

**Research Article**

## **ETHNOMEDICINAL PLANTS USED AGAINST SKIN DISEASES BY INDIGENOUS POPULATION OF DARJEELING HIMALAYAS, INDIA**

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### **ABSTRACT**

An ethnobotanical study was carried out in Darjeeling Himalayas to document plants used against skin diseases. During the field survey, ethnomedicinal information of 91 species of medicinal plants belonging to 53 families was compiled from different habitats of the study area. Application of plants against skin diseases included various forms of preparation. The botanical name, local name, family and parts used of each species have been enumerated. The documented plants included herbs, shrubs, climbers and trees. Detailed studies on the role of individual phytochemicals involved in the inhibition of agents causing skin diseases are suggested.

**Key Words:** *Ethnomedicine, Skin Diseases, Darjeeling*

### **INTRODUCTION**

The world health organization estimates that about 80% of the population of most developing countries relies on herbal medicines for their primary healthcare needs (De Silva, 1997). Plants are of immense value to human health and roughly 80% of world's population relies on them for cure of various ailments (Chauhan, 1999). Darjeeling Himalaya is situated between 87°59' - 88°53' E and 28°31'-27°13' N in the Eastern Himalayan region of India. It has an area of 3,149 sq km. Its annual mean maximum temperature is 14.9°C and annual mean minimum temperature is 8.9°C and average annual rainfall is 3092mm. The altitudinal range of this hilly region varies from 130 to 3660 m., due to this a wide array of climatic zones are available, which favour the luxuriant growth of diversified and rich vegetation. This region is also the abode of many endemic elements and a number of species which have become rare, threatened and endangered (Das, 1995). In this area considerable number of medicinal plants are collected and utilized to cure different ailments by the rural people (Yonzon and Mandal, 1982; Bhujel *et al.*, 1984; Rai *et al.*, 1998). Traditionally the population has made conscious efforts to preserve these plants around their homesteads, in crop fields and communal lands. It is clear that wild plants play important role in first hand treatment of diseases. It is known that microorganisms have developed resistance to many antibiotics. This creates enormous problems in the treatment of infectious disease, and investigators therefore seek new antimicrobial substances from different plant sources (Mitscher *et al.*, 1987; Crittenden and Porter, 1991; Karaman *et al.*, 2003). In this paper an attempt has been made to document the ethnic knowledge of rural people of Darjeeling Himalayas regarding the use of medicinal plants against skin diseases.

### **MATERIALS AND METHODS**

Extensive and intensive field surveys were conducted in different seasons during the study period. Interviews were carried out to obtain primary information on the use medicinal plants against skin diseases with their vernacular name, parts used, mode of preparation and administration. Secondary information were collected by following published research papers, books and journals related to present study (Yonzon and Mandal, 1982; Bhujel *et al.*, 1984; Rai, 1990; Das, 1995; Rai *et al.*, 1998; Tamang and Yonzon, 2004; Polunin and Stainton, 2011; Stainton, 2011) and were used in the non-experimental validation.

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### RESULTS AND DISCUSSION

During the field survey, ethnomedicinal information of 91 species of medicinal plants belonging to 53 families was compiled from different habitats of the study area. Application of plants against skin diseases included various forms of preparation. The botanical name, local name, family and parts used of each species have been enumerated in Table 1. The documented plants included herbs, shrubs, climbers and trees. Medicinal formulation included a number of plants for single disease as well as single plant against many ailments. This is constant with the other general information which has been reported previously in relation to medicinal plants studies by Traditional System of Medicine like Ayurveda and Siddha (Kirtikar and Basu, 2001; Gogate, 2000). The different parts of plants used for the treatment were whole plant, leaves, flowers, fruits, rhizome, bulb, bark, roots, latex, oil and spines. In majority of cases extracts from leaves

**Table 1: Ethnomedicinal plants used against skin diseases in Darjeeling Himalayas**

Sl. No.	Botanical name	Local name	Parts used
1	<i>Achyranthes bidentata</i> Blume [Amaranthaceae]	Datiwan	Stem, roots
2	<i>Achyranthus caudatus</i> L [Amaranthaceae]	Apamarga	Stem, roots
3	<i>Aconogonum molle</i> (D. Don) Hara [Polygonaceae]	Thotne	Young twig
4	<i>Acorus calamus</i> L [Araceae]	Bojho	Rhizome
5	<i>Adiantum caudatum</i> L [Adiantaceae]	Uniu	Leaf
6	<i>Adiantum incisum</i> Forssk [Adiantaceae]	Uniu	Fronnd
7	<i>Ageratum conyzoides</i> L [Asteraceae]	Ilamay jhar	Root
8	<i>Allium sativum</i> L [Amaryllidaceae]	Lasun	Bulb
9	<i>Allium wallichii</i> Kunth [Amaryllidaceae]	Dungdung	Bulb
10	<i>Alstonia scholaris</i> R. Br. [Apocynaceae]	Chhatiwan	Stem
11	<i>Amaranthus caudatus</i> L [Amaranthaceae]	Latte saag	Leaf
12	<i>Amaranthus spinosus</i> L [Amaranthaceae]	Lunde saag	Leaf
13	<i>Andromeda</i> sp. [Ericaceae]	Lekh angeri	Young twig
14	<i>Artemisia vulgaris</i> ( CB Clarke) Pamp. [Asteraceae]	Titepati	Young twig
15	<i>Artocarpus lakoocha</i> Roxb. [Moraceae]	Badar	Bark
16	<i>Azadirachta indica</i> A. Juss [Meliaceae]	Nimpatta	Leaf, stem, bark, root
17	<i>Bauhinia purpurea</i> L [Fabaceae]	Koiralo	Fresh leaf
18	<i>Berberis aristata</i> DC [Berberidaceae]	Chutro	Bark
19	<i>Bergenia ciliata</i> (Hwarth) Stenberg [Saxifragaceae]	Pakhanbed	Rhizome
20	<i>Betula cylindrostachys</i> Wall [Betulaceae]	Saur	Bark
21	<i>Bidens pilosa</i> L [Asteraceae]	Kuro	Leaf
22	<i>Bombax malabaricum</i> DC [Bombacaceae]	Simal	Spines
23	<i>Brassica nigra</i> (L.) Koch [Brassicaceae]	Tori	Oil
24	<i>Brassica juncea</i> (L.) Chern. & Coss [Brassicaceae]	Sarsiun	Oil
25	<i>Buddleia asiatica</i> Lour [Loganiaceae]	Bhimsenpati	Young twig
26	<i>Carica papaya</i> L [Caricaceae]	Mewa	Latex, fruit
27	<i>Centella asiatica</i> (L) Urban [Apiaceae]	Ghortapre	Leaf
28	<i>Cinnamomun tamala</i> Nees [Lauraceae]	Tespatta	Leaf, bark
29	<i>Cissus elongata</i> Roxb [Vitaceae]	Charchare	Whole plant

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30	<i>Citrus aurantifolia</i> Swingle [Rutaceae]	Kagati	Fruit
31	<i>Citrus limonia</i> Osbeck [Rutaceae]	Jyambir	Fruit
32	<i>Citrus medica</i> L [Rutaceae]	Bimiro	Fruit
33	<i>Cucumis sativus</i> L [Cucurbitaceae]	Kankra	Fruit
34	<i>Curcuma longa</i> L [Zingiberaceae]	Hardi	Rhizome
35	<i>Cuscuta reflexa</i> Roxb. [Convolvulaceae]	Akashbeli	Whole plant
36	<i>Cymbopogon flexuosus</i> (Stend) Wats [Kagati jhar] Poaceae	Poaceae	Leaf extract and oil
37	<i>Cynodon dactylon</i> (L) Pers [Poaceae]	Dubo	Whole plant
38	<i>Cyperus rotundus</i> L [Cyperaceae]	Mothe	Root
39	<i>Datura metel</i> L [Solanaceae]	Dhaturo	Seeds, oil
40	<i>Drymaria cordata</i> (L) Willd [Caryophyllaceae]	Abhijalo	Whole plant
41	<i>Eclipta alba</i> (L) Hassk [Asteraceae]	Bhringaraj	Whole plant
42	<i>Equisetum debile</i> Roxb ex Voucher [Equisetaceae]	Kurkure jhar	Whole plant
43	<i>Erythrina stricta</i> Roxb. [Fabaceae]	Faledo	Spines
44	<i>Eupatorium adenophorum</i> L [Asteraceae]	Kalo banmara	Young twig
45	<i>Euphorbia</i> sp [Euphorbiaceae]	Dudhe	Latex
46	<i>Evodia fraxinifolia</i> Hk f [Rutaceae]	Khanakpa	Fruit, bark
47	<i>Fagopyrum esculentum</i> Moench [Polygonaceae]	Fapar	Seed
48	<i>Ficus religiosa</i> L [Moraceae]	Pipal	Leaf
49	<i>Girardiana diversifolia</i> (L) Friis [Urticaceae]	Bhangray sisnu	Young twig, root
50	<i>Gynocardia odorata</i> R. Br. [Flacourtiaceae]	Gantey	Oil
51	<i>Juglans regia</i> L [Juglandaceae]	Okhar	Bark
52	<i>Laportia cranulata</i> Wedd [Urticaceae]	Sisnu	Young twig, root
53	<i>Litsaea citrata</i> Blume [Rutaceae]	Siltimbur	Fruit paste, Oil
54	<i>Lycopersicum esculentum</i> L Mill [Solanaceae]	Rambera	Fruit, leaf
55	<i>Lyonia ovalifolia</i> (Wall) Drude [Ericaceae]	Angeri	Twig
56	<i>Machilus villosa</i> Hk.f. [Lauraceae]	Kaulo	Bark
57	<i>Melia azadirach</i> L [Meliaceae]	Bakaina	Bark, fruit, seed, leaf
58	<i>Mesua rerrea</i> L [Clusiaceae]	Nagesuri	Stem
59	<i>Michelia</i> sp [Magnoliaceae]	Champa	Petals
60	<i>Mimosa pudica</i> L [Mimosaceae]	Buhari jhar	Root
61	<i>Momordica charantia</i> L [Cucurbitaceae]	Karela	Leaf, fruit, seed
62	<i>Nardostachys jatamansi</i> DC [Valerianaceae]	Jatamasi	Root
63	<i>Nicotiana tobacum</i> L [Solanaceae]	Surti	Leaf
64	<i>Ocimum sanctum</i> L [Lamiaceae]	Tulasi	Whole plant
65	<i>Osbeckia stellata</i> Buch-Ham ex D Don [Melastomaceae]	Fakfake	Leaf
66	<i>Oxalis corniculata</i> L [Oxalidaceae]	Chariamilo	Whole plant
67	<i>Pedilanthus tithymaloides</i> Poil [Euphorbiaceae]	Nagdaman	Stem
68	<i>Phyllanthus emblica</i> L [Euphorbiaceae]	Rukh amala	Fruit

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69	<i>Piper hamiltoni</i> Cas. DC [Piperaceae]	Chabo	Leaf, stem, root
70	<i>Plumbago zeylanica</i> L [Plumbaginaceae]	Chitu	Whole plant
71	<i>Polygonum runcinatum</i> Ham [Polygonaceae]	Ratnaulo	Whole plant
72	<i>Premna barbata</i> Wall [Verbenaceae]	Gineri	Twig
73	<i>Princepia utilis</i> Royle [Rosaceae]	Bhekali	Fruit
74	<i>Prunus cerasoides</i> Don [Rosaceae]	Paiyun	Bark, leaf
75	<i>Ricinus communis</i> L [Euphorbiaceae]	Dalda	Fruit, leaf
76	<i>Rosa</i> sp. [Rosaceae]	Gulaf	Petals
77	<i>Rubia manjith</i> Roxb ex Fleming [Rubiaceae]	Majito	Whole plant
78	<i>Rumex actosella</i> L [Polygonaceae]	Halhaley	Leaf
79	<i>Sapindus mukorossi</i> Gaertn [Sapindaceae]	Rittha	Fruit
80	<i>Sida acuta</i> [Malvaceae]	Khareto	Root
81	<i>Smilax</i> sp [Smilacaceae]	Kukurdaine	Young twig
82	<i>Stephania glabra</i> (Roxb) Miers [Menispermaceae]	Tamarkay	Whole plant
83	<i>Swertia chirayita</i> (Roxb. ex. Flem) Karst [Gentianaceae]	Chiraito	Whole plant
84	<i>Tagetes patula</i> L [Asteraceae]	Sayapatri	Petals
85	<i>Terminalia bellirica</i> Roxb [Combretaceae]	Barra	Fruit, bark
86	<i>Terminalia chebula</i> Retz [Combretaceae]	Harra	Fruit, bark
67	<i>Thysanolaema maxima</i> (Roxb) Kunth [Poaceae]	Amliso	Root
88	<i>Tinospora cordifolia</i> (Willd) Hk.f. et Thoms [Menispermaceae]	Gurjo	Root, stem, fruit
89	<i>Trigonella foenum-graecum</i> L. [Fabaceae]	Methi	Seed
90	<i>Woodfordia fruticosa</i> (L.) Kurz [Woodfordiaceae]	Dhanger a fool	Bark, root, petal
91	<i>Zanthoxylum nitidum</i> (Roxb.)DC [Rutaceae]	Bokeytimbur	Leaf, fruit, seed

and rhizome/roots (20%) were used followed by fruits (17.5%) and whole plant (14%). Fresh plants were prevalently used and found more effective than dried or stored plant materials. The mode of application was topical but in many cases it was also administered orally. Many plant preparations used were selected by a process of trial and error and thus are used based on experience rather than experimental validation. 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. Traditional use of enumerated plants needs to be evaluated through phyto and pharmacological investigations for their development as potential drugs in future.

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