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TRADITIONAL USE OF SOME ETHNOMEDICINAL PLANTS BY AHOM COMMUNITY IN CHENGALIJAN VILLAGE OF DIBRUGARH DISTRICT, ASSAM, INDIA

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Abstract

Human culture has been augmented by plants and plants products since time immemorial. North East states of India are one of the biggest repositories of medicinal as well as aromatic plants in the World. The present article exclusively deals with medicinal plants used by Ahom community which are used for treating various ailments and diseases in their day today life. During the investigation 42 plant species are recorded and all are angiospermic plants belonging to 84% among them was dicots and other 16% among them was monocot. Further analysis of results shows that 34% species are herbaceous and leaves were highly used in treatment diseases (32%). Hence from this study it was revealed that the Ahom tribe is primarily dependent on medicinal plant for the treatment of various ailments and such study might help to highlight important aspects on medicinal plants used by the tribe and also validate the same for future drug discovery process.

Key words: Ethnomedicine, Medicinal plant, Traditional knowledge, Ahom tribe.

Introduction

Human culture has been augmented by plants and plants products since time immemorial. Human use of plants as a source of medicine since the middle Paleolithic age *i.e* from around 60,000 years ago and has learnt to identify and use plants according to their needs. Primitive people used plants to cure various disease ailments and the information was passed on verbally from generation after generation (Puspangadan and Atal, 1984). About 80-85% of world population uses herbal medicines for prevention and treatment of various diseases and the demand is become increasing day by day (Abramov, 1996). The history of traditional practices against the various ailments in India can be traced to remote past and it indicates a rich indigenous knowledge of the tribal and rural populations. Plants have been used as a medicinal agent since ancient times, first only on a folkloric basis but now it's become developed on a scientific way (Lee, 2004). The use of traditional herbal medicine for the treatment of disease has great relevance today because of high cost of modern medical care, which is beyond the reach of poor people (Buragohain, 2011). Herbal remedies are now enjoying widespread popularity throughout the world (Almeida *et al*., 2006; Vieura and Skorupa, 1993).

Traditional herbal medicine is an important component of primary health care system in developing countries like India; it is considered as safe, effective and inexpensive and the screening of medicinal herbs used by different ethnic groups or communities has now become important for isolation of bioactive compound and also for new drug invention (Buragohain, 2011). Chakraborty *et al*., (2012) reported that North East states of India are one of the biggest repositories of medicinal as well as aromatic plants in the World. This region is also rich in diverse culture of traditional human races and is the inhabitant of large number of ethinic peoples of India. Assam is a botanically rich state in North East India of plant biodiversity, boosting in thousands of medicinal plant. It is situated in between 24'2 - 27'6 N latitudes and has a humid tropical and sub - tropical climate because of heavy rainfall during monsoon. Ethnic tribes are mainly from Indo-Mongoloid races including Bodo,

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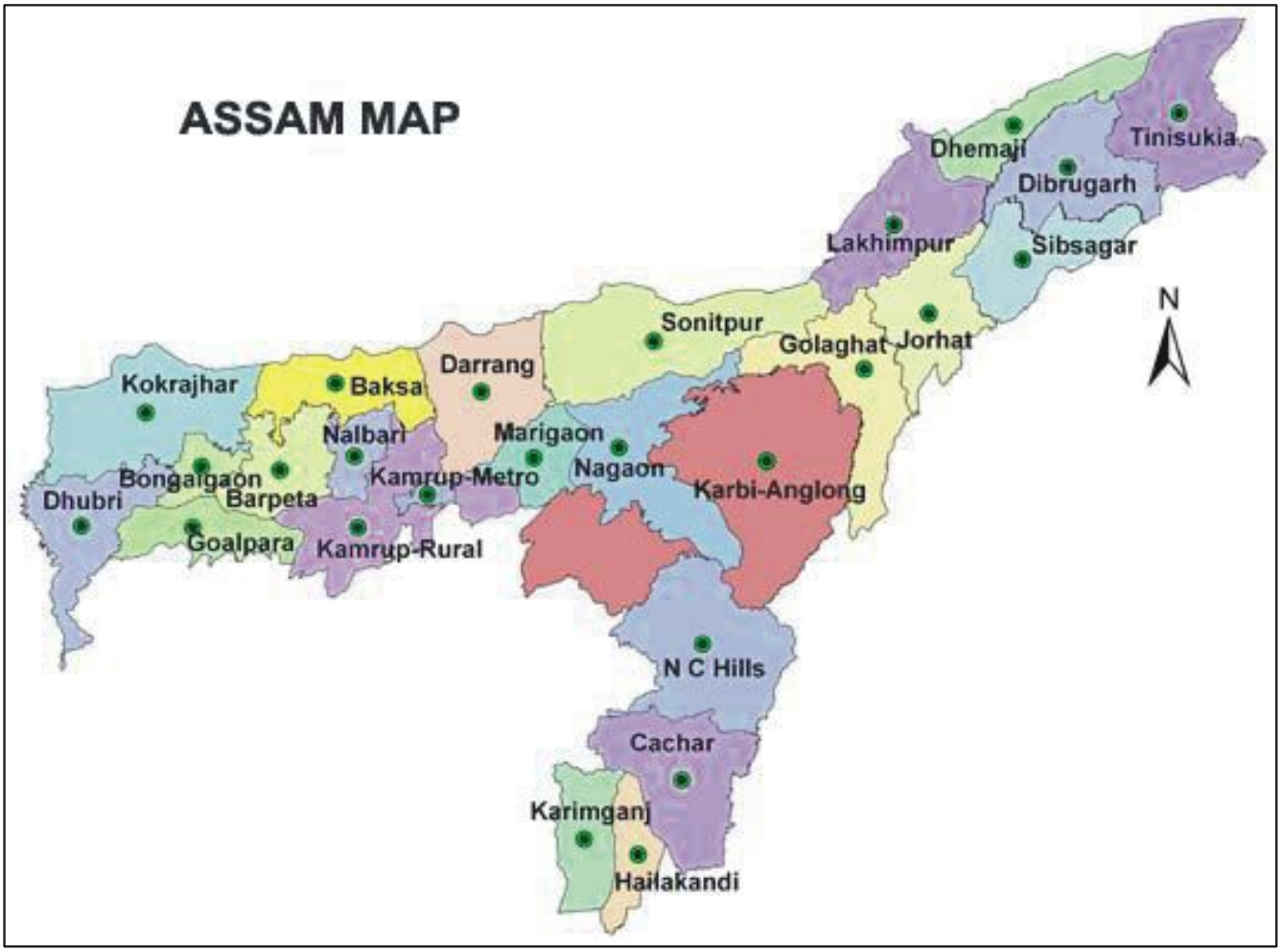

Fig. 1: Assam map.

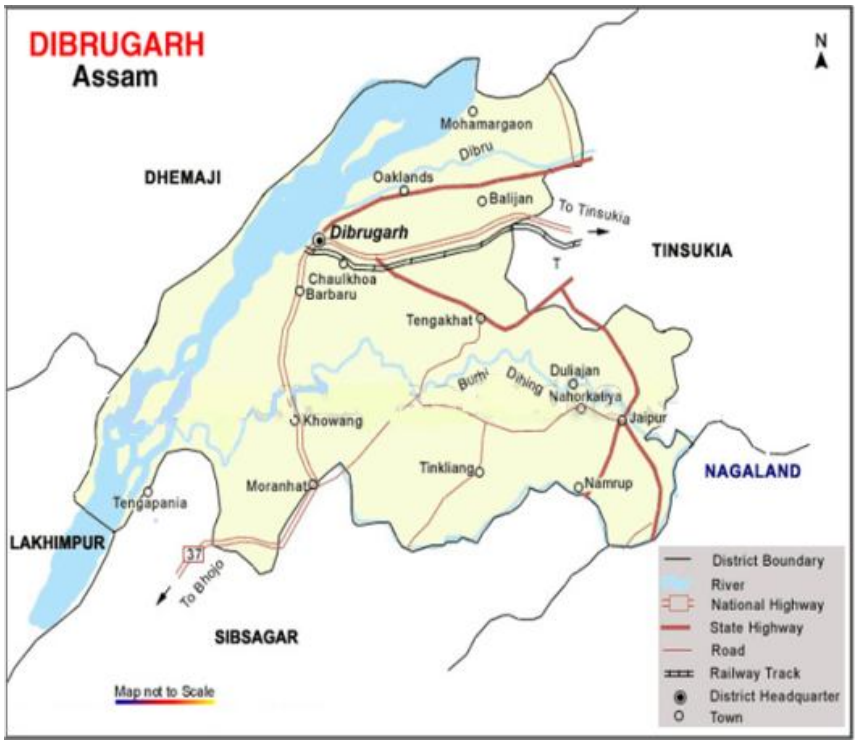

Fig. 2: Dibrugarh district map.

Mishing, Karbi, Dimasha, Rabha, Tiwa, Sonowal Kachari, Ahom, Tai Turung, Tai Khamyang, Deori, Chutia, Koch, Motok and Moran (Saikia *et al*., 2006). The people of this region have developed a rich ethno medicinal tradition and have an abundance of medicinal plants known by native people.

In Assam, only a few workers have contributed significantly in documentation of ethnomedicinal information on plants. Choudhury *et al.,* (2012) reported 53 different medicinal plants used by Chorei tribes of southern Assam; Sen and Ghosh, (2010) reported ethnobotanical studies of some pteridophytes in Assam; Buragohain, (2011) reported 175 ethnomedicinal plants used by ethnic communities of Tinsukia, Assam; Saikia *et al*., (2010) reported 20 ethnomedicinal plants used by Bodo tribals in Gohpur of Sonitpur district, Assam; Purkayastha *et*

al., (2005) reported 55 medicinal plants used by ethnic communities of Dibru-Saikhowa Biosphere reserve of Northeast India; Das *et al*., (2009) reported 57 medicinal plants of Manas National Park, Assam; similarly Barukial and Sarmah, (2011) reported 232 medicinal plant used by people of Golaghat district, Assam; Barooah and Pathak, (2009) studied the indigenous knowledge and practice of Thengal- kachari women of Assam; Kutum *et al.*, (2011) reported 86 plant species used by Mishing tribes living in Fringe village of Kaziranga National Park of Assam; Saikia *et al*., (2007) studied the ethnobotany of foods and beverage among Tai Ahom of North Lakhimpur district, Assam etc. has been reorted by few researchers.

The Ahom community is among the small group of descendents of Mongolian origin distributed in Assam. To our knowledge, there are only a few reports regarding the ethnomedicinal aspects of Ahom community of North East India. The present study aims to enumerate the ethnomedicinal aspects of the community, with an aim to add information to strengthen the resource on medicinal usefulness of plants.

Objectives

To document the indigenous knowledge of Ahom tribe and the traditional use of local medicinal plants in various ailments and disease.

Materials and Methods

Study area

Dibrugarh district is located in the eastern part of Assam between 27º5'28'-27º42'30' North latitude and 94º30'46'-95º29'8' East latitude and covering an area of 3301 sq. km. Chengelijan is a small village located in southern part of the district. The village is inhabited by mostly Ahom and kachari tribe. Due to heavy rainfall and high humidity, the area rich in floral resources and prosperous in medicinal plant as well. The annual rainfall ranges from 2300-3800 mm and rainy season extends from the month of May to September. The annual temperature ranges from 15ºC - 34ºC. Majority of people in this area are cultivators and agricultural workers and the paddy cultivation occupies major chunk of traditional agricultural system.

Fig. 3: Study area map (Chengelijan village).

Methods

Intensive field work has been carried out for one year to gather information on each of the plant species found to be used in traditional healing practices of Ahom tribe. The information was gathered by taking interview of local medicine men using structured questionnaires in some cases and documentation of verbal information and personal observations. We explained the aim of the study, followed by verbal consent before the interview. The plants were selected on the basis of their previous work experience for the treatment of various disease and the data obtained from this observation was crossed verified with the other. The local name, preparation method and also disease treated for each medicinal plant was recorded in the notebook. The collected specimens were tagged and herbarium sheets were prepared and also photograph was taken for each of the species. The collected specimens were identified by using flora and monographs. Herbarium specimen of each plant was prepared and deposited to the Department of Botany, DHSK College, Dibrugarh, Assam, India. Key morphological characters and phenological cycle of the each plant species were recorded. The plants were alphabetically arranged in Table 1 along with their local names, families, parts and medicinal uses and the mode of administration.

Results

The present works is the results of a thorough investigation, exploration and study of ethno-medicinal aspect of Ahom tribe. During the survey, about 42 local medicinal plants were collected and recorded as per table 1. A total of 42 species are mostly belonging to angiospermic plants. Out of the total 42 species recorded in this study, all the species were used for various disease ailments; among 30% plants were used as vegetables and some time as raw fruit; and only 3% were used for making useful tools, as ornaments, jams and pickles, oil and also in some religious purposes. Majority of plants

Table 1: *Ethnomedicinal plants and their uses by Ahom tribe of Chengelijan village.*

S. No.	*Botanical name*	Family	Local name	Uses
1.	*Abrus precatorius* L.	Fabaceae	Latumoni	Root decoction is given as diuretic.
2.	*Andrographis paniculata* (Burm.f.) Nees.	Acanthaceae	Kalmegh	All parts of the herb are used in fever, worm, stomach tonic and dysentery.Leaf extract is used in the treatment of snake and insect bites.Whole plant is used as an astringent.
3.	*Antidesma ghaesembilla* Gaertn	Phyllanthaceae	Halos	Fruits ase edible. Leaf extract is used in headache.
4.	*Artocarous lacucha* Buch.-Ham	Moraceae	Bohot, deuasali	Fruit juice is given in dysentery.
5.	*Aquilaria agallocha* Roxb.	Thymelaceae	Saasi	Oil extracted from wood is used in skin disease.
6.	*Barringtonia acutangula* Gaertn.	Lecythidaceae	Shingori	Seeds are edible.Stem bark is given in syphilis, leprosy.
7.	*Bossenbergia rotunda* (L.) Mansf.	Zingiberaceae	Pati alu	Tuber is used in jaundice, indigestion, and muscular pain.
8.	*Ciccus repens* Lam.	Vitaceae	Nol tenga	Tender leaves are taken as vegetables.Leaves are also used in stomach ailments.
9.	*Cissus quadriangularis* L.	Vitaceae	Harjura lota	Stem paste is applied on wounds and bone fracture for quick healing.
10.	*Clerodendron viscosum* L.	Lamiaceae	Dhopat tita	Infusion of leaves is used to cure malaria.
11.	*Costus specious* (J. Koenig) Sam.	Costaceae	Jomla-khuti	Rhizome juice is used for treatment of jaundice.
12.	*Curculigo orchioides* Gaertn.	Hypoxidaceae	Nagini paat	Powdered dry rhizome is applied in wounds.Leaves are used to tie hair in old culture.
13.	*Delima sarmentosa* L.	Dilleniaceae	Ou lota	Stem is stored in a tight container to make potable water.
14.	*Dendrocalamus giganteus* Munro	Poaceae	Wathoi	Culm is used for making household tools, bridge etc.
15.	*Desmodium caudatum* (Thunb.) DC.	Fabaceae	Bor bioni hakuta	Decoction of culm is given is asthma.
16.	*Elaeocarpus ganitus* Roxb. ex G. Don	Elaeocarpaceae	Rudr-aksha	Seeds are used for prayer beads.Seeds are also wear to controlling blood pressure.
17.	*Garcinia xanthochymus* Hook.f.	Clusiaceae	Tepor tenga	Raw fruits are edible.Decoction of leaves is used in chronic dysentery and kidney stone also.
18.	*Hodgsonia macrocarpa* Hook.f	Curcurbitaceae	Thebou	Fruit bulb is applied in, wound and bacterial infection of skin.
19.	*Hoya carnosa* (L.f.) R. Br.	Apocynaceae	Rupso-kolia	Decoction of leaves is used to cure jaundice, fever, cut and wound.
20.	*Justicia adhatoda* L.	Acanthaceae	Booga bahok	Powdered dry root is applied on ulcer; lukewarm juice is used as message on lower abdomen after childbirth.
21.	*Laportea crenulata* Gaudich.	Urticaceae	Churat	Root juices are used in jaundice, chronic fever.
22.	*Lasia spinosa* L.	Araceae	Cheng-mora	Young leaf is eaten as vegetables.Rhizome is used in stomach aches, piles, injuries and snake and insect bites.
23.	*Leea indica* (Burm.f.)	Vitaceae	Kukurat-hengia	Tender shoots are used as vegetables.Leaf paste is placed upon the head in case of fever, headache and body pain.

Table 1 Continue...

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24.	*Magnolia hodgsonii* (Hook.f & Thomson)	Magnoliaceae	Borho-mthuri	Flower is used in traditional hair lotion.Twig is used for coloring of lips.
25.	*Oroxylum indicum* (L.) Benth. ex Kurz	Bignoniaceae	Bhat ghila	Bark of root is used as a blood purifier and tonic.Seed and bark are used in fever, burns and wounds.Juice of the bark is also used to treat dysentery, diarrhoea, and jaundice.
26.	*Paederia scandens* (Lour.) Merr.	Rubiaceae	Bhedai lota	Decoction of whole plant is used in the treatment of abdominal pain, abscesses, arthritis.Leaves are used in cooking purpose.
27.	*Pachyrhizus erosus* (L.) Urb	Fabaceae	Sesa alu	Raw tuber is taken to cure jaundice.
28.	*Pandanus fascicularis* Lam.	Pandanaceae	Kewak-othal	Leaves are used in pneumonia.
29.	*Pueraria tuberose* (Willd.) DC.	Fabaceae	Bhui lota	Tuber extract is used in swelling of joints.
30.	*Polygonum chinensis* L.	Polygonaceae	Modhus-eleng	Young leaves are taken as vegetables.Decoction of leaf is used in stomach trouble, dysentery.
31.	*Rubus alceifolius* Poir.	Rosaceae	Jetuli poka	Raw fruits are edible.Roots are astringent. They are boiled and used in treatment of dysentery,Leaves possess insecticidal properties.
32.	*Roydsia suaveolens* (Roxb.)	Capparaceae	Madhoi maloti	Raw fruits are edible.Decoction of roots is used in pneumonia, asthma, piles and appetizer.
33.	*Sapindus mukrossi* L.	Sapindaceae	Monichal	Fruit is use for curing anaemia and the fruit pericarp is used as detergent.Paricarp is also used for gurgling in tonsillitis.
34.	*Smilax perfoliata* Lour.	Smilaceae	Tikoni borua	Tender leaves are used as vegetables.Root paste is used in the treatment of quick healing of wound.
35.	*Stephania hernandifolia* Lour.	Menispermaceae	Tubuki lota	Grind leaves are used to cure septic inflammation, jaundice and has anti diabetic properties.
36.	*Tamarindus indica* L.	Fabaceae	Tateli	Raw fruits are edible and also used for making jam, pickles. Bark is used to treat ulcers, asthma.Leaf extract is used in rheumatism, swelling and pain.Decoction of leaves is used in throat infection, cough, fever and intestinal worm.
37.	*Tabernaemontana divaricata* R. Br. ex Roem. & Schult.	Apocynaceae	Sagolihi-ngiya / kothona	Decoction of bark is used in cough, TB.
38.	*Terminalia bellirica* Roxb.	Combretaceae	Bhumura	Fruit possess narcotic property and is used in preparation of Triphala with the mixture of *Emblica* and *T.chebula.*
39.	*Tinospora cordifolia* (Thunb.) Miers.	Menispermaceae	Hoguni lota/ amar lota	Aerial shoots is used in diarrhoea, dysentery, also as a tonic.
40.	*Vitex negundo* L.	Lamiaceae	Posotia	Decoction of leaves is used in cough and stomach trouble.
41.	*Zanthoxylum nitdum* (Roxb.) DC.	Rutaceae	Tezmuri	Decoction of root is used in fever, rheumatism, toothache, stomach ache.Decoction of leafy branches is used for gargle in throat inflammation.Bark is also used in toothache.
42.	*Zanthoxylum oxyphyllum* Edgn.	Rutaceae	Mezenga	Tender shoots are eaten as vegetables.Root bark is used in the treatment of rheumatism.

describe in the present investigation was used in stomach disorder, fever, jaundice, wounds and cutting infections, skin disease, dysentery, gastric, cough, pneumonia etc. Some of the following investigated plant such as *Lasia spinosa* L., *Leea indica* (Burm.f.), *Paederia scandens* (Lour.) Merr, *Smilax perfoliata* Lour., *Zanthoxylum oxyphyllum* Edgn. etc were used as vegetables. Analysis of the families with the highest ethnobotanical use was observed in Fabaceae family followed by the families Vitaceae and Leguminaceae. Further analysis of the species from different taxonomic groups showed that about 16% among them was monocots and the remaining

Fig. 4: Seeds of *Abrus precatorius* L.

Fig. 5: Seeds of *Barringtonia acutangula* Gaertn.

Fig. 6: *Curculigo orchioides* Gaertn.

Fig. 7: Data collection by observing plants.

Fig. 8: Collection of germplasm.

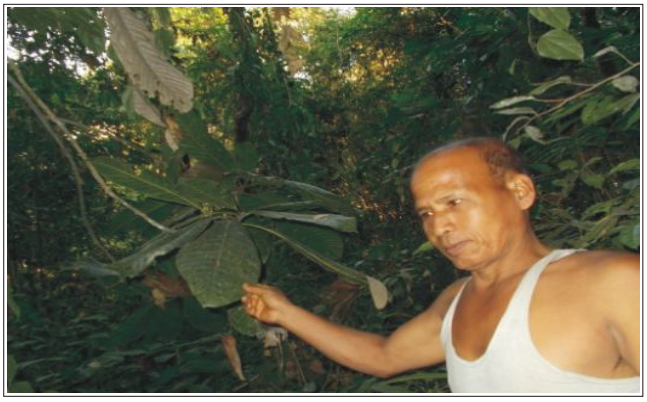

Fig. 9: Traditional worker with *Magnolia hodgsonii* (Hook.f & Thomson) plants.

Fig. 10: Tuber of *Pachyrhizus erosus* (L.) Urb.

Fig. 11: *Rubus alceifolius* Poir.

Fig. 12: *Stephania hernandifolia* Lour.

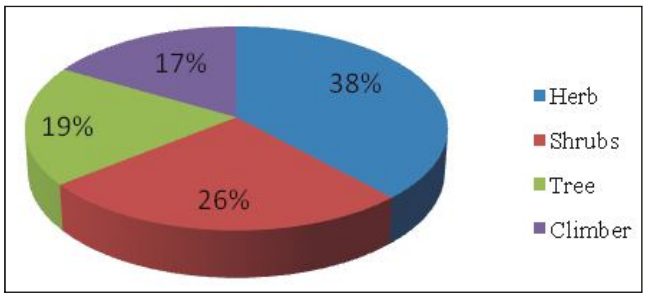

Fig. 13: Percentage of growth habit of documented plant species.

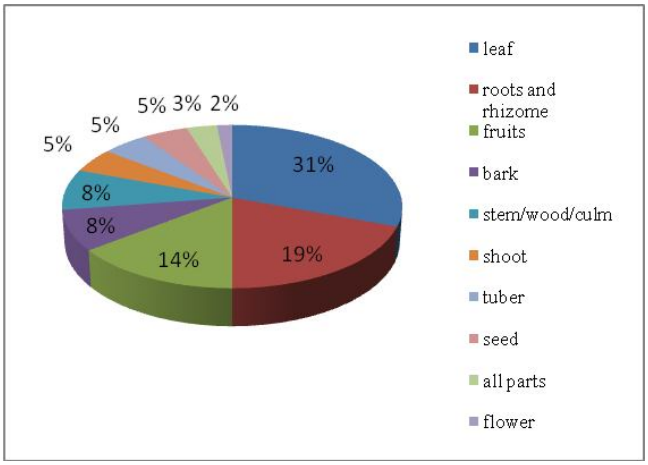

Fig. 14: Percentage of documented ethnomedicinal plant parts used for treatment of various diseases.

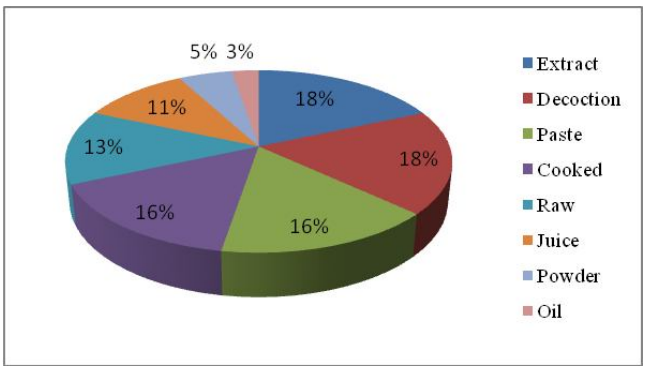

Fig. 15: Proportion of different formulations of documented medicinal plants.

84% was dicots. From the collected data, it was observed that leaves were highly used in treatment diseases followed by roots and rhizome then fruits, bark, shoots, tuber, seeds and flower. Leaves and roots were sometime used as paste and sometime their decoction was used for treatment of various disease, fruits are mostly taken as raw.

Discussion and Conclusion

Documenting the indigenous knowledge through ethno botanical studies is important for both conservation and utilization of biological resources. Documentation of traditional knowledge from different countries of the world reveals that the tribal communities still stores an immense knowledge on utilization of local plants in various purposes on their day to day activities (Sundriyal *et al*., 1998). Some studies also reported that indigenous people still relies to a great extent on traditional healers and medicinal plants to cure disease because of having effectiveness, minimum side effects and affordability. In India, the north eastern regions including Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura harbors a rich heritage on traditional herbal remedies, wild edible food plants and bio-folklores (Pfoze *et al*., 2014). These tribal peoples particularly those residing in village area largely depends on wild resources for food, medicine and for other purposes.

The present investigation listed among 42 plant species used by Ahom community in that particular village. Some plants are also used by different tribes in same purpose for example *Andrographis paniculata* (*Burm.f*.) Nees. used to cure stomach related ailments also by the Sonowal-Kacharis tribe reported by Sonowal, (2013); Mishing tribe of Assam by Kutum *et al*., (2011) and also Naga community by Pfoze *et al*., (2014). *Oroxylum indicum* (L.) Benth. ex Kurz. also used for treatment of dysentery by Naga community (Kichu *et al*., 2015). Similarly, *Polygonum shinensis* L. leaves used for same purpose *i.e* for curing stomach trouble and dysentery by Sonowal Kacharis tribe (Sonowal, 2013), tribal people of Golaghat district (Barukial and Sarmah, 2011). The linkage between the uses of similar plants by different tribal groups across different geographical boundaries still remains to be investigate properly.

Sonowal, (2013) reported that the elderly practitioners are the principal knowledge holders who plays major role in transmission of knowledge. They gather their knowledge through a lifetime experiences in treating patients and pass on their ethno-medicinal knowledge to their children or grand children by orally or verbally also sometimes a close relative or fellow villager comes up to obtain knowledge from the elderly practitioners. Today

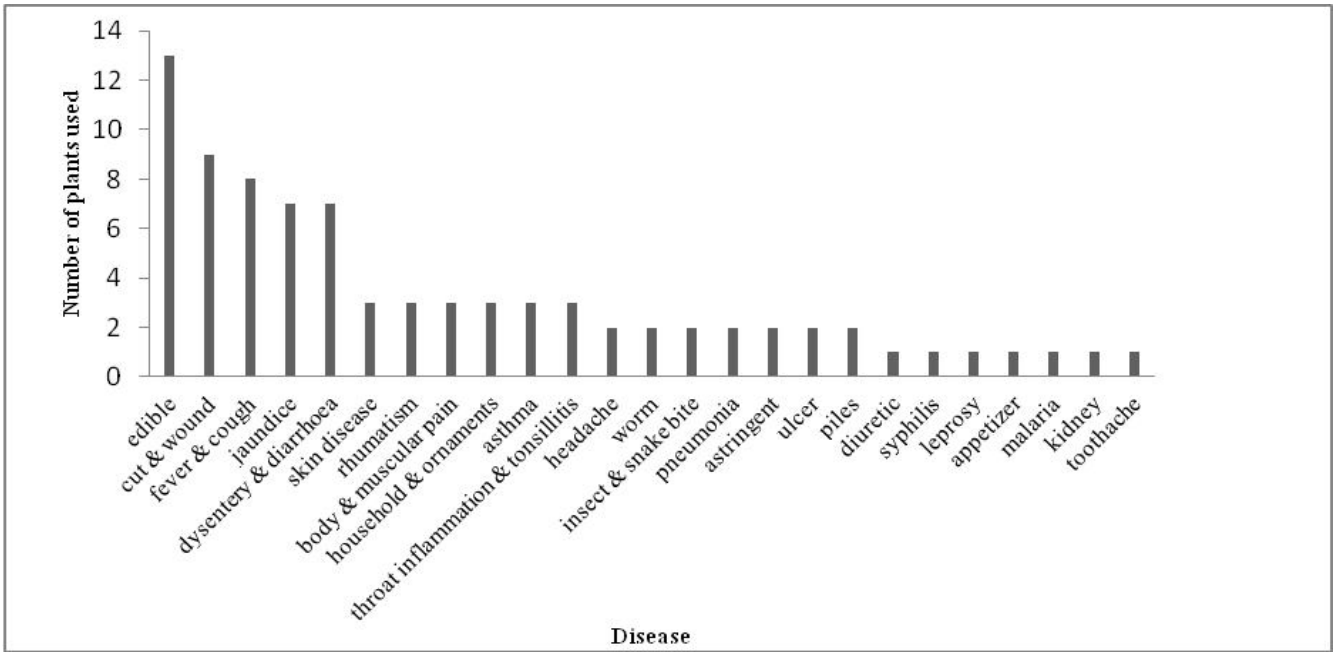

Fig. 16: Numbers of documented plant species for treatment of various diseases.

there is urgent need to ethno botanical study in trapping in forefather tradition knowledge as well as in search of new documentation of drugs, food etc for mankind. At the same time, it is also important to analyze the phyto-chemical and pharmacological screening for their active compounds and clinical trials for therapeutic action. Phyto-chemical studies might provide information which will help in standardization and quality control of herbal medicine for inventing new drugs (Chattopadhyay, 2009).

The present study revealed the Ahom tribe is primarily dependent on medicinal plant for the treatment of various ailments. Both wild and cultivated plants species are used for preparations of ethno medicine by the rural people of that study area. The peoples are rich in ethno- medicinal knowledge. Based on such valuable age old tradition, the Ahom indigenous medical practitioner are considered as one of the most knowledge and expert service provides in the field of ethno medicine in this part of Assam.

Future Prospect

This study revealed that the Ahom tribe is primarily dependent on medicinal plant for the treatment of various ailments, such study might help to highlight important aspects on medicinal plants used by the tribe and also validate in future to analyze the phyto-chemical and pharmacological screening for their active compounds and clinical trials for therapeutic action and discovery of new drug.

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Conflict if Interest

We declare that we have no known competing financial interests or personal relationships that could have appeared to influence the work report in this paper

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