



**ORIGINAL RESEARCH PAPER**

**Environmental Science**

**ETHNOMEDICINAL PLANTS FOR DERMATOLOGICAL DISEASES BY MISING, TAI-AITON AND SANTHAL TRIBES RESIDING IN FRINGE VILLAGES NEARBY NAMBOR-DOIGRUNG WILDLIFE SANCTUARY OF GOLAGHAT, ASSAM, INDIA**

**KEY WORDS:**

Ethnomedicine, Golaghat, Mising, Nambor-Doigrung Wildlife Sanctuary, Santhal, Tai-Aiton.

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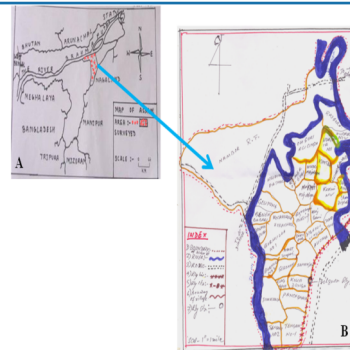
**ABSTRACT**

An ethnomedicinal survey was carried out in order to document the traditional knowledge of medicinal plants in treating various types of dermatological diseases by the three ethnic tribes viz. Mising, Tai-Aiton and Santhal. The survey comprises of 22 tribal populated villages nearby Nambor-Doigrung Wildlife Sanctuary of Golaghat, Assam, India. The importance of ethnomedicine at present is recognized as the most viable method for identifying new medicinal plants for bioactive constituents. The main aim of this paper is to document the ethnomedicinally important plants used by the tribes for curing various dermatological diseases. A total of 32 plant species belonging to 22 families and 26 genera were recorded as ethnomedicinal plants found in the Mising, Tai-Aiton and Santhal villages nearby Nambor-Doigrung Wildlife Sanctuary of Golaghat, Assam. The plants listed along with their Botanical name, Family, Local name, Parts used, Disease, and Tribe.

**INTRODUCTION**

In India, traditional systems of medicine, namely Ayurveda, Siddha and Unani are distinguished. Wild herbs were identified and administered by the tribal peoples to cure various ailments. This was followed by books like Charak Samhita (1000-800 B.C.), Sushrut Samhita (800-700 B.C.) and Vighatta's Astanga Hridayan. Medicinal plants provide health security to rural people. Now-a-days we are getting more information on the plant based medicines which is generally practiced by the inhabitants of the remote areas. In India, ancient records on traditional herbal practices are found in the Vedas. The use of medicinal plants used in the treatment of man and animals are described in the Rig-Veda (4500-1600 BC). Golaghat district of Assam is 3502 sq. km., situated between 26.00-27.10 N lat. and 93.00-94.180 E long. The total area of Nambor-Doigrung Wildlife Sanctuary is 9715 hct. Its climate is characterised by fairly high precipitation, moderate to high humidity. In the month of July the average rainfall in Nambor-Doigrung Wildlife Sanctuary reaches its peak to 347 mm. Ethnomedicinal study was carried out in 22 tribal populated villages (Mising, Tai-Aiton, Santhal) near the Nambor-Doigrung Wildlife Sanctuary viz., Gelipung, Huihing-pathar, Borchapori, Nikorimajdolopa, Awgurialichinga, Kemeri-awguri, No.1 Kekuri, No.2 Kekuri, Nahorkhona mising gaon, Bengenabari, Sekaimara, No. 1 Borhulla, No. 2 Borhulla, Jokaisuk, Kacharihula, Duboroni shyam gaon, Tengani shyam gaon, Tinikuriya, Chabbisghariya, Pachghariya, Aw-tengani and Changpul tengani [Fig. 1:A,B].

Mising is a tribal community belonging to Mongoloid group- a multitude of people that followed Austro-Asiatic races to India (Singh *et al.*, 1996). They are mostly cultivators, expert in weaving clothes, making furniture, poultry (pig) farm etc. They follow Hinduism, many embraced Vaishnavism, some of them follow Donyi Po:lo (Sun God), and Abu Po:lo (Father Moon). 'Tai' is a generic name denoting a great branch of the Mongoloid population of Asia (Sonowal and Barua, 2011). They are **Buddhist** by religion. The **Assamese people** commonly term them as **Shyams**. A large population of tea-tribes of Assam are Santhals. They are mostly cultivators. They follow Hinduism, except a few follow Christianity. Most of them settled in Upper Assam are fluent in Assamese and use Sadrri as their mother tongue (Fernandes, 2003).



**Fig. 1: A. Political map of Assam denoting Golaghat B. Location of study site- villages nearby Nambor-Doigrung WLS (Source: Divisional Forest Office, Golaghat, Assam).**

**MATERIALS AND METHODS**

Official and community permissions were taken before conducting the research work. Interview of informants was conducted by using a model questionnaire as suggested by Parabia and Reddy, (2002). Specimens are prepared based on the standard methodology followed by Jain & Rao, (1977) and Bridson & Forman, (1998). Plant specimens were poisoned in saturated solution of Mercuric chloride dissolved in absolute alcohol (25g in 1000ml Ethyl alcohol) and then mounted in standard herbarium sheets (41 x 28cm). Print label (8 x 12cm) for noting various informations of the plants was affixed at the bottom right hand corner of the sheet. Powdered Naphthalene was spread on mounted herbarium sheets and then submitted to the Herbarium maintained by Department of Ecology & Environmental Science, Assam University, Silchar, for future reference. The identification of plants were done by following a number of floristic literatures such as Flora of British India Vol. 1-7 (Hooker, 1872-1897); Flora of Assam Vol. 1-4 (Kanjalil *et al.*, 1934-1940) & Vol. 5 (Bor, 1940); Flora of Manipur Vol. 1 (Singh *et al.*, 2004); Flora of Jowai Vol. 1 & 2 (Balakrishnan, 1981 & 1983); Flora of Majuli (Islam, 1990); Flora of India Vol. 1-3 (Sharma *et al.*, 1993); Flora of India Vol. 12-13 (Hajra *et al.*, 1995); Handbook of medicinal plants (Vardhana, 2007); Medicinal plants of Southern Assam (Das *et al.*, 2010) etc. The herbariums were further compared and

identified with the preserved herbarium specimens of B.S.I., Shillong.

**RESULT & DISCUSSION**

A total of 32 plant species belonging to 22 families and 26

genera were recorded to be used by the Mising, Tai-Aiton and Santhal tribes. It is reported that the tribes do not have any written data about the uses of medicinal plants. They follow their own system of disease diagnosis and prepare herbal medicine in indigenous way.

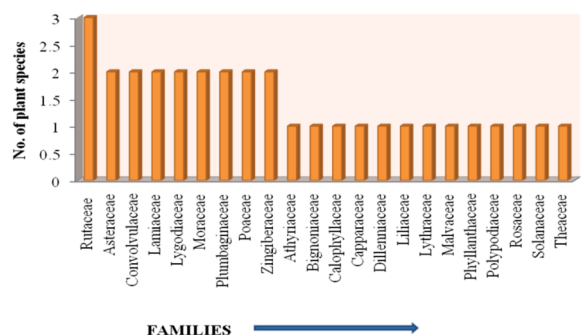
**Table 1. Medicinal plants used for curing various dermatological diseases**

S. No.	Plant species	Family	Local name	Parts used	Disease	Tribe
1.	<i>Ageratum conyzoides</i> L.	Asteraceae	Gendelabon	Leaves	Cuts	M/T-A/S
2.	<i>Aloe barbadensis</i> Mill.	Liliaceae	Chalkuwari	Leaves	Burnt wound	M/T-A/S
3.	<i>Alpinia malaccensis</i> (Burm. f.) Rosc.	Zingiberaceae	Kaapat	Rhizome	Sores	M/T-A
4.	<i>Argyrea speciosa</i> (L.) Sweet.	Convolvulaceae	Takoria alu	Leaves	Chronic dermatitis	M/T-A
5.	<i>Argyrea speciosa</i> (L.) Sweet.	Convolvulaceae	Takoria alu	Leaves	Wound	M/T-A
6.	<i>Artocarpus lacucha</i> Buch.-Ham.	Moraceae	Bohot	Bark	Sores	T-A
7.	<i>Artocarpus lacucha</i> Buch.-Ham.	Moraceae	Bohot	Bark	Wound	T-A
8.	<i>Arundo donax</i> L.	Poaceae	Nol	Whole plant	Fungal infection	M
9.	* <i>Camellia sinensis</i> (L.) Kuntze	Theaceae	Chah paata	Leaves	Dandruff	S
10.	<i>Capsicum frutescens</i> L.	Solanaceae	Jhalkiya	Leaves	Burning sensation	S
11.	<i>Citrus limon</i> (L.) Burm.f.	Rutaceae	Kaji-nemu	Fruit	Dandruff	S
12.	<i>Crataeva nurvala</i> Buch.- Ham.	Capparaceae	Borun gosh	Bark	Carbuncle	T-A
13.	<i>Dillenia indica</i> L.	Dilleniaceae	Sompa (M)Ow-tenga (T-A)Chalta (S)	Fruit	Dandruff	M/T-A/S
14.	<i>Diplezium esculentum</i> (Retz.) Sw.	Athyriaceae	Pukut	Young Fronds	Allergy	T-A
15.	<i>Eupatorium odoratum</i> L.	Asteraceae	Germanibon	Leaves	Cuts	M/T-A/S
16.	<i>Glycosmis pentaphylla</i> (Retz.) A. DC.	Rutaceae	Tuluthapoka	Leaves	Dermatitis	T-A
17.	<i>Glycosmis pentaphylla</i> (Retz.) A. DC.	Rutaceae	Tuluthapoka	Leaves	Eczema	T-A
18.	<i>Hibiscus rosa-sinensis</i> L.	Malvaceae	Joba ful	Flowers, Tender leaves	Dandruff	S
19.	<i>Imperata cylindrica</i> (L.) Raeuschel.	Poaceae	Kase	Root	Wound	M
20.	<i>Kaempferia rotunda</i> L.	Zingiberaceae	Bhumi champa	Tubers	Wound	M
21.	<i>Lawsonia inermis</i> L.	Lythraceae	Jetuka	Leaves	Dandruff	M/T-A/S
22.	<i>Lygodium microphyllum</i> (Cav.) R. Br.	Lygodiaceae	Kishor-kosak	Leaves	Allergy	M
23.	<i>Lygodium microphyllum</i> (Cav.) R. Br.	Lygodiaceae	Kishor-kosak	Leaves	Fungal infection	M
24.	* <i>Mesua ferrea</i> L.	Calophyllaceae	Kamko	Seeds	Allergy	T-A
25.	<i>Microsorium punctatum</i> (L.) Copel.	Polypodiaceae	Ising Okang	Leaves	Wound	M
26.	* <i>Ocimum canum</i> Sims.	Lamiaceae	Kola tulsi	Leaves	Allergy	T-A/S
27.	* <i>Ocimum canum</i> Sims.	Lamiaceae	Kola tulsi	Leaves	Dermatitis	T-A/S
28.	* <i>Oroxylum indicum</i> (L.) Kurz	Bignoniaceae	Banagka	Bark	Boils	T-A
29.	<i>Phyllanthus emblica</i> L.	Phyllanthaceae	Amlokhi	Fruit	Dandruff	M/T-A/S
30.	<i>Plumbago indica</i> L.	Plumbaginaceae	Agechhit	Root	Cuts	M
31.	<i>Plumbago indica</i> L.	Plumbaginaceae	Agechhit	Root	Wound	M
32.	<i>Prunus persica</i> (L.) Batsch	Rosaceae	Nora bogori	Bark	Carbuncle	T-A

(\*)= indicate additional new reports to ethnobotany by the tribes; M: Mising; T-A: Tai-Aiton; S: Santhal.

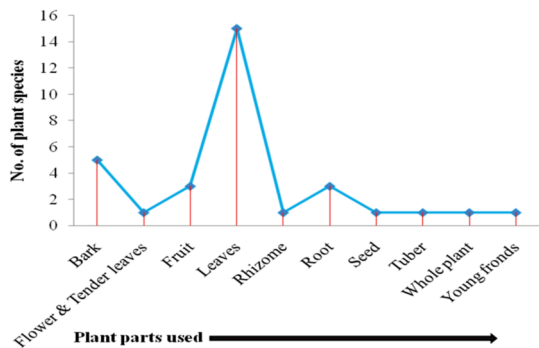
Four (4) plant species for treating five (5) different types of dermatological diseases have been identified as additional new reports to ethnobotany used by Mising, Tai-Aiton and Santhal communities. Sometimes it can be found that a single plant can be used in treating various diseases. Here, *Argyrea speciosa* (L.) Sweet. is used against Chronic dermatitis and wound, *Artocarpus lacucha* Buch.-Ham. is used against sores and wounds, *Glycosmis pentaphylla* (Retz.) A. DC. against dermatitis and eczema, *Lygodium microphyllum* (Cav.) R. Br. against allergy and skin fungal infection, *Ocimum canum* Sims. against allergy and dermatitis, *Plumbago indica* L. against cuts and wound (Table 1).

The dominant families based on plant species are represented by Rutaceae 3, Asteraceae, Convolvulaceae, Lamiaceae, Lygodiaceae, Moraceae, Plumbaginaceae, Poaceae, Zingiberaceae each with 2 plant species; Athyriaceae, Bignoniaceae, Calophyllaceae, Capparaceae, Dilleniaceae, Liliaceae, Lythraceae, Malvaceae, Phyllanthaceae, Polypodiaceae, Rosaceae, Solanaceae and Theaceae, each with single plant species (Fig. 2).



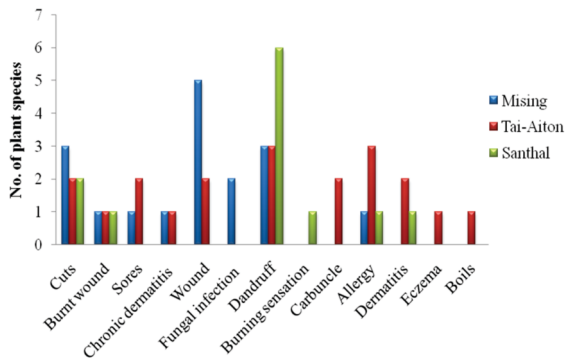
**Fig. 2: Number of plant species with dominant families**

Diversity of different plant parts are employed with the leaves occupying the most used in medicine with 47%, followed by bark 16%, fruit with 10%, root 9%, flower & tender leaves, rhizome, seed, tuber, whole plant, young fronds with 3% each (Fig. 3). It has been found that the information of herbal medicine of the Mising, Tai-Aiton and Santhal tribes are somewhat similar to each other. The local name of some plants also shows quite resemblance.



**Fig. 3: Percentage of plant parts used in treating various types of dermatological diseases**

It is observed that a single plant can be used in the treatment of more than one ailment. Six (6) plants are recorded for treatment of dandruff by Santhal, Three (3) by Tai-Aiton, Three (3) by Mising; Five (5) plants for treatment of wound by Mising, Two (2) by Tai-Aiton; Three (3) plants for treatment of cuts by Mising, Two (2) by Tai-Aiton, Two (2) by Santhal; One (1) plant for treatment of allergy by Mising, Three (3) by Tai-Aiton, One (1) by Santhal; One (1) plant for sores by Mising, Two (2) by Tai-Aiton; Two (2) plants for fungal infection by Mising; Two (2) plants for carbuncle by Tai-Aiton; Two (2) plants for dermatitis by Tai-Aiton, One (1) by Santhal. Mising, Tai-Aiton and Santhal each with One (1) plant species for burnt wound. Mising and Tai-Aiton each with One (1) plant species for chronic dermatitis. Santhal with One (1) plant species for burning sensation. Tai-Aiton for eczema and boils with one (1) plant species each (Table 1) (Fig. 4).



**Fig. 4: Number of plant species used by Mising, Tai-iton & Santhal community for curing different types of dermatological diseases**

The tribal communities treasure the informations of herbal based medicines and develop over generations through trial and error. The preparation of herbal medicines are of low cost and possess no side effects. This shows a great potential for research as well as discovery of newer drugs.

**CONCLUSION**

There is no ethnoveterinary work available on the Nambor-Doigrung Wildlife Sanctuary and in the neighbouring areas. From the present study, it has been observed that the 3 tribes have immense knowledge on action of the medicinal plants and use the plants for curing various types of diseases. The tribes preserve the information of wild plants that are being used by them as herbal remedy. They follow their own system of disease diagnosis and prepare herbal medicines in indigenous way. The documentation of medicinal plants in the present study gives a clear knowledge on the scope of ethnomedicinal study of the ethnic tribes. This could be a significant contribution to future scientific research. Phytochemical screening and antimicrobial study of the plants shall further help in denoting the medicinal properties

which will validate the traditional knowledge of the tribal communities. It's high time for the concerned authorities to check and arrange proper training programmes, workshops, etc. in order to create awareness among the local peoples regarding conservation and preservation of valuable plant species. Government should come forward with liberal grants for raising ethnobotanical gardens by planting plant species used by the respective tribes. The resourceful knowledge of indigenous plants may be lost forever if not properly documented.

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