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## Ethnomedicinal plants used by major ethnic groups of Assam (India) for curing skin diseases

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**Abstract**

An ethnobotanical survey was carried out to explore and document the traditional knowledge of various ethnic groups of Assam for treating skin diseases. The information regarding the uses of various medicinal plants in the treatment of skin diseases was gathered from village elders, traditional healers and Gaon Bura (village head man) through interviews. A total of 50 plants species belonging to 35 families were found useful and herewith described along with vernacular name, parts used and mode of administration. Several new findings on the traditional rural practices were reported. The present study revealed that the tribal people of Assam are primarily dependent on medicinal plants for treating skin diseases.

**Keywords:** Assam, Ethnic groups, Ethnomedicine, Skin disease, Traditional healer

**1. Introduction**

Traditional agriculture plays a crucial role in the life of people, who depend mostly on surrounding plant communities for their day-to-day needs. Over the centuries, the people have experimented and made use of several plants. Importance of ethnomedicines in the treatment of various human ailments is well recognised amongst these people. Ethnic people have deep belief in the traditional system of medicine for remedies and rely exclusively on their own herbal cures<sup>[1]</sup>. The World Health Organization (WHO) has estimated that as many as 80% of the world population is dependent on traditional medicine for their primary health needs<sup>[2]</sup> and about 65% of Indians are dependent on the traditional system of medicine<sup>[3]</sup>. Hundreds of medicinal plant species worldwide are used in the traditional medicine as a treatment for skin diseases caused by bacteria, fungi and viruses<sup>[4]</sup>. Modern knowledge in biotechnology can use these biological assets of the ethnic people and their knowledge for socioeconomic gains for better health and nutrition and for sustainable development of human societies<sup>[5]</sup>. Need has been felt for the speedy documentation of the prized indigenous knowledge from the emerging threats of the destructive over- harvesting, habitat degradation and bio- piracy<sup>[6,7]</sup>. Skin diseases are occurring frequently in all ages from neonates to the elderly and cause harm in various ways and are the most common diseases in tropical areas. Various types of skin diseases are occurring such as Acne, Dermatitis, Eczema, Hives, Pityriasis rosea, Psoriasis, Herpes simplex, Shingles (herpes zoster), Warts, Athlete's foot, Ringworm, Jock itch, Dandruff, Thrust, Tinea corporis etc. The ethnomedicinal plants which are used to treat skin diseases are safe, effective and inexpensive, for which there is a global trend for the revival of traditional herbal medicine.

Assam, a state of North Eastern region covers a total geographical area of 78,520 sq km spreading over 33 districts with a population of 26.6 million. The state comprises 2.4% of the total geographical area of the country. More than 100 tribes and sub-tribes still maintain their tradition with very low economic life<sup>[8-11]</sup>. Ethno-botanist from all over the world has been actively working to collect document of the indigenous medicinal plants. Ethno-botanical studies on medicinal plants were done by various workers<sup>[12-28]</sup>.

Out of various tribes inhabiting Assam, we have selected 10 major ethnic groups from hill, plains as well as river bank area, viz. Lushai, Chorei, Karbi, Dimasa, Jaintia, Rabha, Sonowal Kachari, Tai- shyam, Deori and Mishing. The aim of the present study was to assess the plant species used for medicinal treatment of skin diseases.

**Materials and Methods**

The study was conducted during 2016-2017 covering the area of major tribes inhabiting villages to identify the plants with the medicinal properties against skin diseases (Figure 1). Nine villages were identified from different parts of Assam region namely Dhemaji (Dhemaji), Lakhimpur (Lakhimpur), Naharu Basti, Bokajan (Karbi Anglong), Tangla,

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Udalguri (Udalguri), Gohpur, Karimganj (Cachar), and Titabor (Jorhat). The method adopted in the study was interviewing and observation of plants use. Specific questions based upon preformed designs were asked and the informations were recorded in the ethno botanical field book

[29]. Based on the investigations, plants with their local name, botanical name, family, part of plant used and ethno botanical uses are reported. The information on the use of medicinal plants was gathered by direct interaction with village elders, traditional healers and Gaon Bura (village head man).

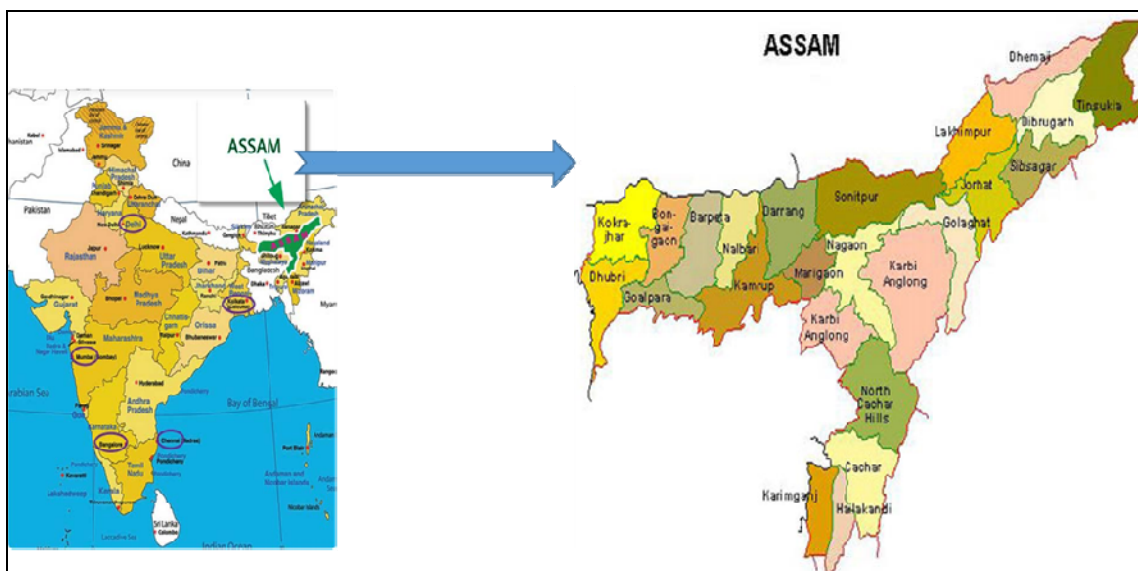


Fig 1: Study area: Assam

**Results and Discussion**

The use of 50 ethnomedicinal plant species was recorded as being used by traditional healers in the treatment of skin diseases. The recorded plant species belongs to 35 families, out of which 24 families represent single species each. The families like Caesalpinaceae (5 species), Asteraceae (2 species), Apocyanaceae (2 species) Solanaceae (3 species), Amaranthaceae (2 species), Meliaceae (2 species), Verbanaceae (2 species), Euphorbiaceae (2 species), Convolvulaceae (2 species), Rosaceae (2 species), and Araceae (2 species) were predominant (Figure 2). The dominant part of the plant used to treat skin diseases was the leaves (63.26%) (Figure 3).

Traditional medicines by different tribes of Assam are still alive and run parallel to the state supported modern healthcare system; but its full potential is still not utilized scientifically. With rapid deforestation, the plant species are fast disappearing. Moreover, there are no written records as such of these ethnomedicines. The focus on the medicinal plants resources and further investigation in these areas may lead to concrete programme for the conservation of medicinal plants. It can also provide useful leads for pharmacological study. Modern knowledge in biotechnology can use these biological assets of the ethnic people and their knowledge for socio economic gains for better health and nutrition and for sustainable development of human society.

Table 1: Medicinal plants used for curing skin diseases by ethnic groups of Assam.

S. No	Scientific name	Vern. Name	Family	Parts used	Uses
1.	<i>Achyranthes aspera</i> L.	Chabst (Lushai)	Amaranthaceae	Leaf	Paste of leaves is applied on boils and on the skin infections.
2.	<i>Ageratum conyzoides</i> L.	Bong-nai-kelok (Karbi)	Asteraceae	Leaf	Leaf paste is applied on cuts and wounds.
3.	<i>Aloe barbadensis</i> Mill.	Saalkeuri (Rabha)	Lilaceae	Leaf	Freshly grounded paste of leaf is applied locally on the burn infected region.
4.	<i>Alstonia scholaris</i> L.	Chatiana (Deori)	Apocynaceae	Latex	The white latex is used in scabies infected area to cure.
5.	<i>Altemanthera sessilis</i> L.	Matikanduri (Rabha)	Amaranthaceae	Leaf	Pastes of leaves are applied locally on infection.
6.	<i>Anamitra peniculata</i> Colehr.	Chumu (Deori)	Menispermaceae	Seeds	Paste of seeds is applied to treat skin diseases.
7.	<i>Areca catechu</i> L.	Tambul (Chorei)	Araceae	Nuts	Nuts are soaked in water overnight. The water is then used to cure skin rashes and boils.
8.	<i>Azadirachta indica</i> L.	Nim-ke-ik (Karbi)	Meliaceae	Leaf	Leaf powder mixed with coconut oil and apply thrice daily in an infected region.
9.	<i>Barleria cristata</i> Alba.	Sajhia (Jaintia)	Acanthaceae	Aerial parts	Aerial parts of the plant are crushed and boiled into water. 2-3 drops of the filtrate are used against skin infections.
10.	<i>Begonia thomsonii</i> A. DC.	Shekhuk (Chorei)	Begoniaceae	Roots	Crude extracts of roots are bandaged locally for 2-3 days to treat skin infections.

11.	<i>Bonnaya Brachiata</i> Link. & Otto.	Horu Kasidoria (Sonowal kachari)	Schrophulariaceae	Leaf	Fresh leaves are crushed into paste and are applied in cut injuries and carbuncle.
12.	<i>Caesalpinia bonducella</i> Flem.	Letaguti (Sonowal kachari)	Leguminosae	Seed	Pastes of seeds are applied to abscess for quick healing.
13.	<i>Callicarpa arborea</i> Roxb.	Buordop (Chorei)	Verbanaceae	Leaf	Crude extracts of 10-12 leaves are applied locally for 5-6 days to treat skin rashes.
14.	<i>Cannabis sativa</i> L.	Bhaang (Rabha)	Cannabaceae	Leaf	Paste of leaves is used to treat fungal infection of leaves.
15.	<i>Carica papaya</i> L.	Nem-sopikemen (Karbi)	Caricaceae	Fruit	Fruit paste applied on the pimple infected skin.
16.	<i>Cascabela thevetia</i> L.	Mir-keat (Karbi)	Apocynaceae	Leaf	Paste of leaves is applied locally on infected region.
17.	<i>Cassia alata</i> L.	Bap-hokon (Karbi)	Caesalpinaceae	Leaf	Leaf paste or juice is applied on the ringworm affected area till it cures.
18.	<i>Cassia occidentalis</i> L.	Medeluwa (Deori)	Caesalpinaceae	Leaf	Decoction of leaves is applied to treat scabies and ringworm.
19.	<i>Cassia sophera</i> L.	Medeliwa (Deori)	Caesalpinaceae	Leaf	Decoction of leaves is applied to treat scabies, infection and insect bites.
20.	<i>Cassia tora</i> L.	Bilokhoni (Deori)	Caesalpinaceae	Leaf	Paste of leaves is applied on ringworm infected region.
21.	<i>Cassia siamea</i> Lamk.	Bandorlathi (Chorei)	Caesalpinaceae	Leaf	Crude extracts of leaves are applied locally to heal deep wounds.
22.	<i>Centella asiatica</i> L.	Bor- manimuni (Tai- shyam)	Apiaceae	Leaf	Paste of leaves is applied locally on abscess and carbuncles.
23.	<i>Cleome gynandra</i> L.	Chekloitaboi (Chorei)	Capparidaceae	Leaf	Crude extracts of leaves are applied for 2-3 days to treat skin ulcers and ring worm.
24.	<i>Colocasia esculenta</i> Schott.	Pani Kochu (Sonowal kachari)	Araceae	Tubers petioles	Tubers are crushed and the juice is administered on skin sores and blister. Petioles are also crushed into juice and are applied on cuts and wounds.
25.	<i>Croton tiglium</i> L.	Koni bih (Sonowal kachari)	Euphorbiaceae	Leaf, seeds	Young leaf and seeds are ground into paste freshly and are applied on raw carbuncles.
26.	<i>Cucurma longa</i> L.	Tharmit (Karbi)	Zingiberaceae	Rhizome	Paste of rhizome is applied to treat infected areas.
27.	<i>Cuscuta reflexa</i> Roxb.	Rankahrui (Lushai)	Convolvulaceae	Whole plant	Whole plant extract is applied on the scalp to prevent premature hair fall, greying and control dandruff.
28.	<i>Datura stramonium</i> L.	Dido (Karbi)	Solanaceae	Seed	The seeds are ground into paste and are used to treat skin infection.
29.	<i>Docynia indica</i> Dcne.	Giron (Chorei)	Rosaceae	Leaf	Crude extract of fresh leaves is used as antiseptic and applied locally to treat skin infection.
30.	<i>Duranta repens</i> Linn.	Hena pata (Chorei)	Verbanaceae	Leaf	Crude extracts of leaves are applied externally to the infected region to remove skin scars.
31.	<i>Embellica officinalis</i> L.	Thelu (Karbi)	Phyllanthaceae	Leaf	Paste of leaves is applied locally on infected region.
32.	<i>Entada pursaetha</i> DC.	Sutai (Dimasa)	Mimosaceae	Whole plant	Paste of whole parts of the plants is useful to treat skin cancer.
33.	<i>Eriobotrya bengalensis</i> Hkf. Leve. S.C.	Oiyamoni (Chorei)	Rosaceae	Leaf	Fresh leaves are boiled in water and the filtered extracts are applied locally to treat eczema.
34.	<i>Euphorbia hirta</i> Linn.	Hektuk (Chorei)	Euphorbiaceae	Leaf	Crude extract of leaves are used to treat skin infections.
35.	<i>Ficus religiosa</i> Linn.	Ahot Goss (Sonowal kachari)	Moraceae	Bark	Tree bark along with tortoise shell is burned and the ash is applied over cuts and wounds as antiseptic.
36.	<i>Gossypium herbaceum</i> L.	Shirpak (Mishing)	Malvaceae	Root	Paste of roots is applied to treat skin disorders in fingers.
37.	<i>Houttuynia cordata</i> Thunb.	Masundari (Mishing)	Saururaceae	Root	Pastes of roots are applied locally to treat skin infection.
38.	<i>Ipomoea aquatica</i> Forsk.	Kalmou (Chorei)	Convolvulaceae	Leaf	Crude extracts of the leaves are applied locally to treat wounds and boils.
39.	<i>Lawsonia inermis</i> L.	Jetuka (Karbi)	Lythraceae	Leaf	Paste of leaves is applied locally on infected region.
40.	<i>Litsea glutinosa</i> Lour.	Khairabul (Chorie)	Lauraceae	Leaf	Crude extracts of leaves are applied externally to cure boils.

41.	<i>Melia azedarach</i> L.	Ghora neem (Deori)	Meliaceae	Bark, leaf	Paste of bark and infusion of leaves are applied in skin diseases.
42.	<i>Michelia champaca</i> L.	Champa (Chorei)	Magnoliaceae	Leaf	Leaves are soaked (1-2 hours) and the water is used to treat skin rashes and infections caused due to sweating.
43.	<i>Mikania micrantha</i> M.C.B	Kalkut lota (Rabha)	Asteraceae	Leaf	Leaf paste of this plant mixed with <i>Ocimum sanctum</i> L. effective in skin for various infections.
44.	<i>Mimosa pudica</i> L.	Bap-the-rak (Karbi)	Fabaceae	Leaf	Ashes of leaves are applied on infected regions.
45.	<i>Nicotiana glauca</i> Viv.	Vaihlo (Lushai)	Solanaceae	Whole plant	Whole plant extract is applied thrice daily against skin infections.
46.	<i>Nicotiana glauca</i> Viv.	Duma- Sla (Jaintia)	Solanaceae	Aerial parts	The aerial parts are ground into paste and are applied to the skin infected region thrice daily.
47.	<i>Paederia foetida</i> L.	Rikangi-kimi (Karbi)	Rubiaceae	Leaf	Leaf paste is applied on cuts and wounds.
48.	<i>Spondias pinnata</i> (Koem.) Kurz.	Omora (Sonowal kachari)	Anacardiaceae	Seed	Seeds are ground freshly and are applied to treat skin diseases such as ringworm, abscess etc.
49.	<i>Trichosanthes palmata</i> Roxb.	Kuwabhaturi (Sonowal kachari)	Cucurbitaceae	Roots, seeds	Seeds are ground into paste freshly and are applied to treat carbuncle.
50.	<i>Zizyphus mauritiana</i> Lark.	Borei (Chorei)	Rhamnaceae	Leaf	Crude extract of 2-3 leaves are applied locally to treat skin boils.

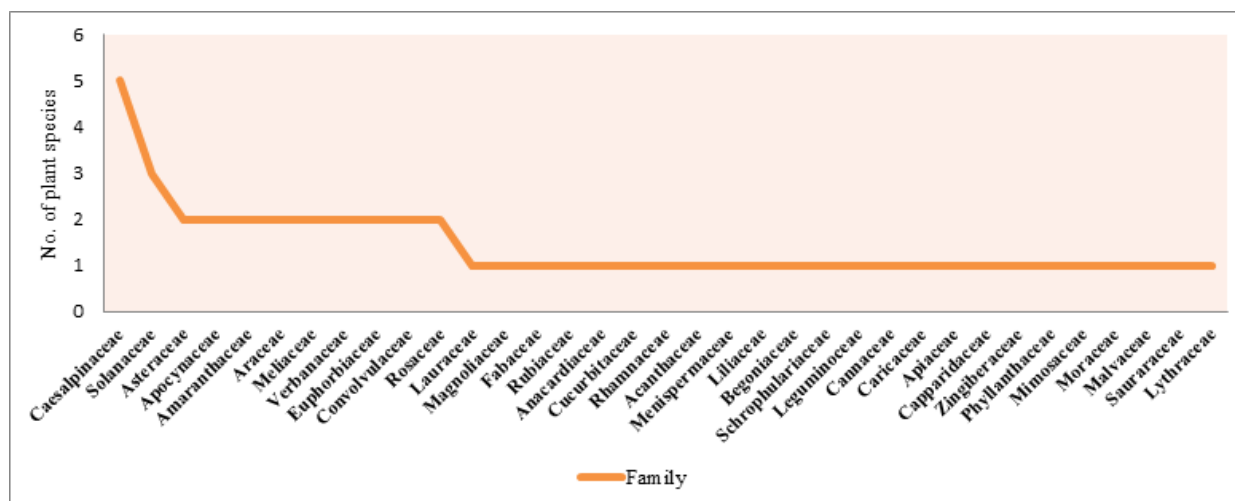


Fig 2: Family wise classification of ethnomedicinal plants used by various ethnic groups of Assam.

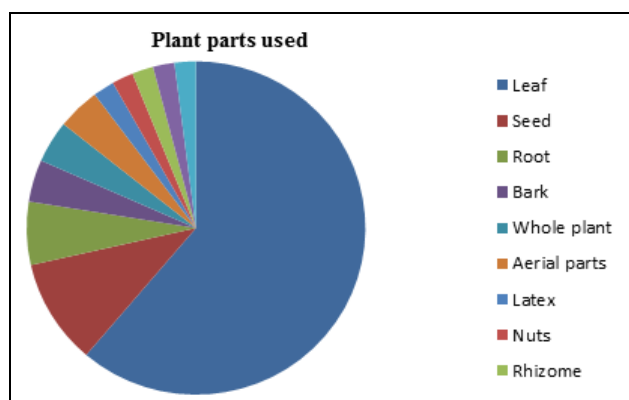


Fig 3: Plants parts used to treat skin diseases.

**Conclusions**

Ethnomedicinal plants have great potential to treat different kinds of skin diseases. Compared with synthetic drugs, they have relatively low cost and can be very beneficial to general and poor people. In villages where medical facilities are inadequate, the traditional healers play a great role by using ethno medicines for the treatment of various types of skin

diseases. Today, the various Indigenous Knowledge traditions are not only for the cultures, from which they evolve, but also for the scientists, planners, researchers, etc., all are striving to improve the conditions of the rural/traditional areas as well as utilizing their knowledge for the betterment of mankind. Conservation of the ethnomedicinal plants and the indigenous knowledge of plants used in traditional health care are very important. In this respect, documenting each expression of the oral tradition and storing them for proper scientific studies is utmost important.

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