Asian J. Exp. Sci., Vol. 21, No. 2, 2007, 281-288

Ethnomedicinal Plants used in Skin Diseases by some Indo-Mongoloid Communities of Assam

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Abstract : An ethnobotanical study was carried out among five Indo-Mongoloid communities largely distributed in Upper Assam, India to document plants used in various skin diseases. A total of 68 plant species belonging to 40 families were recorded. Majority of the plant species described in the present paper was used in the treatment of abscesses, septic ulcers, scabies, ringworm, allergy and pimples. Most of the herbal remedies were taken externally in the form of paste. All these plants and plant parts need to be evaluated through phyto and pharmaco-chemical investigations to discover their potentiality as drugs. There is an urgent need to explore and document the ethnomedicinal plants used by the tribal and other communities of Assam before such valuable knowledge vanishes.

Key words : Assam, Ethnobotanical study, Indo-Mongoloid communities, Skin diseases.

Introduction

Skin diseases are of common occurrence among the rural masses due to poor hygienic conditions, poor sanitation facility and contaminated water. Traditional herbal medicines used by different communities play an important role in alleviating such skin diseases. They are safe, effective and inexpensive and in many cases, the only method of medication. Assam is a botanically rich state in India, which is situated in between 2402'-2706' N latitudes and 8908'-960 E longitudes and covers an area of 78, 523 sq. km (Bora and Kumar, 2003). The state is bordered by the nations Bhutan and Bangladesh. Assam has a humid subtropical climate with extremely heavy rainfall. A sizeable area of the state is covered with dense tropical forests of bamboo, and at large elevation evergreens. Assam experiences heavy rainfall between March and September with very high humidity in the summer months. Winter sets in from the month of November and lasts till the end of February. The total number of districts in Assam is 23 and the total population as per 2001 census is 26,638,407. The region has an abundance of medicinal plants known to the native people (Asati and Yadav, 2004). Assam is inhabited by a number of ethnic tribes belonging to the Indo-Mongoloid race. The dominant Indo-Mongoloid communities of Assam are Bodo, Mishing, Karbi, Dimasha, Rabha, Tiwa, Sonowal Kachari, Ahom, Tai Turung, Tai Khamyang, Deori, Chutia, Koch, Motok and Moran. Plants form an integral part of their culture, which is evident from their food habit, customs, marriage system and household practices.

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The aim of our study was to explore and document the plants used in different skin diseases by five Indo-Mongoloid communities namely Mishing, Sonowal Kachari, Motok, Ahom and Deori distributed largely in upper Assam. The people of these communities, particularly the rural folk have long been using plants for their various ailments. Paddy cultivation is their main agricultural practice and therefore rice is the main staple food. Although they have accepted modern health care facilities, the rural folk at large still prefer to stay with their traditional herbal medication. Although a few study of ethnomedicinal plants of Assam have been carried out (Borthakur, 1997; Hajra and Baishya, 1997; Pandey *et al.*, 1996; Saikia *et al.*, 2006; Singh *et al.*, 1996) the ethnobotany of the said communities concerning the use in skin diseases was poorly known.

Materials and Methods

Regular field trips were conducted during the period, from January 2002 - April 2004 in different places of upper Assam. The investigation was carried out where the population distribution of the investigated communities was dense. During the trips, contacts were made with the village heads, herbal practitioners as well as elderly men and women of the respective communities. Prior informed consent was obtained from the village heads and from the participants in the study. Information on herbal medication was gathered through conversations, interviews and discussion. For this, a questionnaire was designed for interviewing the participants of different communities. During the fieldwork, repeated verification of data by different informants and at different places was carried out. Only the specific and reliable information crosschecked with different informants and at different places was incorporated in the present study. Only information that was obtained from at least two participants has been documented here. The information gathered was also crosschecked with available local literature (Khanikar, 2002; Nath, 2001). The collected plant species were identified with the help of local floras (Bora and Kumar, 2003; Kanjilal *et al.*, 1940), herbarium species of Dibrugarh University, Dibrugarh, Gauhati University, Guwahati and Botanical Survey of India, Shillong. Voucher specimens were deposited in the herbaria of the Department of Molecular Biology and Biotechnology, Tezpur University, Assam, India. The recorded plant species were alphabetically arranged followed by voucher specimen number in Table 1 along with their families, local names, English names, flowering and fruiting periods, life forms and medicinal uses.

Results

In the present investigation, information on 68 plant species belonging to 40 families were collected, verified and authenticated (Table 1). Among them, 18 were shrubs and trees, 17 herbs, 6 climbers, 5 undershrubs and 1 each of creeper, grass, trailer and palm. The most cited plant family was Fabaceae (containing 6 plant species) followed by Caesalpiniaceae (5 species), Zingiberaceae (4 species), Amaranthaceae, Rubiaceae, Rutaceae, Euphorbiaceae (3 species each). Leaf was the most widely used plant part accounting for 32 plant species in a total of 68 reported plants. This was followed by latex (8 species), fruit (7 species), root (7 species), bark (5 species), seed and rhizome (3 species).

Discussion

The recorded ethnomedicinal plants were used in the treatment of various skin diseases

Table 1. List of recorded ethnomedicinal plants of Assam used in skin diseases.

Sl. No.	Name of the species	Family	Local name	English name	Flowering & fruiting	Life form	Part used	Mode of administration and uses
1	*Abrus precatorius* L. MBBT/0029	Fabaceae	Latumoni	Crab's eye vine	July-Nov	Climber	Root	Root paste is applied to cure leucoderma.
2	*Achyranthus aspera* L. MBBT/0047	Amaranthaceae	Bioni-hakuta, ubhota-bonsosh	Prickly chaff flower	Oct-April	Herb	Seed	Seed paste with little salt is applied on carbuncles.
3	*Adhatoda zeylanica* Medic. Syn. *A. vasica* Nees; *Justicia adhatoda* L. MBBT/0098	Acanthaceae	Bahok tita	___	Oct-April	Shrub	Leaf	Leaf paste with little sugar is applied on abscesses.
4	*Albizzia lebbeck* Benth. MBBT/0200	Caesalpiniaceae	Sirish	Silk flowered sau	Mar-Sept	Tree	Bark, fruit	Juice of the bark is applied on the ringworm, scabies and septic ulcer. Fruit paste is applied on sore eyes.
5	*Allium sativum* L. MBBT/0249	Liliaceae	Nohoru	Garlic	Nov-Dec	Herb	Bulb	Bulbs are crushed and mixed with coconut oil and applied on ringworm and scabies.
6	*Alpinia nigra* (Gaertn.) Burtt. *Syn. A. allughas* (Retz.) Rosc. MBBT/0268	Zingiberaceae	Tora	___	May-Aug	Herb	Tuber	Tubers are eaten fresh which is said to cure scabies and other skin diseases.
7	*Alstonia scholaris* (L.) R.Br. MBBT/0120	Apocynaceae	Chationa	Devil's tree	Oct-Mar	Tree	Latex	Fresh latex is applied on abscesses and septic ulcer for quick healing.
8	*Amaranthus spinosus* L. MBBT/0054	Amaranthaceae	Hati-khutura	Spiny amaranth	Jan-Dec	Herb	Whole plant	The paste of whole plant is applied on eczema.
9	*Amaranthus tricolor* L. var. *tristis* (Prain) Nayar. MBBT/0231	Amaranthaceae	Bishalyakarani	___	Jun-Nov	Herb	Leaf	Leaf paste is applied on abscess and septic ulcer for quick healing
10	*Andrographis paniculata* (Burm.f.) Wall. MBBT/0176	Acanthaceae	Chirota, Kalmegh	___	Nov-Jun	Herb	Leaf	Leaf paste is applied on abscesses.
11	*Anthocephalus chinensis* (Lamk.) A.Rich. Syn. *A. cadamba* (Roxb.) Miq. MBBT/0190	Rubiaceae	Kadam	___	Dec-May	Tree	Leaf	Leaf paste is applied on abscesses.
12	*Areca catechu* L.	Arecaceae	Tamul	Betelnut	Jan-Dec	Palm	Nut	The nuts are dried in the sun and crushed into powder, which is applied on septic ulcer for quick healing.

13	*Azadirachta indica* Juss. MBBT/0124	Meliaceae	Neem	Margosa tree	Mar-July	Tree	Leaf	Leaves are crushed and applied on ringworm. Crushed bark is applied to cure abscess. Leaves are boiled and the boiled water is used in bathing, which is said to cure scabies and other skin diseases.
14	*Basella alba* L. Syn. *B. rubra* L., *B. cordifolia* Lamk. MBBT/0079	Basellaceae	Puroi	Indian spinach	Aug-Dec	Climber	Leaf	Leaf paste is applied on allergy for quick relief.
15	*Bauhinia variegata* L. MBBT/0260	Caesalpiniaceae	Kanchan	—	Oct-July	Tree	Leaf	Leaf paste is applied on septic ulcer for quick healing.
16	*Boerhaevia diffusa* L. MBBT/0270	Nyctaginaceae	Purnonowa	Hog weed	Jun-Nov	Herb	Leaf	Leaf paste is applied on abscess.
17	*Bombax ceiba* L.	Bombacaceae	Simolu	Silk cotton tree	Jan-May	Tree	Thorns	Thorns are crushed and mixed with milk and applied on pimples.
18	*Bryophyllum pinnatum* Kurz. Syn. *Kalanchoe pinnata* (Lamk.) Pers. MBBT/0247	Crassulaceae	Dupor tenga, pate gaja	Sprout leaf plant	Nov-Mar	Herb	Leaf	Leaf paste is applied on abscesses.
19	*Butea monosporma* (Lamk.) Taub. MBBT/0251	Fabaceae	Polash	Flame of the forest	April-Sept	Tree	Latex	Latex is applied on ringworm and other skin diseases.
20	*Calotropis procera* (Ait) R.Br. MBBT/0253	Asclepiadaceae	Akon	—	April-Sept	Shrub	Latex	Latex is applied on carbuncles.
21	*Carica papaya* L. MBBT/0193	Caricaceae	Amita	Papaya	April-Oct	Shrub	Latex	Fresh latex is applied on ringworm, pimples and sore eyes.
22	*Cassia alata* L. MBBT/0026	Caesalpiniaceae	Khorpat	Ringworm bush	April-Oct	Shrub	Leaf	Leaf juice is applied on ringworm.
23	*Cassia fistula* L. MBBT/0182	Caesalpiniaceae	Sonaru	Golden flower, Indian laburnum	April-Sept	Tree	Leaf	Leaf paste is applied on septic ulcer for quick healing.
24	*Cassia tora* L. MBBT/0181	Caesalpiniaceae	Dadigdiga, bilokhoni		July-Nov	Unders hrub	Leaf	Leaf paste is applied on scabies and ringworm.
25	*Centalla asiatica* (L.) Urban. MBBT/0010	Apiaceae	Bor-manimuni	Asiatic pennywort, Indian pennywort	April-Sept	Herb	Leaf	Leaf paste is applied on abscess and carbuncles for quick healing.
26	*Cinnamomum tamala* (Buch-Ham) Nees & Aberm. MBBT/0135	Lauraceae	Tezpat	Bay leaf	April-Aug	Tree	Leaf	Fresh leaf paste is applied on allergy for quick relief.

27	*Citrus aurantifolia* (Cristm.) Swingle MBBT/0068	Rutaceae	Gol-nemu	Common lime	July-Dec	Shrub	Fruit	Fruit juice with little coconut oil is applied on scabies.
28	*Citrus limon* (L.) Burm. MBBT/0138	Rutaceae	Kaji-nemu	Lemon	Mar-July	Shrub	Fruit	Fruit juice is applied on the body to relieve from prickly heat.
29	*Colocassia fontanesii* Schott. MBBT/0234	Araceae	Kola kochu	Black taro	May-Aug	Herb	Petiole	Petiole juice is applied to remove warts.
30	*Crotalaria pallida* Aito. Syn. *C. striata* DC. MBBT/0042	Fabaceae	Ghonta karna	___	Jun-Dec	Unders hrub	Leaf	Leaf paste is applied to cure scabies and ringworm.
31	*Curcuma aromatica* Salisb.	Zingiberaceae	Bon-halodhi, keturi halodhi	Wild turmeric, yellow zedoary	April-Jun	Herb	Rhizome	Fresh rhizome paste is applied on the ringworm and scabies.
32	*Curcuma domestica* Valet. Syn. *C. longa* L.	Zingiberaceae	Halodhi	Turmeric	April-Jun	Herb	Rhizome	Dry rhizome along with a little lime is applied to remove warts.
33	*Cynodon dactylon* (L.) Pers. MBBT/0184	Poaceae	Dubori-bon	Dhub grass, Barmuda grass	Jan-Dec	Grass	Leaf	Leaf juice is applied on allergy and prickly heat to get quick relief.
34	*Datura stramonium* L. MBBT/0076	Solanaceae	Dhatura	___	Aug-April	Shrub	Leaf	Leaf paste is applied on eczema.
35	*Daucs carota* L. MBBT/0235	Apiaceae	Gajor	Carrot		Herb	Root	Root juice is applied on scabies.
36	*Enhydra fluctuans* Lour. MBBT/0241	Asteraceae	Helonchi sak	Water cress	Nov-Jan	Herb	Leaf	Leaves are taken as vegetable to cure leucoderma. Leaf juice is applied on prickly heat to get quick relief.
37	*Erythrina stricta* Roxb. MBBT/0237	Fabaceae	Ronga modar	___	Mar-Jun	Tree	Leaf	Leaf paste is applied on abscess.
38	*Euphorbia ligularia* Roxb. Syn. *E. nerifolia* L.	Euphorbiaceae	Siju	___	Dec-May	Shrub	Stem	Stem paste is applied on abscesses.
39	*Ficus benghalensis* L. MBBT/0276	Moraceae	Bor goch, bot goch	Banyan tree	April-Oct	Tree	Latex	Latex is applied on abscess, septic ulcer and cracked heels for quick healing.
40	*Ficus religiosa* L. MBBT/0172	Moraceae	Ahot goch	Peepul tree	April-Sept	Tree	Bark, latex	Barks are crushed and mixed with little milk and applied on scabies. Latex is applied on cracked heels for quick healing.
41	*Flemingia strobilifera* (L.) R.Br. MBBT/0001	Fabaceae	Makhioti	___	Mar-July	Shrub	Root	Pounded roots are applied on ringworm.
42	*Holarrhena antidysenterica* Wall. MBBT/0174	Apocynaceae	Kutoj	___		Tree	Bark	The juice of the bark is taken to cure leprosy.

43	*Ipomea aquatica* Forsk. Syn. *I. Reptans* Poir. MBBT/0045	Convolvulaceae	Pani-kolmow	Swamp cabbage	Aug-Feb	Trailer	Leaf	Leaf juice is applied on prickly heat to get quick relief.
44	*Laportia crenulata* Wedd. Syn. *Dendrcnide sinuate* (Bl.) Chew.	Urticaceae	Surat	—	Aug-Jan	Shrub	Root	Roots with the rhizome of turmeric are crushed into a paste and applied on septic ulcer for quick healing.
45	*Lawsonia inermis* L. MBBT/0273	Lythraceae	Jetuka	Henna plant	Mar-Sept	Shrub	Leaf	Leaf paste is applied on abscesses and septic ulcer for quick healing.
46	*Mangifera indica* L. MBBT/0120	Anacardiaceae	Am	Mango	Mar-Jun	Tree	Latex	Latex is applied on sore eyes.
47	*Mesua ferea* L. MBBT/0136	Clusiaceae	Nahor	Iron wood tree	Mar-Jun	Tree	Leaf	Leaf paste is applied to cure pimples.
48	*Meyna spinosa* Roxb. ex Link. Syn. *Vangueria spinosa* Roxb. MBBT/0250	Rubiaceae	Kutkura	—	Mar-Nov	Shrub	Fruit, seed	Ripe fruits are rubbed on cracked heels for quick healing. Seed paste is applied on pimples.
49	*Mimosa pudica* L. MBBT/0153	Mimosaceae	Lajuki bon	Sensitive plant	Jan-Dec	Herb	Root	Root paste is applied on septic ulcer for quick healing.
50	*Moringa oleifera* Lamk. Syn. *M. pterygosperma* Gaertn. MBBT/0070	Moringaceae	Sajina	Drumstick	Oct-May	Tree	Bark	Juice of the bark is applied on abscesses.
51	*Ocimum canum* Sims. Syn. *O. americanum* L. MBBT/0006	Lamiaceae	Kola tulosi, Kolia tulosi	Hoary basil	Jan-Dec	Unders hrub	Leaf	Crushed leaves are mixed with a pinch of salt and applied on the ringworm.
52	*Ocimum sanctum* L. MBBT/0277	Lamiaceae	Tulosi	Sacred basil	Jan-Dec	Unders hrub	Leaf	Same as above
53	*Oxalis corniculata* L. MBBT/0119	Oxalidaceae	Tengeshi	Indian sorrel	Jun-Dec	Creeper	Leaf	Leaf juice is applied to cure scabies and root paste is applied on eczema.
54	*Paederia scandens* (Lour.) Merr. Syn. *P. foetida* L. MBBT/0048	Rubiaceae	Bhedai-lota	—	Sept-Dec	Climber	Leaf	Leaf juice is applied on allergy. Leaf juice with garlic is eaten to relieve from allergy.
55	*Phyllanthus emblica* L. Syn. *Emblica officinalis* Gaertn. MBBT/0161	Euphorbiaceaer	Amlokhi	—	Dec-April	Tree	Fruit	Dried fruits with little amount of molasses are eaten to relieve from allergy.
56	*Plumbago rosea* L. MBBT/0274	Plumbaginaceae	Agiachita	Red lead wort	July-Feb	Shrub	Root	Root paste is applied to cure leucoderma.
57	*Polyalthia longifolia* (Sonn.) Thw. MBBT/0275	Annonaceae	Debodaru	Mast tree	July-Oct	Tree	Bark	Crushed barks are made into paste and applied on scabies.
58	*Ricinus communis* L. MBBT/0041	Euphorbiaceae	Era	Castor	Jan-Dec	Shrub	Leaf	Leaf paste is used to cure carbuncles.

59	*Solanum myriacanthum* Dunal. Syn. *S. khasianum* Clarke.	Solanaceae	Kotahi bengena	—	May-Nov	Unders hrub	Fruit	Fruits are crushed and made into a paste and applied on abscesses.
60	*Stephania japonica* (Thunb.) Miers. Syn. *S hernandifolia* (Willd.) Walp.	Menispermaceae	Tubuki lota	—	April-Dec	Climber	Leaf	Leaf paste is applied on septic ulcer for quick healing.
61	*Terminalia bellerica* (Gaertn.) Roxb. MBBT/0247	Combretaceae	Bhumora	Beleric myrobalan	Aug-Dec	Tree	Fruit	Crushed fruit bark is applied on septic ulcer. The bark of the fruit is removed and the remaining part is crushed into a paste and applied on sore eyes.
62	*Tinospora cordifolia* (Willde.) Hook. f.	Menispermaceae	Shaguni lota	—	Jan-May	Climber	Leaf	The juice of the leaves with little honey is taken to cure leprosy.
63	*Typhonium trilobatum* (L.) Schott. MBBT/0117	Araceae	Chomahu, choma kachu	—	April-May	Climber	Latex	Latex is applied on abscesses and pimples.
64	*Urena lobata* L. MBBT/0031	Malvaceae	Bor-sonborial	Aramina, cadilla	July-Dec	Shrub	Leaf	Leaf paste is applied on septic ulcer for quick healing.
65	*Vigna mungo* (L.) Hepper. Syn. *Phaseolus mungo* L.	Fabaceae	Mati mah	Black gram	Oct-Dec	Herb	Seed	Seeds are crushed into a paste and applied on scabies and ringworm.
66	*Vitex negundo* L. MBBT/0016	Verbenaceae	Pochotia	Chinese chaste tree	April-Aug	Tree	Leaf, root	Leaf paste is applied on abscesses and allergy. Root juice is prescribed for septic ulcer.
67	*Zanthoxylum oxyphyllum* Edgew. MBBT/0233	Rutaceae	Mezenga	—	Mar-July	Shrub	Leaf	Young leaves are eaten as vegetable to cure leucoderma.
68	*Zingiber officinale* Rosc. MBBT/0254	Zingiberaceae	Ada	Ginger	April-Jun	Herb	Rhizome	The juice of the rhizome with little amount of molasses is eaten to get relieve from allergy.

such as leucoderma, carbuncles, abscesses, scabies, ringworm, septic ulcers, sore eyes, warts, allergy, pimples, cracked heels, prickly heat and leprosy. Majority of the plant species described in the present investigation was used in the treatment of abscesses, septic ulcers, scabies, ringworm, allergy and pimples. Most of the herbal remedies were taken externally in the form of paste. The plant parts were crushed and made into paste for applications over the area of the disease. Only in five occasions oral administration was prescribed. In some cases, along with the plant parts a little amount of salt or milk or molasses or honey was used. This addition might be to enhance the efficacy of herbal remedies or to make the remedy more palatable masking the undesirable taste when taken orally. The medicinal plants are usually collected from wild habitat as and when there is a need. Many of the information reported in this study concerning Amaranthus spinosus, Areca catachu, Flemingia strobilifera, Meyna spinosa, Zanthoxylum oxyphyllum etc. are found to be new in the literature of Indian medicinal plants and deserves further study. Saikia *et al*. (2006) reported 85 medicinal plants used by Assamese people against skin diseases but this paper failed to include a number of ethnomedicinal plants used for the purposes.

The information provided in the paper is limited and there is a scope to initiate further ethnobotanical study among the communities to gather information as far as possible. The medicated claims incorporated in the study need to be evaluated through phyto and pharmacochemical investigations to discover their potentiality as drugs. There is an urgent need to explore and document the ethnomedicinal plants used by the tribal and other communities of Assam before such valuable knowledge vanishes.

Acknowledgements

The first author is thankful to the University Grants Commission, New Delhi for granting him teacher fellowship for doing Ph.D. research under the Faculty Improvement Programme. The authors also acknowledge the help provided by the local people for carrying out the exploration activities.

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