut injury and abdominal pain used 3 plant species each, for diarrhea; wound; ring worm; stomach ache; skin disease; fever; bone fracture; malaria and tapeworm used 2 plant species each and for other diseases/ailments such as dengue; constipation; inflammation; chest pain; mumps; vision problem; anemia; obesity; heart disease; digestion problem; hayfever; pregnancy problem; smallpox; male impotent; insect bite and leprosy used 1 plant species each.

The present survey has made an effort to explore and document some important aspects of plant-based traditional skills related to ethnomedicinal plants by the mising people of the Biswanath district, Assam. Further scientific research on plant-based indigenous knowledge could open up new avenues for pharmacological research as well as the creation of eco-friendly alternatives for better livelihood.

DISCUSSION

In the present study, medicinal plants traditionally used by the mising tribe of the Biswanath district of Assam were surveyed and documented. Traditional medicine is a significant factor in most developing nations' health-care systems. (Swargiary et al., 2019) For various reasons, documentation of indigenous medicinal plant use is crucial. It helps with the preservation of

traditional history and biodiversity, as well as the search for new medicines to treat diseases (Boadu and Asase, 2017). People feel that aged people have a better understanding of ethnomedicine and have more ethnomedicinal knowledge than younger people. The current survey also found that 67.5% of the total informants were above the age of 50.

Several ethnomedicinal survey reports have indicated that traditional knowledge keepers are always illiterate, poor, and rely on agriculture for a livelihood .All of the participants were local healers with a long record of practising traditional medicine. It was also revealed that much of their knowledge of medicinal plants was passed down to them by their parents, grandparents, or other relatives who were well-versed in illnesses and their treatment.

Many other researchers have revealed that leaves are the most commonly used parts in the formulation of herbal remedies, similar to our findings (Duraipandiyan et al., 2006), (Ashfaq et al. 2019). Medicinal plants can be prepared in various ways to treat human diseases. Juice, paste, decoction, powder and solid preparation were the most prevalent techniques of preparing traditional medicines from plant material in the study area. This study found that juice preparation (40.7%) is the most commonly used method by traditional healers, followed by paste preparation (23.9%), decoction (22.12%), powder (6.2%), raw (4.42%) and solid preparation (2.7%) (Figure 4). However, decoction was also indicated as the most common method for preparing herbal medications in many ethnomedicinal survey reports. Most traditional remedies are made with water as the main ingredient. In addition to pure herbal formulations, the medicine was sometimes given with milk, honey, ghee, musturd oil, tal mishri etc. These supplement ingredients may be used to boost the effectiveness of herbal treatments or merely to make them more palatable (Tshikalange et al., 2016).

The survey findings in this study by the mising community of Biswanath district of Assam are somehow similar to previously published reports from different parts of India, although the therapeutic uses of some medicinal plants are quite different. Similar to our survey findings, Acorus calamus is used to treat abdominal pain during menstrual bleeding by the mising tribes of Dhemaji district and Jorhat district of Assam (Chetia and Das, 2018); (Gam, 2013). But the same species is used to treat inflammation of the lymph by the Buyi peoples of China (Xiong et al., 2020) and it is used to treat constipation and oedema by the tribal peoples of Bangladesh's Madhupur forest area (Islam et al., 2014). Vitex negundo is used to treat diabetes and internal injuries, while other researchers have reported that it can be used for malaria (Ayam et al., 2017) and urticaria (Saikia, 2006). Similar to our findings, Phlogacanthus thyrsiflorus is effectively used for the treatment of cough and fever by the mising tribes of Dhemaji district, Assam (Chetia and Das, 2018). Asparagus racemosus is found to be a popular medicinal plant in the study area for the treatment of jaundice, white discharge in females effectively, and it has been reported for treatment of stomach problems, constipation by the mising tribes of Sonitpur district, helminthiasis by the tribes of Chirang district of Assam and venereal diseases by the Kani tribes of the Western Ghats (Ayyanar and Ignacimuthu, 2011).

This survey also revealed that the majority of the plants mentioned by the local healers are available in the study area. Many species have disappeared from the environment as a result of recent trends of habitat destruction and reduction in forest areas, so households in the Mising tribal community keep some easily propagatable, frequently used plant species such as Mimosa pudica, Vitex negundo, Bryophyllum calycinum, Houttuynia cordata, Piper longum and others in their backyards to meet their immediate needs.

Some of the medicinal plant such as Costus speciosus, Verbena officinalis, Sida rhombifolia, Leucas aspera, Clerodendrum infortunatum, Scoparia dulcis, Asparagus racemosus, Lindernia crustacean, Mecardonia procumbens, Drymaria cordata, Terminalia arjuna, Phyla nodiflora and Eclipta prostrata were classified as a high-priority medicinal plant because of their tremendous significance in curing a various diseases.

In present days, many elements of our lives are now dominated by science and scientific advancements. People seem to disregard any practise that is not based on scientific explanation. We performed a literature survey on the plants reported during our survey to see if the traditional knowledge held by the traditional healers had any scientific basis or not. It was found that 100% of the plants surveyed possessed scientific proof of therapeutic properties. But their therapeutic uses, method of preparation and mode of administration are a little bit different.

CONCLUSION

Most of the people of Mising villages of Gohpur sub-division are situated in remote areas near the north bank of the Brahmaputra river. Because of their deep spiritual and magico-religious beliefs, they prefer traditional methods of treatment. Furthermore, the villages' isolation from modern medical systems can be regarded as a major factor in their preference for the ancient method. However, even those who live near modern medical facilities are still reliant on the traditional system to some degree.

Some medicinal plants and their traditional applications in herbal therapy are rapidly decreasing due to poor data storage, various developmental activities, and other environmental effects. As a result, a large amount of data and effective conservation techniques are urgently needed to ensure the long-term survival of these medicinal plants.

Phytochemists and pharmacologists must pay close attention to additional scientific research in order to determine the active components of plants and the development of appropriate doses of medication, which may lead to a greater belief in herbal remedies and a better understanding of human health.

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Ethical approval

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Conflict of interest

Authors does not have any conflict of interest.

Informed Consent

Participants were given full consent for data collection and publication.

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Table 1: The list of villages and their geographical location where information on traditional medicinal plants were collected.

CD BLOCK	*LIST OF VILLAGES*	*GEOGRAPHICAL LOCATION*
Pub chaiduar	1.Dhandi pather	26°50'14.136"N 93°41'42.8208"E
	2.Simaluguri baligaon	26°49'42.3294"N 93°42'11.1954"E
	3.No.1 Charaibari	26°49'18.1014"N 93°41'10.662"E
	4.Rawnamukh gaon	26°48'23.6334"N 93° 40' 11.1288"E
	5. Lokasa Bortamuli	26°47'41.0172"N 93°36'35.406"E
	6.Rawnamukh Pather	26° 48' 13.662"N 93°39'2.412"E
	7.Gajpur	26°47'55.248"N 93°40' 27.0948"E
	8.Charaibari	26°47'40.38"N 93°41'22.776"E
	9.Kutum Gaon	26° 47' 22.938"N 93° 41' 41.2434"E
	10.No.2 Beji Suti	26°48'56.3004"N 93°39'53.46"E
	11.No.1 Uzapara	26°50'44.6676"N 93°39'28.8216"E
	12.No.2 Rajabari	26°51'2.16"N 93°40'39.3708"E
	13.Kharai Pam	26°50'22.9518"N 93°39'17.046"E
	14.No.1 Chirakhowa	26°48'9.6804"N 93°38'19.842"E
	15.No.2 Uppar Tinsukia	26°50'26.0592"N 93°44'10.5108"E
	16.Pichala Miri	26°48'52.1778"N 93°44'8.3754"E
	17.No.2 Bortamuli	26°48'12.852"N 93 36'59.6514"E
	18.No.2 Chakala	26° 52' 22.35"N 93° 38' 45.9816"E
	19.No.1 Dilapakhara	26° 52' 0.228"N 93° 42' 30.9702"E
	20.Rangajan Missing	26° 55' 55.5234"N 93° 39' 39.549"E
Chaiduar	21. Purubhari	26° 51' 49.3374"N 93°36'22.5462"E
	22. Hahara pather	26° 50' 2.511"N 93° 28' 3.1506"E
	23.Lepeta Para	26° 49' 30.9714"N 93° 26' 47.58"E
	24. Mukali Gaon	26°50'17.5914"N 93°26' 52.5588"E
	25. Fatia bari	26° 51' 21.708"N 93° 26' 26.97"E

Table 2: A list of the medicinal plant species, their scientific names, local names (Mising), parts used, habits and formulation processes, and therapeutic uses.

Sl. no	*Scientific Name*	*Family*	*Local Name*	*Parts used*	*Habit*	*Preparation*	*Diseases/ ailments*	*Reference*
1	*Vitex negundo L. H/BOT/CDC/2021/519*	Lamiaceae	Pochotiya	Leaves	Shrub	Decoction	Diabetes, any kind of internal injury	Chetia and Das 2018, Ayam et al.,2017, Saikia 2006, Saikia et al., 2006
2	*Aloe barbadensis Mill H/BOT/CDC/2021/520*	Liliaceae	Salkuori	Leaves	Herb	Paste	Ringworm, burn skin	Saikia et al., 2006, Shankar et al., 2012, Chetia and Das 2018
3	*Phlogacanthus thyrsiflorus Nees H/BOT/CDC/2021/521*	Acanthaceae	Titaful	Leaves	Shrub	Decoction	Cough, pinworm, boil	Chetia and Das 2018, Sarma and Devi, 2016
4	*Bombax ceiba L. H/BOT/CDC/2021/522*	Malvaceae	Singi	Flower	Tree	Decoction	Menstrual problem, Leucorrhea, urine pain	Ayam et al., 2017, Kutum et al., 2011
5	*Cocos nucifera L. H/BOT/CDC/2021/523*	Arecaceae	Narikol	Flower	Tree	Juice	Kidney stone	Saikia et al., 2006

Sl. no	Scientific Name	Family	Local Name	Parts used	Habit	Preparation	Diseases/ ailments	Reference
6	*Datura stramonium L.* H/BOT/CDC/2021/524	Solanaceae	Dhatura	Fruit	Shrub	Decoction	muscular pain mumps, ear pain	Chetia and Das, 2018; Kutum *et al.*, 2011; Sarma and Devi, 2016
7	*Sesamum orientale L.* H/BOT/CDC/2021/525	Pedaliaceae	Til	Seed	Herb	Paste	Joint pain, hair dandruff, Diabetes	Chetia and Das, 2018
8	*Zingiber officinale Rosc.* H/BOT/CDC/2021/526	Zingiberaceae	Take	Rhizome	Herb	Powder	Cough, muscular pain, joint pain	Saikia et al., 2006, Chetia and Das 2018
9	*Cinnamomum tamala Nees & Eberm.* H/BOT/CDC/2021/527	Lauraceae	Tezpat	Leave	Shrub	Decoction	Joint pain, muscular pain	Sharma and Rao, 2014
10	*Citrus aurantifoliaL.* H/BOT/CDC/2021/528	Rutaceae	Kaji-Nemu	Fruit	Shrub	Juice	stomach ache, dysentery	Chetia and Das, 2018; Narang and Jiraungkoorskul, 2016
11	*Catharanthus roseus L.* H/BOT/CDC/2021/512	Apocynaceae	Nayantara	Leave	Herb	Juice	Diabetes, hypertention, skin disease, burn skin	Chetia and Das, 2018, Kumar *et al.*, 2022
12	*Areca catechu L.* H/BOT/CDC/2021/529	Aracaceae	Chaali	Seed	Tree	Paste	Tonsillitis	Pandey *et al.*, 2015; Peng *et al.*, 2015
13	*Piper betle L.* H/BOT/CDC/2021/530	Piperaceae	Paan	Leave	Climber	Paste	Tonsillitis, boil, cut injury, cough, urine pain	Chetia and Das., 2018
14	*Crinum asiaticum L.* H/BOT/CDC/2021/531	Amaryllidaceae	Jo:jong appun	Leave	Herb	Juice	Ear pain	Kongkw mcharoen *et al.*, 2021
15	*Dalbergia sissoo Roxb.* H/BOT/CDC/2021/532	Fabaceae	Sisu	Leave	Tree	Juice	Cancer, tonsillitis	Mannan *et al.*, 2017
16	*Murraya koenigii L.* H/BOT/CDC/2021/533	Rutaceae	Narasinga	Leave	Shrub	Decoction	Dysentery, hair dandruff, vision problem, piles	Chetia and Das 2018, Kutum *et al.*, 2011
17	*Terminalia arjuna Roxb. Ex DC.* H/BOT/CDC/2021/534	Combretaceae	Arjun	Bark	Tree	Powder	Diabetes, Anemia, Obesity, heart disease, gas trouble	Kutum *et al.*, 2011, Das and Hazarika 2015
18	*Piper longum L.* H/BOT/CDC/2021/511	Piperaceae	Pipoli	Fruit	Climber	Powder	Asthma, cough, fever.	Ayam *et al.*, 2017
19	*Nyctanthes arbortristisL.* H/BOT/CDC/2021/501	Oleaceae	Sewali	Tender Leave	Herb	Juice	Asthma, cough, fever.	Chetia and Das, 2018
20	*Ocimum sanctum L.* H/BOT/CDC/2021/535	Lamiaceae	Tulohi	Tender leave	Herb	Juice	Asthma, cough, pneumonia, Leucorrhea	Panging and Sharma, 2017
21	*Curcuma longa L.* H/BOT/CDC/2021/536	Zingiberaceae	Haladhi	Rhizome	Herb	Juice	Cough, abdominal pain, gas trouble	Chetia and Das 2018
22	*Curcuma caesia Roxb.* H/BOT/CDC/2021/537	Zingiberaceae	Kola haladhi	Rhizome	Herb	Juice	Cough, Pneumonia	Chetia and Das, 2018
23	*Piper nigram L.* H/BOT/CDC/2021/538	Piperaceae	Jaluk	Fruit	Herb	Powder	Cough	Takooree *et al.*, 2019
24	*Mentha spicata L.* H/BOT/CDC/2021/539	Lamiaceae	Podina	Leaves	Herb	Paste	Pimples, improve digestion	Kutum *et al.*, 2011
25	*Mangifera indica L.* H/BOT/CDC/2021/540	Anacardiaceae	Ke:di	Tender leave	Tree	Juice	Diabetes, dysentery, kidney stone, abdominal pain	Chetia and Das 2018

Sl. no	Scientific Name	Family	Local Name	Parts used	Habit	Preparation	Diseases/ ailments	Reference
26	*Eclipta prostrata L.* H/BOT/CDC/2021/518	Asteraceae	Keyaras	Stem	Herb	Juice	Menstrual problem, jaundice	Das and Hazarika 2015
27	*Costus speciosus (J.Koenig) Sm.* H/BOT/CDC/2021/541	Costaceae	Peki jigjig	Root	Herb	Juice	Menstrual problem, urine pain, piles	Chetia and Das 2018
28	*Alpinia nigra (Gaertn.)B.L.Burtt* H/BOT/CDC/2021/542	Zingiberaceae	Tora	Rhizome	Herb	Juice	Menstrual problem	Ayam *et al.*, 2017
29	*Chrysopogon zizanioides L.* H/BOT/CDC/2021/543	Poaceae	Birina	Root	Grass	Juice	Menstrual problem	Grover *et al.*, 2021
30	*Centella asiatica Urb.* H/BOT/ CDC/2021/509	Apiaceae	Bor-manimuni	Whole plant	Herb	Juice	Menstrual problem, jaundice, Leucorrhea	Kutum *et al.*, 2011
31	*Hydrocotyle sibthorpioides L.* H/BOT/CDC/2021/544	Apiaceae	Harumanimuni	Whole plant	Herb	Juice	Menstrual problem, gas trouble, jaundice, Leucorrhea	Husin *et al.*, 2015
32	*Allium sativum L.* H/BOT/CDC/2021/545	Liliaceae	Kampuntalab	Bulbous root	Herb	Paste	Cancer, hypertension	Kutum *et al.*, 2011
33	*Amaranthus spinosus L.* H/BOT/CDC/2021/546	Amaranthaceae	Genyak	Root	Herb	Paste	Cancer	Chetia and Das 2018
34	*Leucas aspera Link* H/BOT/CDC/2021/516	Lamiaceae	Durun	Root	Herb	Paste	Cancer, gas trouble	Das and Pathak 2013
35	*Nicotiana tabacum L.* H/BOT/CDC/2021/547	Solanaceae	Sadha	Leave	Herb	Paste	Cancer	Binorkar and Jani, 2012
36	*Ficus hispida L.* H/BOT/CDC/2021/548	Moraceae	Takuk	Leave	Shrub	Decoction	Hayfever, stomach ache	Ali and Chaudhary, 2011
37	*Cynodon dactylon(L.) Pers.* H/BOT/CDC/2021/549	Poaceae	Dubori bon	Leave	Herb	Paste	Cut injury	Chetia and Das 2018
38	*Ricinus communis L.* H/BOT/CDC/2021/550	Euphorbiaceae	Erapat	Bark	Shrub	Paste	joint pain, bone fracture	Das and Hazarika, 2015
39	*Mimusops elengi L.* H/BOT/CDC/2021/551	Sapotaceae	Bokul	Bark	Tree	Powder	Tooth ache	Chetia and Das, 2018
40	*Clitoria ternatea L.* H/BOT/CDC/2021/552	Fabaceae	Aporajita	Leave	Herb	Decoction	Pregnancy related problem	Das and Hazarika, 2015
41	*Mimosa pudica L.* H/BOT/CDC/2021/553	Mimosaceae	Nilajiban	Root	Herb	Juice	Malaria, jaundice	Chetia and Das 2018, Das and Pathak, 2013
42	*Azadiracta indica A. Juss.* H/BOT/CDC/2021/554	Meliaceae	Moha Neem	L eave	Tree	Decoction	Skin disease, Tapeworm, diabetes	Kutum *et al.*, 2015; Panging and Sharma, 2017
43	*Hibiscus rosa-sinensis L.* H/BOT/CDC/2021/503	Malvaceae	Gokhai appun	Flower	Shrub	Paste	Smallpox, dandruff	Chetia and Das 2018, Saikia *et al.*, 2006
44	*Calamus rotang L.* H/BOT/CDC/2021/555	Arecaceae	Jeying	Tender stem	Climber	Decoction	Intestinal worm	Chetia and Das 2018, Kutum *et al.*, 2015,
45	*Cucurbita maxima Duch.* H/BOT/CDC/2021/556	Cucurbitaceae	Tapa	Seed	Climber	Decoction	Impotent of male	Dubey, 2012
46	*Capsicum annum L.* H/BOT/CDC/2021/557	Solanaceae	Mirsi	Leave	Herb	Paste	poisonous insect bite	Das and Hazarika, 2015

Sl. no	Scientific Name	Family	Local Name	Parts used	Habit	Preparation	Diseases/ ailments	Reference
47	*Calotropis gigantea W. T. Aiton H/BOT/CDC/2021/558*	Asclepiadaceae	Akon	Leave	Herb	Paste	Leprosy, cancer	Chetia and Das 2018, Sarma and Devi2016
48	*Lagenaria siceraria Standl. H/BOT/CDC/2021/559*	Cucurbitaceae	Jatilao	Tender leave	Climber	Decoction	Menstrual problem, burn injury	Chetia and Das 2018,
49	*Molineria capitulataLour. H/BOT/CDC/2021/560*	Hypoxidaceae	Chali bon	Root	Herb	Juice	Leucorrhea	Shovo *et al.*, 2021
50	*Verbena officinalis L. H/BOT/CDC/2021/561*	Verbenaceae	Dumsungkori	Root	Herb	Solid preparation	Pneumonia, jaundice	Khan *et al.*, 2016
51	*Cascabela thevetia (L.) Lippold H/BOT/CDC/2021/562*	Apocynaceae	Karabi appun	Leave	Tree	Decoction	Ear pain	Chetia and Das, 2018; Shankar *et al.*, 2012
52	*Tinospora cordifolia Willd. Miers H/BOT/CDC/2021/563*	Menispermaceae	Amor lota	Stem	Climber	Paste	Bone fracture	Ayam *et al.*, 2015
53	*Mikania micrantha Kunth. H/BOT/CDC/2021/564*	Asteraceae	Yokmolota	Leave	Climber	Juice	Dysentery, wounds	Chetia and Das 2018; Panging and Sharma, 2017
54	*Portulaca grandifloraHook. H/BOT/CDC/2021/565*	Portulacaceae	Duporiya appun	Leave	Herb	Juice	Tapeworm	Mihailovic *et al.*, 2015
55	*Tagetes erecta L. H/BOT/CDC/2021/502*	Asteraceae	Narjiful	Leave	Herb	Paste	Wounds	Chetia and Das, 2018; Das and Hazarika, 2015
56	*Sida acuta L. H/BOT/CDC/2021/566*	Malvaceae	Xharu bon	Leave	Herb	Paste	Inflammation, Boils	Shankar *et al.*, 2012; Saikia *et al.*, 2006
57	*Erythrina strictaRoxb. H/BOT/CDC/2021/567*	Fabaceae	Modar	Bark	Tree	Paste	Imflammation, Boils, Leucorrhea	Chetia and Das 2018
58	*Urena lobota L. H/BOT/CDC/2021/507*	Malvaceae	Sokamora	Root	Herb	Juice	Asthma	Mazumder *et al.*, 2001
59	*Musa sapientum L. H/BOT/CDC/2021/568*	Musaceae	Bhimkol	Fruit	Herb	Juice	Leucorrhea	Chetia and Das 2018,
60	*Sida rhombifolia L. H/BOT/CDC/2021/569*	Malvaceae	Umbori bon	Leave	Herb	Juice	Jaundice	Sharma and Hazarika, 2018
61	*Acorus calamus L. H/BOT/CDC/2021/570*	Acoraceae	Alokoni	Rhizome	Herb	Juice	Jaundice, abdominal pain, gas trouble, piles	Ayam *et al.*, 2017; Saikia, 2006
62	*Terminalia chebula Retz. H/BOT/CDC/2021/571*	Combretaceae	Hilikha	Fruit	Tree	Raw	Diarrhea, dysentery, gas trouble	Sarma and Devi,2016; Panging and Sharma, 2017
63	*Ziziphus jujuba Lam. H/BOT/CDC/2021/572*	Rhamnaceae	Bogori	Bark	Tree	Juice	Gas trouble	Chetia and Das 2018; Chen *et al.*, 2017
64	*Phyllanthus emblica L. H/BOT/CDC/2021/573*	Euphorbiaceae	Amlakhi	Fruit	Tree	Raw	Gas trouble, diarrhea, dysentery, jaundice	Kutum et al., 2011; Krishnaveni and Mirunalini, 2010
65	*Alternanthera sessilis (L.) DC. H/BOT/CDC/2021/574*	Amaranthaceae	Adi: pata	Tender leave	Herb	Juice	Jaundice	Chetia and Das, 2018; Sarma and Devi, 2016
66	*Clerodendrum infortunatum L. H/BOT/CDC/2021/575*	Verbenaceae	Lomba domba	Tender leave	Herb	Juice	Diabetes, dysentery, chest pain, Pneumonia	Swargiary *et al.*, 2019
67	*Ficus lamponga Miq. H/BOT/CDC/2021/576*	Moraceae	Tajik	Tender leave	Tree	Juice	Leucorrhea	Ayam *et al.*, 2017
68	*Scoparia dulcis L. H/BOT/CDC/2021/504*	Scrophulariaceae	Tine bon	Leave	Herb	Juice	Leucorrhea	Kutum *et al.*, 2011; Shankar *et al.*, 2012; Mishra *et al.*, 2013

Sl. no	Scientific Name	Family	Local Name	Parts used	Habit	Preparation	Diseases/ ailments	Reference
69	*Oldenlandia corymbosa L.* H/BOT/CDC/2021/505	Rubiaceae	Bonjaluk	Whole plant	Herb	Juice	Jaundice	Bhuyan 2015; Sharma and Hazarika, 2018
70	*Jatropha curcas L.* H/BOT/CDC/2021/577	Euphorbiaceae	Bangali era	Stem	Shrub	Powder	Toorh ache	Sarma and Devi, 2016; Saikia *et al.*, 2006
71	*Cassia alata L.* H/BOT/CDC/2021/578	Caesalpiniaceae	Khorgos	Leave	Shrub	Paste	ringworm	Chetia and Das 2018; Sharma and Hazarika' 2018
72	*Cassia fistula L.* H/BOT/CDC/2021/579	Caesalpiniaceae	Hunaru	Leave	Tree	Decoction	Constipation	Das and Hazarika, 2015; Kutum *et al.*, 2011; Mwangi *et al.*, 2021
73	*Mimordica charantiaDescourt.* H/BOT/CDC/2021/580	Cucurbitaceae	Kerela	Leave	Climber	Decoction	Diabetes	Joseph and Jini, 2013
74	*Psidium guajava L.* H/BOT/CDC/2021/581	Myrtaceae	Madhuriam	Leave	Tree	Juice	Dysentery	Kumar *et al.*, 2021; Das and Hazarika, 2015
75	*Streblus asper Lour.* H/BOT/CDC/2021/582	Moraceae	Bullati	Tender stem	Shrub	Paste	Tooth ache	Saikia *et al.*, 2006, Sarma and Devi, 2016, Rasrogi *et al.*, 2006
76	*Eleusine indica (L) Gaertn.* H/BOT/CDC/2021/500	Poaceae	Kumting bon	Stem	Herb	Juice	Leucorrhea	Sagnia *et al.*, 2014
77	*Cyperus rotundus L.* H/BOT/CDC/2021/583	Cyperaceae	Ek sensor	Bulbous root	Herb	Juice	Leucorrhea	Chetia and Das, 2018; Sharma and Hazarika, 2018; Pirzada *et al.*, 2015
78	*Asparagus racemosus Wild* H/BOT/CDC/2021/584	Liliaceae	Otmul	Root	Herb	Juice	Internal injury, Leucorrhea, Jaundice	Sharma and Hazarika, 2018; Sarma and Devi, 2016
79	*Cajanus cajan (L) Millsp.* H/BOT/CDC/2021/585	Leguminaceae	Gos dali	Tender stem	Shrub	Paste	Jaundice	Ayam *et al.*, 2017; Saikia *et al.*, 2006
80	*Lindernia crustacean (L.) F.Muell.* H/BOT/CDC/2021/586	Linderniaceae	Kusere bon	Whole plant	Herb	Solid preparation	Jaundice	Tsai *et al.*, 2020
81	*Mecardonia procumbens Mill. Small* H/BOT/CDC/2021/513	Plantaginaceae	Kusere aming	Whole plant	Herb	Solid preparation	Jaundice	Das and Ghosh, 2017
82	*Alstonia scholaris (L.)R.Br.* H/BOT/CDC/2021/514	Apocynaceae	Cha:ti	Bark	Tree	Decoction	Malaria	Chetia and Das, 2018; Ayam *et al.*, 2017; Baliga, 2012
83	*Papaya Carica L.* H/BOT/CDC/2021/587	Caricaceae	Amita	Leaves	Tree	Juice	Dengue	Chetia and Das, 2018; Saikia *et al.*, 2006
84	*Duchesnea indica (Andrews) Th.Wolf* H/BOT/CDC/2021/506	Rosaceae	Gorugudali	Whole plant	Herb	Juice	Internal injury	Chetia and Das,2018; Zhao *et al.*, 2008
85	*Cayratia trifolia (L.) Domin* H/BOT/CDC/2021/588	Vitaceae	Dole nekung	Whole plant	Climber	Juice	Internal injury	Kumar *et al.*, 2011
86	*Pteridium aquilinum (L.) Kuhn* H/BOT/CDC/2021/58	Polypodiaceae	Rukji	Leave	Herb	Decoction	Urine problem	Chetia and Das 2018
87	*Spondias pinnata (L.f.) Kurz* H/BOT/CDC/2021/590	Anacardiaceae	Dorge	Leave	Tree	Decoction	Gas trouble, dysentery	Chetia and Das, 2018; Sharma and Hazarika, 2018

Sl. no	Scientific Name	Family	Local Name	Parts used	Habit	Preparation	Diseases/ ailments	Reference
88	*Tamarindus indica L.* H/BOT/CDC/2021/591	Caesalpiniaceae	Teteli	Fruit	Tree	Raw	Gas trouble, hypertention, dysentery, piles	Chetia and Das, 2018; Kutum *et al.*, 2011
89	*Colocasia esculenta (L.) Schott.* H/BOT/CDC/2021/592	Araceae	kochu	Stem	Herb	Decoction	Piles	Ayam *et al.*, 2017; Kutum *et al.*, 2011
90	*Cinnamomum verum J.Presl* H/BOT/CDC/2021/593	Lauraceae	Dalcheni	Bark	Tree	Paste	Cough	Chetia and Das, 2018
91	*Spilanthes paniculata Wall.ex DC.* H/BOT/CDC/2021/508	Asteraceae	Marchang	Flower	Herb	Paste	Tooth ache	Sharma and Hazarika, 2018; Kutum *et al.*, 2011; Dubey *et al.*, 2013
92	*Ageratum conyzoides L.* H/BOT/CDC/2021/594	Asteraceae	Gendela bon	Leave	Herb	Paste	Cut injury	Chetia and Das, 2018; Ayam et al., 2017
93	*Bryophyllum Calycinum Salisb.* H/BOT/CDC/2021/595	Crassulaceae	Dupartenga	Leave	Herb	Juice	Kidney stone, urine pain, jaundice	Chetia and Das, 2018; Gam, 2013
94	*Abelmoschus moschatus Medik.* H/BOT/CDC/2021/596	Malvaceae	Ui-sipak	Leave	Herb	Paste	Cancer	Ayam *et al.*, 2017; Gul *et al.*, 2011
95	*Terminalia bellirica (Gaertn.)Roxb.* H/BOT/CDC/2021/597	Combretaceae	Bhomora	Fruit	Tree	Raw	Gas trouble	Das and Hazarika' 2015; Saikia *et al.*, 2006; Gupta *et al.*, 2020
96	*Saccharum officinarum L.* H/BOT/CDC/2021/598	Poaceae	Tabad	Stem	Grass	Juice	Jaundice, piles	Chetia and Das, 2018; Bhuyan, 2015
97	*Paederia scandens (Lour.) Merr.* H/BOT/CDC/2021/599	Rubiaceae	Bunkirupuk	Leave	Climber	Juice	Jaundice, dysentery, piles	Chetia and Das, 2018
98	*Chrysopogon aciculatus (Retz.)Trin* H/BOT/ CDC/2021/600	Poaceae	Kalosa niktak	Root	Herb	Juice	Jaundice	Zihad *et al.*, 2018
99	*Drymaria cordata L. Willd. Ex Schult.* H/BOT/CDC/2021/510	Carryophyllaceae	Dobag	Whole plant	Herb	Juice	Leucorrhea	Kutum *et al.*, 2011; Pandey *et al.*, 2015; Panging and Sharma, 2017
100	*Clerodendrum colebrookianum Walp.* H/BOT/CDC/2021/601	Verbenaceae	Pakkom	Tender leave	Herb	Decoction	Intestinal worm	Kutum *et al.*, 2011; Sharma and Hazarika, 2018
101	*Artocarpus lacucha Buch. Ham* H/BOT/CDC/2021/602	Moraceae	Liro	Leave	Tree	Powder	Cancer	Shafaq *et al.*, 2022
102	*Phyla nodiflora L. Greene* H/BOT/CDC/2021/515	Verbenaceae	Aluki mirsi	Whole plant	Herb	Juice	Eye disease, Jaundice	Ayam *et al.*, 2017
103	*Houttuynia cordata Thunb* H/BOT/CDC/2021/603	Saururaceae	Mochundori	Leaves	Herb	Decoction	Dysentery	Ayam *et al.*, 2017; Kumar *et al.*, 2014
104	*Sarcochlamys pulcherrima Gaudich.* H/BOT/CDC/2021/517	Urticaceae	Ombey	Tender leaves	Shrub	Decoction	Dysentery	Pandey *et al.*, 2015; Ayam *et al.*, 2017; Mazumder *et al.*, 2015
105	*Andrographis paniculata Burm.f.* H/BOT/CDC/2021/604	Acanthaceae	Serota	Leaves	Herb	Decoction	Diabetes	Daimari *et al*, 2019
106	*Euphorbia neriifolia L.* H/BOT/CDC/2021/605	Euphorbiaceae	Hiju	Leaves	Herb	Paste	Boils	Sultana *et al.*, 2022

Sl. no	Scientific Name	Family	Local Name	Parts used	Habit	Preparation	Diseases/ ailments	Reference
107	*Litsea salicifolia (Roxb. ex Nees) Hook. f.* H/BOT/CDC/2021/606	Lauraceae	Digloti	Leaves	Shrub	Decoction	Dysentery	Pandey *et al.*, 2015
108	*Smilax perfoliata Lour.* H/BOT/CDC/2021/607	Smilacaeae	Yorik	Tender leaves	Climber	Paste	Cancer	Ayam *et al.*, 2017
109	*Eugenia jambolana L.* H/BOT/CDC/2021/608	Myrtaceae	Jamu	Bark	Tree	Juice	Dysentery	Panging and Sharma, 2017
110	*Solanum torvum Sw.* H/BOT/CDC/2021/609	Solanaceae	Banko	Fruit	Shrub	Raw	Intestinal worm	Ayam *et al.*, 2017
111	*Oxalis corniculata L.* H/BOT/CDC/2021/610	Oxalidaceae	Tengesi tenga	Whole plant	Herb	Juice	Urine pain	Ayam *et al.*, 2017
112	*Bambusa balcooa Roxb.* H/BOT/CDC/2021/611	Poaceae	Bholuka bah	Tender leaves	Grass	Decoction	Menstrual problem	Das and Pathak, 2013
113	*Laeisa spinosa L. Thwaites* H/BOT/CDC/2021/612	Araceae	Ngereg	Stem	Herb	Juice	Jaundice	Ayam *et al.*, 2017

Table 3: Polyherbal formulation and mode of administration of some diseases

Disease	Treatmet type	Medicinal plant	Part used	Ingredients	preparation of drugs and mode of administration
Jaundice	1	Lindernia crustacean	Whole plant		All the mentioned medicinal plant parts are ground together and made into small, solid pills. Pills are taken twice per day, orally.
		Mecardonia procumbens	Whole plant		
		Sida rhombifolia	Leave		
		Verbena officinalis	Root		
		Acorus calamus	Rhizome		
		Piper nigram	Fruits		
	2	Hydrocotyle sibthorpioides	Whole plant		Parts of all the medicinal plants mentioned are ground together and juice is extracted from them. Juice is taken orally.
		Mimosa pudica	Leave		
		Alternanthera sessilis	Shoot apex		
	3	Citrus aurantifolia	Leaves		Twenty one and eleven leaves of Citrus aurantifolia and Piper betle, respectively, are taken and ground with 4-5 seeds of P. nigram and juice extracted. Juice is taken orally.
		Piper betle	Leaves		
		Piper nigram	Fruits		
	4	Costus speciosus	Rhizome	Milk, Talmisri	50 ml of juice is extracted from the rhizome of C. speciosus and the fruit of Phyllanthus emblica and 50 gms of talmisri put into the juice and mixed properly. Prepared juice is taken orally with 250 ml of milk. Continue for up to 30 days.
		Phyllanthus emblica	Fruits		
Piles	1	Murraya koenigii	Leaves		All the mentioned medicinal plant parts ground together and extracted juice is taken orally along with 3-5 years old stem juice of S. officinarum.
		Acorus calamus	Rhizome		
		Costus speciosus	Rhizome		
		Saccharum officinarum	Stem		
		Paederia scandens	Leaves		
	2	Tamarindus indica	Leaves		Decoction of leaves and stems is taken with meals once daily for 30 days.
		Colocasia esculenta	Leaves		

Disease	*Treatmet type*	*Medicinal plant*	*Part used*	*Ingredients*	*preparation of drugs and mode of administration*
Menorrhagia	1	Eclipta prostrate	Stem	Talmisri	400 mL Eclipta prostrate stem juice, 500 mL Costus speciosus and Alpinia nigra rhizome juice, 2 mL Chrysopogon zizanioides root juice, and 100 mL
		Costus speciosus	Rhizome		
		Alpinia nigra	Rhizome		
		Piper nigram	Fruits		
		Chrysopogon zizanioides	Roots		
		Hydrocotyle sibthorpioides	Whole plant		Hydrocotyle sibthorpioides plant juice are mixed and a small amount of piper nigram fruit powder and talmisri are added to the mixture. Preparedjuice is taken orally for one week.
Leucorrhea	1	Asparagus racemosus	Root	Milk	Asparagus racemosus root and Hydrocotyle sibthorpioides are crushed together and juice is taken with 250 ml of milk on an empty stomach for 30 days.
		Hydrocotyle sibthorpioides	Whole plant		
	2	Scoparia dulcis	Shoot apex	Milk	The shoot apex of Scoparia dulcis, Streblus asper, Ficus lamponga, Ocimum sanctum, and Bombax ceiba are crushed together and juice is extracted. The juice is taken orally with 200 ml of milk.
		Streblus asper	Shoot apex		
		Ficus lamponga	Shoot apex		
		Hydrocotyle sibthorpioides	Whole plant		
		Ocimum sanctum	Shoot apex		
		Bombax ceiba	Root		
	3	Eleusine indica	Stem		The same amount of Eleusine indica stem, Cyperus rotundus root, Erythrina stricta bark along with the stems and leaves of Centella asiatica and Hydrocotyle sibthorpioides, are crushed together and juice is extracted and the juice is taken orally.
		Cyperus rotundus	Bulbous root		
		Erythrina stricta	Bark		
		Centella asiatica	Whole plant		
		Hydrocotyle sibthorpioides	Whole plant		
Asthma	1	Piper longum	Fruits		Three to four seeds of Piper longum, the shoot apex of Nyctanthes arbortristis, and Ocimum sanctum are crushed and juice is taken orally three times per day.
		Nyctanthes arbortristis	Shoot apex		
		Ocimum sanctum	Shoot apex		
	2	Verbena officinalis	Root		The same amount of Ocimum sanctum leaves and Curcuma caesia, along with Curcuma caesia rhizome, are crushed together and the juice is taken orally three times per day.
		Curcuma caesia	Rhizome		
		Ocimum sanctum	Leaves		
Cancer	1	Allium sativum	Bulbous root	Makardhwaj	All the mentioned medicinal plant parts, along with makardhwaj, are ground together to prepare a soft paste and applied surface to the affected region.
		Amaranthus spinosus	Root		
		Leucas aspera	Root		
		Nicotiana tobacum	Leave		
		Piper nigram	Fruit		
	2	Artocarpus lacucha	Leave	Opium	All five of the aforementioned leaves are cut into tiny pieces with a shirf knife, dried in a hot container, and properly mixed with a small amount of opium. After that, the mixture is made into cigarettes. Now it operates like a cigarette smoker, but here the smoke is only held in the mouth, not inhaled. It is only applicable for mouth and throat cancer.
		Calotropis gigantean	Leave		
		Piper betle	Leave		

Table 4: List of medicinal plant families and number of species

Sl no	*Family name*	*Number of plant species*	*Percentage(%)*
1	Lamiaceae	4	7.14
2	Liliaceae	3	5.36
3	Malvaceae	6	10.71
4	Arecaceae	3	5.36
5	Solanaceae	4	7.14
6	Pedaliaceae	1	1.79
7	Zingiberaceae	4	7.14
8	Lauraceae	3	5.36
9	Rutaceae	2	3.57
10	Apocynaceae	3	5.36
11	Piperaceae	3	5.36
21	Amaryllidaceae	1	1.79
13	Fabaceae	3	5.36
14	Combretaceae	3	5.36
15	Oleaceae	1	1.79
16	Anacardiaceae	2	3.57
17	Asteraceae	5	8.93
18	Costaceae	1	1.79
19	Poaceae	6	10.71
20	Apiaceae	2	3.57
21	Amaranthaceae	2	3.57
22	Moraceae	4	7.14
23	Euphorbiaceae	4	7.14
24	Sapotaceae	1	1.79
25	Mimosaceae	1	1.79
26	Meliaceae	1	1.79
27	Cucurbitaceae	3	5.36
28	Asclepidaceae	1	1.79
29	Hypoxidaceae	1	1.79
30	Verbenaceae	1	1.79
31	Vitaceae	2	3.57
32	Portulacaceae	1	1.79
33	Musaceae	1	1.79
34	Acoraceae	1	1.79
35	Rhamnaceae	1	1.79
36	Scrophulariaceae	2	3.57
37	Rubiaceae	2	3.57
38	Caesalpiniaceae	3	5.36
39	Myrtaceae	2	3.57
40	Cyperaceae	1	1.79
41	Linderniaceae	1	1.79
42	Plantaginaceae	1	1.79
43	Caricaceae	1	1.79
44	Rosaceae	1	1.79
45	Crassulaceae	1	1.79
46	Carryophylaceae	1	1.79
47	Leguminaceae	1	1.79

48	Saururaceae	1	1.79
49	Urticaceae	1	1.79
50	Acanthaceae	2	3.57
51	Polypodiaceae	1	1.79
52	Anacardiaceae	1	1.79
53	Araceae	2	3.57
54	Smilaceae	1	1.79
55	Oxalidaceae	1	1.79
56	Menispermaceae	1	1.79

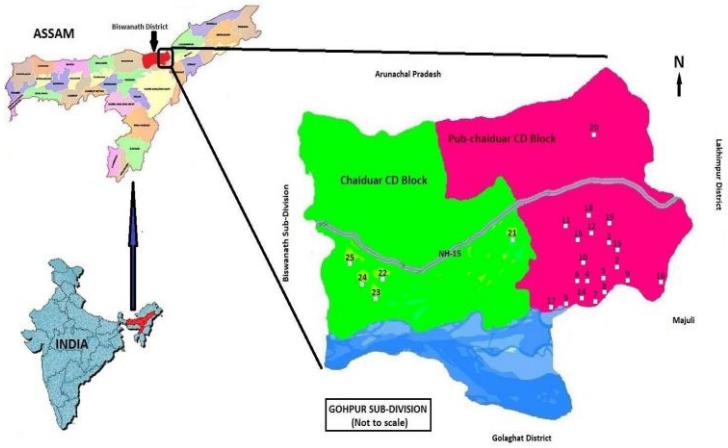

Fig.1: Geographical location of informants of Gohpur Sub-Division, Biswanath district depicted on map

PROFORMA FOR COLLECTING FIELD DATA ON MEDICINAL PLANTS

1. Tribe: Mising
Gender (Male/Female): Male
Experience (5/5-10/10 above): 10 years above
Age (below 15/15-40/40 above): 40 years above
Locality: Gohpur
Occupation: cultivator & traditional healing practices.
2. Name of disease: Cough
3. Number of diseases cured: More than 50
4. Data on plant:
(a) Scientific Name: Ocimum sanctum L.
(b) Vernacular Name: Tulshi
(c) Family: Lamiaceae
(d) Habitat: It is native to India and grows in moist soil all over the globe.
(e) Fruit characteristics:
(f) Flower colour: Purple
(g) Collection and identified: It is collected from home garden and it is an erect-
(h) Photograph: much branched sub-shrubs 20-60 cm tall with simple opposite green or purple leaves.
5. Description of the drug:
(a) Time of collection: June, 2021
(b) Method of preparation of the drug (Natural form/Crushed/Juice/Decoction/Poultice/Soft Paste/Solid preparation/Powder): Juice preparation
(c) Zone of application (Internal/External): Internal
(d) Ingredients used: Honey
(e) Mode of administration: Oral
(f) Preservation of the drug (Y/N): No.
(g) Plant part used as medicine (Root/Stem/Leaf/Flower/Fruit/Seed/Root bark/Stem bark/Latex/Gum): Leaves
(h) Therapeutic indications:
(1) Dosage: 50ml / Day
(2) Person:
(3) Diet restrictions: Sweets is not allowed.
(4) Side effects: No
6. Reason for considering it as a medicine:
(a) Medico-religious belief.
(b) Traditional.
(c) Personal experience of healers.
(d) Strong belief on herbal drugs.
(e) Number of persons treated.
(f) Number of persons cured.

Fig. 2: Field datasheet format for documenting plant information along with ethnomedicinal Knowledge

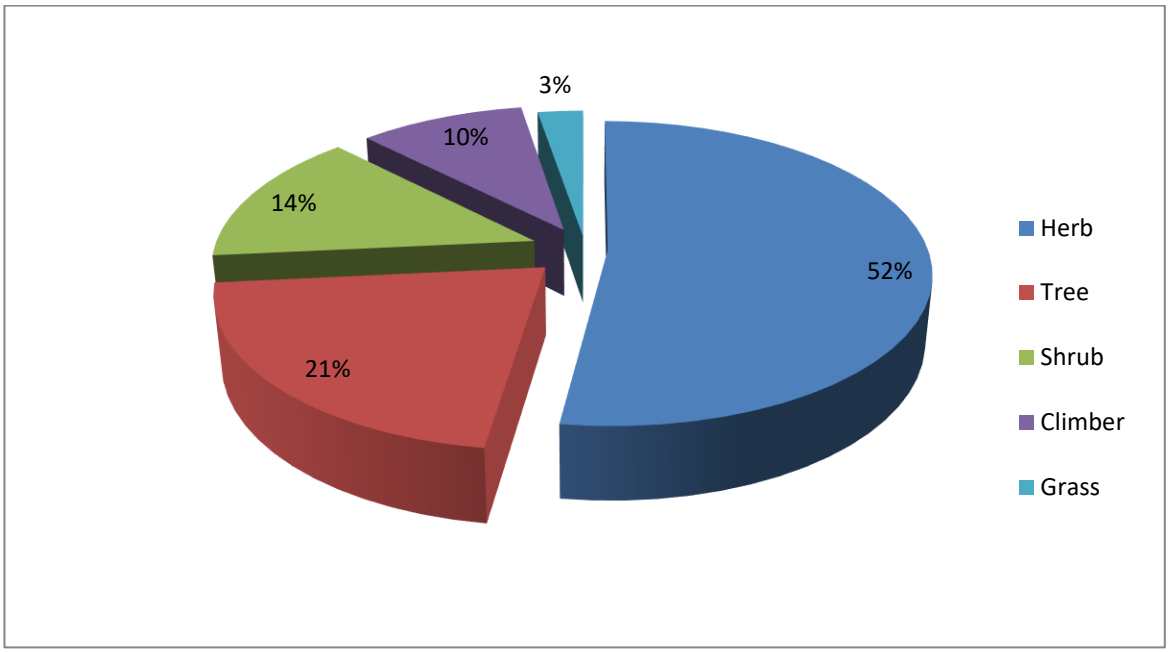

Fig.3: Percentage of life forms of medicinal plant used by the study area

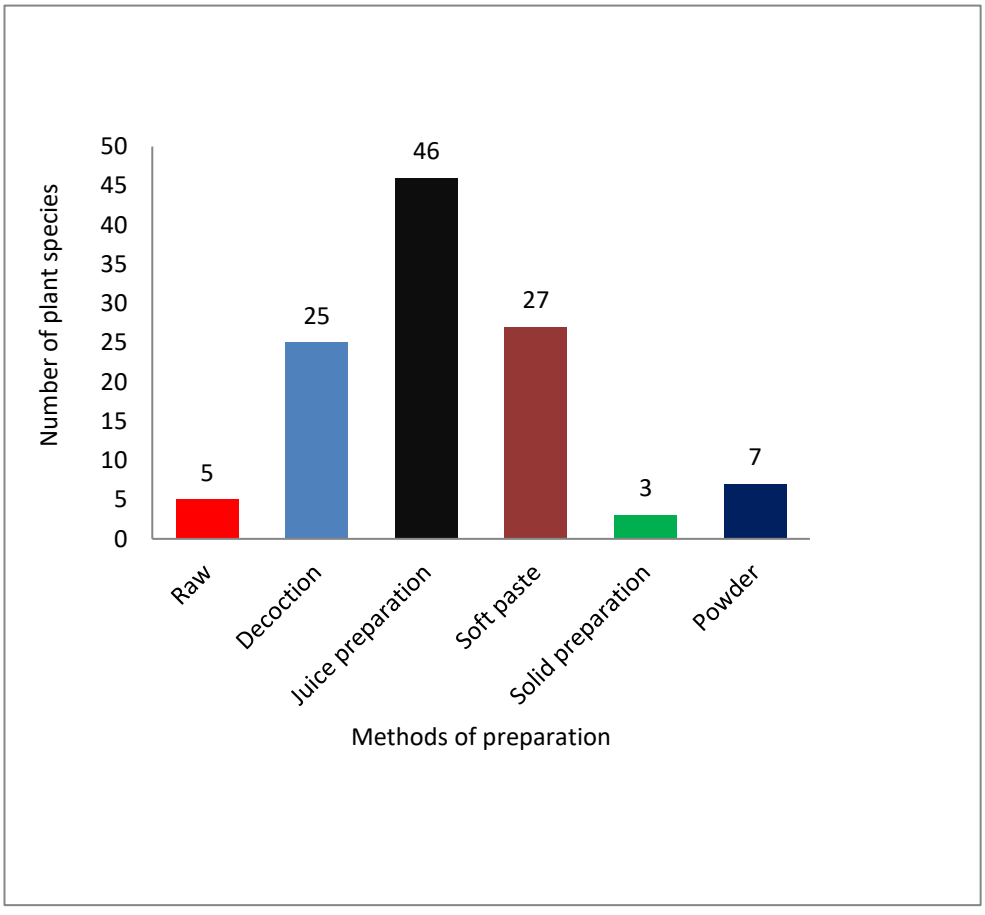

Fig. 4: Preparation methods of medicinal plant in the study area

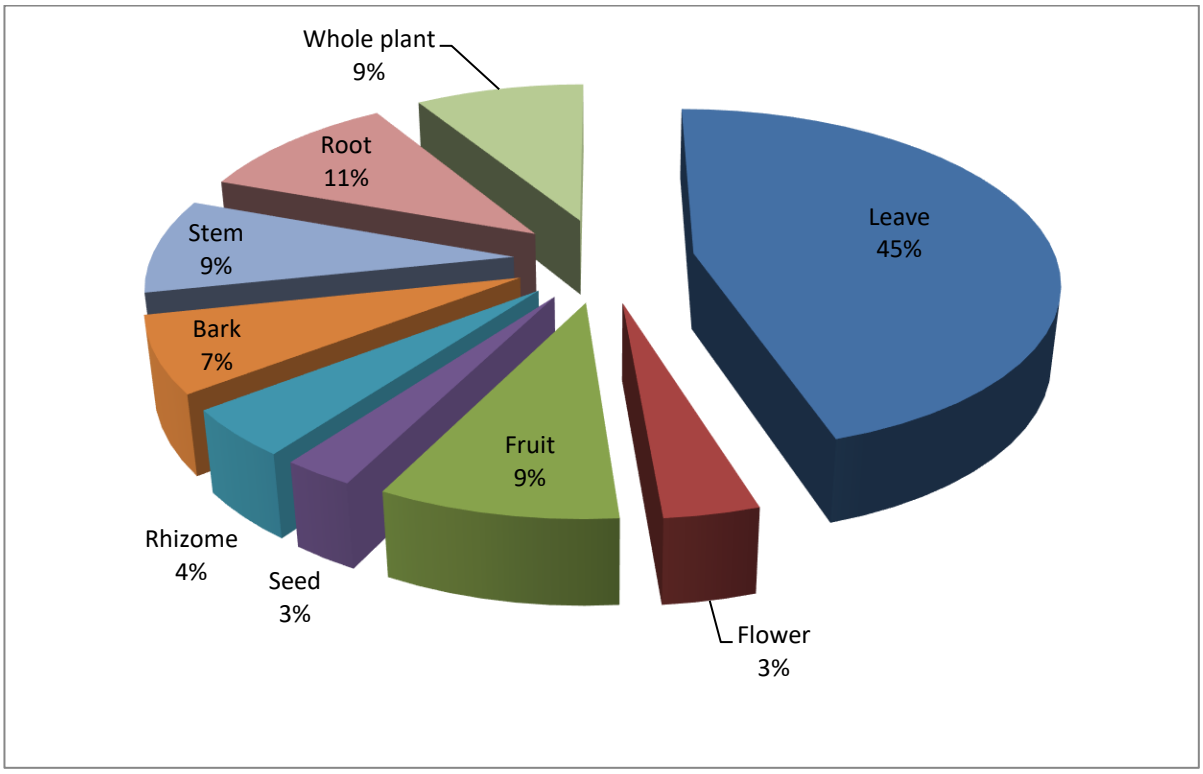

Fig.5: Percentage of medicinal plant parts used in the study area

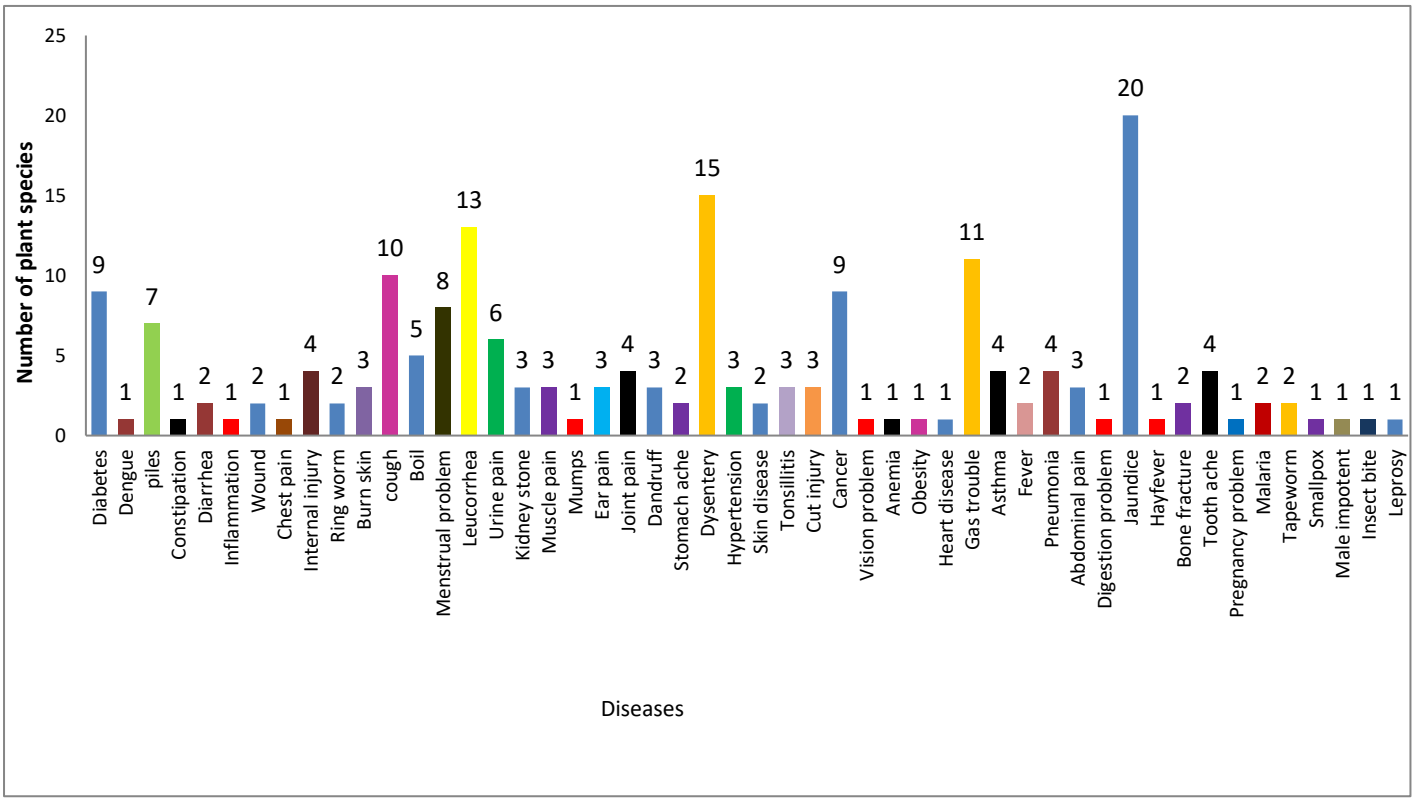

Fig.6: Number of medicinal plant used against diseases in the study area