

Ethno Medicinal Plants Used for the Treatment of Common Diseases by the Deori Community People of Lakhimpur District, Assam

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Abstract Herbal medicine is currently experiencing a revival in the world, along with other complementary therapies such as traditional Chinese Medicines, Osteopathy and Homeopathy. Many of the pharmaceuticals currently available to physicians have a long history of use as herbal remedies, including opium, aspirin, digitalis, and quinine. The World Health Organization (WHO) estimates that 80% of the world's population presently uses herbal medicine for some aspect of primary health care. Herbal medicine is a major component in all traditional medicine systems, and a common element in Ayurvedic, homeopathic, naturopathic, traditional Chinese medicine, and Native American medicine. The district of Lakhimpur, Assam, situated at the far east corner of North East India is a region of rich biodiversity. Because of its location at the foothills of Arunachal Pradesh, an environment with heavy rainfall and high humidity, conducive for a significant floristic diversity prevails in this region. The native people of this region, the greater Assamese community, therefore depends to a large extent on the varied plant species for food and medicine besides other uses. An attempt has been made to explore and enumerate the potential ethno-medicinal plants used by the people of Lakhimpur district, Assam. The survey was conducted in some remote areas of the district occupied by Deori communities specially restricted to Narayanpur sub-division and a total of 58 medicinal plants comprising of 39 families were recorded. The ethnomedicobotanical exploration is carried out by concerning of the people who are related with making traditional medicine that orally prescribed. Different parts of these plants are used by the local inhabitants for the cure of some common ailments occurring in the areas. The data includes the list of such medicinal plants along with their local names, families, parts used, the method of treatment and the disease cured.

Keywords Ethnomedicine, Deori, Lakhmpur, Assam

1. Introduction

Ever since the early times, different plants- whether herbs, shrubs or trees have been utilized by human beings for various purposes. In search of food and the ways to cope up successfully with human suffering, primitive man began to distinguish those plants suitable for nutritional purpose from others with definite pharmacological action [1]. History reveals the extensive use of medicinal plants in different ways by the people of those times in the treatment of even dreadful diseases. Plants have been used as a medicinal agent since ancient times, first only on a folklore basis and later developed on a scientific way into a single agent drug [2]. The present century has witnessed the drastic development of science and technology in all fields. Although people have become habituated to the modern powerful drugs, but even then a large number of people still believe and use the local herbs. Majority of the world's population is still dependent on the traditional herbal medicine for their healthcare [3]. The World Health Organization has estimated that over 80% of the global populations rely chiefly on traditional medicine [4]. Several investigations have been carried out by different workers at times on the use of plants for medicinal purposes by people. It was officially recognized that 2500 plant sp. have medicinal value while over 6000 plants are estimated to be explored in traditional, folk and herbal medicine[5].

Assam offers immense scope for ethno-botanical studies since it is inhabited by numerous aboriginal tribes and the region happens to be the part of Indo- Burma Hot spots of Bio-Diversity [6]. In Assam there are more than 200

medicinal plants that have got very good proficient value despite their wide uses in the country itself [7]. Lakhimpur, situated in this North Eastern state Assam is enriched with high floral diversity encompassing several herbs and shrubs; many of which due to their medicinal properties are used for treating common ailments by the local people. Herbal medicine is currently experiencing a revival in the world along with other complementary therapies such as Traditional Chinese medicines, Osteopathy and Homeopathy [8]. It has so become necessary now to learn about the important herbal drugs and record their potentiality. The study highlights plants from those isolated areas occupied by Deori Community which have not yet been investigated so far, making the documentation a pioneering one.

2. Material and Method

A survey was made among the common people of six Villages of Deori community of the District of Lakhimpur during 2017-18 regarding usage of herbal medicine during the treatment of certain commonly occurring disease such as cold, cough, fever, dysentery, worm, irritation, cut injury etc. (Table 1). The survey was on the basis of structured questionnaire to different villagers of the community, both male and female individually and in groups and aimed at to what extent the common people opt for local plants as traditional medicine that are in use from very old days.

The second part of the survey was to enumerate the plant species that are of similar use by all the surveyed villages of the community, during the treatment of some common ailments. Information were collected as suggested by Schultes [24] and Jain [25] on the basis of spot interview with the growers, the head of the village referred to as 'Gaonbura', other senior persons of the locality having wide knowledge of the plant species and their traditional usage, and village medicine men commonly known as 'Bez'. The works of Kanjilal *et al.* (26), Dutta (27) and Sarma, [28] were referred to during taxonomic identification and medicinal importance of the plant species (Table 2).

3. Results and Discussion

The present survey was conducted in some villages present in distant areas, where due to lack of good and reliable communication the inhabitants are dependent on

the local herbs found in their surroundings. A total of 58 plants under 53 genera and 39 families were enumerated, of these the dominant families were Rutaceae, Asteraceae, Poaceae, Lamiaceae, Leguminosae and Crombetaceae. The genera- Terminalia, Cassia, Clerodendron and Croton contained the greatest number of plants. These ethno medicinal plants are found to be used for the treatment of about 40 diseases, most of them being the common ones like Diarrhoea, Dysentery, Cough and cold, Fever, Skin and stomach diseases etc., while the other rare ones included Nervous diseases, Menorrhagia, Piles, Liver and heart problems, Asthma etc.

The study revealed the application of 14 different plant parts used in various ailments. It was found that the people basically used the leaves for their medicines as found in 30 sp. followed by fruits (9sp.), whole plants (8sp.), seeds (7sp.), bark and stem (6sp.), roots (4sp.), shoots and rhizome (3sp.), latex, flower and leaf base (2sp.) and bulb and tuber (1sp.).

The data containing scientific names, local names, family, part used, method of treatment and the disease cured have been compiled and enlisted in Table 1.

During the collection it was observed that the plants, *Asparagus racemosus*, *Azadirachta indica*, *Allium sativum*, *Cucurma longa*, *Houttanyiacordata*, *Abrus precatoris*, and *Acorus calamus* were used widely as they were abundant in the study area. The other plants were also found easily in the nearby areas. But among them, few plants were unknowingly conserved by the people as they were harvested just to minimise scarcity. This conservation can be used fruitfully for future investigations and applied in greater areas of research.

The results of the study prove that herbal plants still play a significant role in the lives of these common people who use them for their regular health care.

Table 1. Percentage of usage of herbal medicine by people of different Villagers of Deori Community in Lakhimpur District, Assam during cross interaction.

Section	Male	Female	Total
<i>Narayanpur Bordeori Gaon</i>	48.4	57.5	55.35
<i>Jajori Deori Gaon</i>	69.3	62.3	63.50
<i>Bohupather Deori Gaon</i>	61.2	63.6	61.50
<i>Likhok Chapori</i>	54.8	59.6	60.12
<i>Bahgora No.1</i>	44.5	68.4	61.45
<i>Bahgora No.2</i>	51.6	44.3	52.97
Total (%) =	54.97	59.28	59.14

Figures are av. of 5 replicates

Table 2. Observation data collected during ethnobotanical study

Sl. No.	Botanical Name	Local Name	Family	Parts used	Method of treatment	Disease cured
1	<i>Abrus precatorius</i> L.	Latumoni	Leguminosae	Root, Seed	a) Juice of roots is given, 1 teaspoonful twice or thrice daily for 3 days in diarrhoea, dysentery and flatulence of children. b) 3 seeds are pounded with a fruit of Tokow, 3 tender shoots of each of Lotamahudi & Zutulipoka & boiled with 10 ml water and filtrate is given in Tonsillitis, once daily for 3 days.	Diarrhoea, Dysentery, Flatulence of children, Tonsillitis
2	<i>Acorus calamus</i> L.	Bosh	Araceae	Rhizome	a) Juice of rhizome with root juice of Machandari and juice of garlic in equal amount is given, 2 teaspoonfuls once daily for 3 days in dysmenorrhoea. b) Garland made from pieces of rhizome is given to put on neck of new born babies to check cough & fever.	Dysmenorrhoea, Cough, Fever
3	<i>Aegle marmelos</i> L. Corr.	Bel	Rutaceae	Fruit	The fruit juice is mixed with milk and used as drink.	Stomach problems
4	<i>Ageratum conyzoides</i> L.	Gundhua bon	Asteraceae	Leaves	3-4 leaves are crushed and applied on the affected area.	Cuts and Wounds
5	<i>Allium sativum</i> L.	Naharu	Liliaceae	Bulb	a) Garland made from cloves is put on neck of babies in jaundice & coughs. b) 4-5 leaves crushed with equal leaves of Machandari and administered orally, twice daily for 3 days in loss of appetite. c) 3-4 cloves are eaten daily for controlling high B.P.	Cough and bronchitis, Loss of appetite, High B.P.
6	<i>Alstonia scholaris</i> L. R.Br.	Chotiona	Apocynaceae	Bark, Latex	a) Bark of about 1.5cm with 3-5 pieces of rhizome of Bosh of same size are used for asthma. b) 2 teaspoonfuls of latex mixed with 100ml cow's milk once daily for 3 days is given in asthma and latex is also applied in ulcer, scabies. c) Decoction of bark is given in chronic dysentery, 3 teaspoonfuls twice daily for a week.	Asthma, Septic Ulcers, Scabies, Chronic dysentery
7	<i>Alternanthera sessilis</i> L.	Matikanduri	Amaranthaceae	Shoot, Leaves	a) Tender shoot and leaf boiled or roasted and given in dysentery. b) Leaves are used as stomachic and help in digestion.	Dysentery, As stomachic and improve digestion
8	<i>Anamitrapeniculata</i> Colehr.	Kuamora	Menispermaceae	Seed	Oil extracted from seed is used to cure skin diseases.	Skin disease
9	<i>Ananas comosus</i> L. Merr.	Matikothal	Bromeliaceae	Leaves, Fruit	a) Juice of tender leaves, about 10ml once daily is given for 3 days in Diarrhoea and 2 teaspoonfuls in empty stomach for 2-3 days as vermicide. b) Poultice of leaves is given in fever of children. c) Fruit is effective against intestinal worms when consumed.	Diarrhoea, Fever, Intestinal worms
10	<i>Andrographis paniculata</i> Nees.	Kalmegh	Acanthaceae	Leaves, Root	Leaf decoction is given in diarrhoea, about 10ml once daily until cure and 10ml twice daily for 3 days in fever and cough. b) Root decoction is given in malaria, 20ml twice daily for a week.	Diarrhoea, Fever and cough, Malaria
11	<i>Ardisia humilis</i> Vahl.	Tolotapoka	Myrsianaceae	Bark, Leaves	a) Juice of the bark is given in Diarrhoea, about 10ml once daily for 3 days. b) Paste of leaves is used externally in ulcers.	Diarrhoea, Ulcer

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Table 2 continuous

12	<i>Asparagus racemosus</i> Willd.	Satamul	Liliaceae	Root, Tuber	a) Decoction of root is used in nervous disorders for a week in empty stomach. Also used in rheumatic pains. b) Juice of fresh roots mixed with little honey is used in diarrhoea and dysentery. c) Underground tuber is used as demulcent and tonic.	Nervous disorders, Rheumatic pains, Diarrhoea, Dysentery and as demulcent and tonic.
13	<i>Averrhoacacambola</i> L.	Kordoitenga	Oxalidaceae	Fruit	Fruits are taken raw.	Dysentery and Diarrhoea
14	<i>Azadirachtaindica</i> A. Zuss.	Maha neem	Meliaceae	Stem, Leaves	a) Young twigs of the stem are used for dental problems. b) Leaves are fried and eaten to control diabetes. c) Juice of fresh leaves with little salt is given in intestinal worms, 10ml once daily for 3 days. d) Leaves are kept under the bed of the patient during measles and small pox and are used along with bathing water during scabies, regularly for 5-7 days.	Dental problems, Diabetes, Measles and Small pox, Scabies
15	<i>Baccopamonnieri</i> L.	Brahmi	Scrophulariaceae	Leaves	Leaves act as a bitter tonic which helps in improving memory.	As Memory enhancer
16	<i>Bambusabalcooa</i> Roxb.	Bhaluka bah	Bambosaceae	Whole Plant	a) Young sucker is crushed, mixed with salt and kept for several days and decoction used when stung by insects. b) Decoction of leaves mixed with cow's milk is given in menorrhagia, about 25ml in a cup of milk, thrice daily in periods.	Insect bites, Menorrhagia
17	<i>Boerhaeviadiiffusa</i> L.	Ponounua	Nyctaginaceae	Whole plant	Whole plant is used as food in form of a stomach tonic.	Stomach problems
18	<i>Bryophyllumcalycinum</i> Salisb.	Dupartenga	Crassulaceae	Leaves	a) Juice of leaves used in urinary problems, also helpful in curing kidney stones. b) Paste of leaves with little salt used in dysentery, 20ml once daily until cure.	Urinary troubles, kidney stones, Dysentery
19	<i>Caesalpinia bonducella</i> L. Flem.	Letaguti	Caesalpinaceae	Fruit, Shoot	a) Fruit juice is used in treating pneumonia. b) Filtrate prepared from 3 tender shoots grounded with about 15 gm. rhizome of Ekangi, 100gm Tulsi, Machandari and 3 black pepper along with 20ml water is given in gastric complaints, about 50ml thrice daily for 3 days.	Pneumonia, Gastritis
20	<i>Carica papaya</i> L.	Omita	Caricaceae	Latex	Paste of Latex mixed with leaves of Khor pat is applied on ringworm infections, twice daily until cure.	Ringworm infections
21	<i>Cassia alata</i> L.	Khor pat	Leguminosae	Leaves	Paste of leaves applied is on ringworm infections and also other skin diseases until cure.	Skin diseases
22	<i>Cassia fistula</i> L.	Sonaru	Leguminosae	Fruit, Seeds	a) The fruits are eaten for liver and stomach problems. b) Seeds act as purgative.	Liver problems, As purgative
23	<i>Catharanthus roseus</i> L.	Nayantora	Apocynaceae	Leaves	2-3 leaves are chewed in empty stomach regularly.	Diabetes
24	<i>Centella asiatica</i> L.	Bormanimuni	Apiaceae	Whole plant	a) Leaf juice is used in gastritis in empty stomach. b) Used in chronic dysentery.	Gastritis, Chronic dysentery
25	<i>Cissampelos pareira</i> L.	Garialota	Menispermaceae	Leaves, Stem	Paste of leaves mixed with that of stem is applied in wounds as antiseptic.	Wounds

Table 2 continuous

26	<i>Citrus limon</i> L. Burm.	Nemutenga	Rutaceae	Leaves, Seed, Bark	a) Aroma of fresh leaves is given in vomiting tendency. b) A sees crushed and mixed with little salt is given to control diarrhoea. c) 5 teaspoonful of 5-7 seeds crushed with salt & mixed with water is given as vermicide, once daily for 3 days. d) Paste of 3 seeds, 3 pieces of bark and 3-5 leaves is mixed with a little water and salt, heated and given in pneumonia, in empty stomach; once daily for 3 days.	Vomiting, Diarrhoea, Pneumonia
27	<i>Clerodendroncolebrookianum</i> L.	Dhapattita	Verbinaceae	Leaves	Boiled or fried leaves are used in hypertension, once daily until cure.	Hypertension
28	<i>Clerodendronindicum</i> L. Kuntz.	Brahmajasthi	Verbinaceae	Leaves	Decoction of leaves is given in stomach ache, about 20ml once daily for 3 days.	Stomach ache
29	<i>Coixlucrymajobi</i> L.	Kaurimoni	Poaceae	Root	Paste of about 100gm root with mustard oil is used in pains.	Pains
30	<i>Colocasiaesculenta</i> L.	Kachu	Araceae	Leaves and Leaf base	Young leaves and leaf base are taken as curry which helps in curing anaemia and also is rich in Iodine.	Anaemia
31	<i>Commelinabenghalensis</i> L.	Kona simolu	Commelinaceae	Leaves, shoot	a) Juice of leaf is applied in eye lid in sores (Achina). b) Curry made of tender shoots and whole of Chengeli is given in Menorrhagia and irregular menstruation, once daily for a week.	Eye sore, Menorrhagia, Irregular menstruation,
32	<i>Croton caudatus</i> Geisel.	Lota mahudi	Euphorbiaceae	Leaves	Decoction of leaves, about 5 teaspoonfuls with 125ml cow's milk is given in urinary trouble, twice daily for a month.	Urinary troubles
33	<i>Croton tigilium</i> L.	Konibih	Euphorbiaceae	Stem, Bark, Shoots	a) Small twigs are used in toothache. b) Juice of about 50gm bark with 50ml water is given in Amoebic dysentery, thrice daily for 3 days. c) Juice of tender shoots with powdered pepper is given in constipation, 1 teaspoonful once daily for 3 days.	Toothache, Amoebic dysentery, Constipation
34	<i>Curcuma longa</i> L.	Halodhi	Zingiberaceae	Rhizome	a) Paste of fresh rhizome is applied in bone fracture, cuts and wounds. b) Rhizome juice with milk is given in empty stomach for curing anaemia & in menstrual problems. c) Juice of rhizome is mixed with juice of neem and honey & the filtrate is given in chest pain, 3 teaspoonfuls thrice daily for 3 days.	Bone fracture, Cuts and wounds, Anaemia, Menstrual problems, Chest pain
35	<i>Cynodondactylon</i> L.	Dubari bon	Poaceae	Whole plant	a) Juice of leaves is used on cuts and wounds & also in the treatment of piles. b) Juice is mixed with rice powder and 2 teaspoonfuls are used in delayed puberty, twice daily for 1 week.	Cuts and wounds, Piles, Pregnancy
36	<i>Dilleniaindica</i> L.	Outenga	Dilleniaceae	Fruit	a) Used in controlling high blood sugar, used as food or in powdered form. b) Seed is used in various scalp problems.	Diabetes, Scalp problems
37	<i>Drymaria cordata</i> Willd.	Laijabori	Caryophyllaceae	Whole Plant	a) Whole plant is eaten for stomach troubles. b) Leaves are used in headache.	Stomach problems, Headache

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Table 2 continuous

38	<i>Eugenia jambolana Lam.</i>	Kola jamu	Myrtaceae	Fruits, Seeds, Leaves and Bark	a) Fruits are taken raw in diabetes and also help in digestion. b) 5 gm bark is mixed with milk and taken regularly in empty stomach for diabetes.	Diabetes, Digestion
39	<i>Garcinia cowaRoxb.</i>	Kujithekera	Clusiaceae	Fruits	Dried fruits are mixed with water and taken to control high Blood pressure and also in dysentery.	High B.P, Dysentery
40	<i>Hibiscus rosachinensis L.</i>	Joba	Malvaceae	Flowers, leaves	a) Paste of leaves and flowers are applied for scalp treatment. b) Leaves are also used to cure menorrhagia.	Menorrhagia
41	<i>Houttanyiacordata. Thunb.</i>	Machandari	Piperaceae	Leaves, Whole plant	a) Decoction of entire plant with leaves of Manimuni in equal amount, black pepper and little salt is given in flatulence and dysentery; 20ml thrice daily. b) Leaf juice mixed with little black pepper is given in colic and bilious pain; 3 teaspoonfuls twice daily.	Flatulence and dysentery. Colic and bilious pain
42	<i>Lawsoniainermis L.</i>	Jetuka	Lythraceae	Leaves	a) Leaf paste is applied to hairs and scalp for curing dandruff and other scalp problems. b) Paste is applied to nails to prevent from infection.	Scalp problems, Infection
43	<i>Murrayakoenigii Spreng.</i>	Narasingha	Rutaceae	Leaves	Leaves act as appetizer and also good for stomach problems, used as food.	Loss of appetite
44	<i>Musa bulbisiana</i>	BhimKol	Musaceae	Fruit, Leaves Base	Bark of fruits is dried and soaked in water. The extract obtained is used in gastritis.	Gastritis
45	<i>Nyctanthesarbortristis</i>	Sewali	Oleaceae	Flowers, Leaves	Flowers and leaves are fried and used in Malaria, Diabetes and Coughs.	Malaria, Diabetes and Cough
46	<i>Ocimum sanctum L.</i>	Tulsi	Lamiaceae	Leaves	Leaves mixed with ginger and honey is given in coughs.	Cough and cold
47	<i>Padaraeafoetida L.</i>	Bhedailota	Rubiaceae	Leaves	Leaves used as digestive and other stomach problems & also in curing anaemia.	Digestion, Anaemia
48	<i>Piper betle</i>	Pan	Piperaceae	Leaves	Leaves are eaten raw which help in digestion	For Digestion
49	<i>Pogostemonbenghalensis (Burm.) Kuntze.</i>	Sukloti	Lamiaceae	Leaves	a) Cooked leaves are good for diabetes. b) Leaves are cooked and taken as food for liver problems. c) Used for healing of wounds.	Diabetes, Liver problems, Wounds
50	<i>Polygonumplebejum L.</i>	Bon jaluk	Lamiaceae	Whole plant	Whole plant is taken as food in Pneumonia.	Pneumonia
51	<i>Psidiumguajava</i>	Modhuri	Myrtaceae	Leaves	Tender leaves are grinded and juice is used for urinary problems & Dysentery.	Urinary troubles, Dysentery
52	<i>Saccharumofficinarum L.</i>	Kunhiyar	Poaceae	Stem	Juice of the stem is effective in urinary problems.	Urinary trouble
53	<i>Spilanthespaniculata DC.</i>	Huhoni	Asteraceae	Leaves	Leaves are cooked and taken as food, helps in healing of cuts and wounds and ulcers.	Cuts and wounds, Ulcers
54	<i>Tegetuspetula</i>	Narjee	Asteraceae	Leaves	Leaves are crushed and applied in cuts to stop bleeding.	Cuts and wounds
55	<i>Terminalia arjuna</i>	Arjun	Combretaceae	Bark	5gm Bark is mixed with little milk and boiled, used in heart diseases.	Heart diseases
56	<i>Terminalia belericaRoxb.</i>	Bhumura	Combretaceae	Seed	Seeds mixed with that of silikha and amlokhi are taken to help in digestion.	For Digestion
57	<i>Terminalia chebula</i>	Silikha	Combretaceae	Seed	Seeds alone and also mixed with that of bhumura and amlokhi are taken for good digestion.	For Digestion
58	<i>Zingiberofficinalis</i>	Aada	Zingiberaceae	Rhizome	Rhizome juice mixed with honey is used in coughs.	Cough

4. Conclusion

The biological activity and efficacy of the medicinal herbs is dependent on the time and stage of its collection. There occurs number of changes in the metabolic activities as well as biochemical contents in the senescent phase of plants. So the traditional healers lay much emphasis on the stage (age) of collection of plants for such uses (Sinha and Sinha, 2005).

Herbal medicine today owes its existence much to the skill of the ancient traditional folk healers only. Unfortunately, these very valuable medicinal plants remain largely neglected in the remote areas of the district of Lakhimpur, Assam. It is time for all of us that we should lay much emphasis on the systematic exploration of medicinal plants which had a glorious history in India since the Vedic periods. With proper exploration, scientific preservation and utilization in a planned manner, it is hoped that herbal medicine will find its place and recognition in the society in due course.

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