

## **Traditional Phytotherapy of Some Medicinal Plants Used by the Tharus of the Nainital District, Uttar Pradesh, India**

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### **ABSTRACT**

*The Tharu tribe inhabits the Himalayan foothills from Nainital in the West to Darjeeling in the East, and utilize plants in the treatment of diseases and other disorders. The present study deals with the therapeutic uses of 63 plants used by the Tharus of the Nainital district, U.P., in health care. Local names, preparation of ethnomedicine, dosage and mode of administration have been provided by selected informants and experienced medicine men. The study has provided some interesting data concerning medicinal plants which may enable phytochemists and pharmacologists to determine their true therapeutic properties.*

### **INTRODUCTION**

The SubHimalayan terai region of Uttar Pradesh is inhabited by two tribes, the Tharu and the Bhoja. The Tharus are found in the Lakhimpur-Kheri, Nainital, Gonda, Bahraich and Gorakhpur districts of Uttar Pradesh. They have been struggling to survive for centuries, and have led a secluded life in forests areas.

The Tharus are divided into a number of endogamous sects. The Rana Tharus of the Nainital district, U.P., are found in Khatima and Sitarganj Blocks, and claim to be descendants of the Ranas of Chittor. Their total population is approximately 40,000 in the district. Oldham (quoted in Crooke, 1896) believes that the Tharus are Indian aborigines that are very different from the Tartar Highland races. Due to a close and long association with the forest, they have learnt to utilize many plant species for their day-to-day needs. The thick forest belt and the study area of the district are situated in the terai region of the foothills of the Himalayas in close proximity to Nepal. The Tharus live by hunting and fishing, and gather forest produce, medicinal herbs, fruits and vegetables from the surrounding flora. They practise primitive agriculture and grow rice, sugarcane, maize, wheat, barley, lentil, gram, peas, mustard, vegetables, tobacco, and bananas.

The age old practice of traditional phytotherapy in the treatment of diseases is

still prevalent amongst the Tharus of the district. Earlier, many researchers have gathered information on the uses of medicinal plants by the tribes (Maheshwari *et al.*, 1981, 1986; Singh and Maheshwari, 1983; Singh and Singh, 1985; Jain, 1965, 1975; Jain and Tarafdar, 1970; Jain *et al.*, 1973) and have brought to light the new or less known uses of many medicinal plants used by the tribes in the country. The present study provides therapeutical applications of 63 medicinal plants among the Tharus which have not been mentioned in earlier literature.

## MATERIALS AND METHODS

During the course of this study, 40 Tharu villages adjacent to forest areas were surveyed and studied. The data on therapeutic uses of plants, herbal processing, preparations, dosage and mode of administration were recorded. These were confirmed from tribal chiefs, medicine men, Baiga, Ojhas and other experienced and knowledgeable tribal informants in the forests. The data obtained from different villages and localities were compared, analysed, and are presented in this paper. The voucher specimens and the crude samples of medicinal plants are preserved in the Ethnobotanical Herbarium-cum-Museum of the institute. The plants are arranged alphabetically under different diseases and disorders, giving information on local names of the plants, uses and field numbers (EBH). The Tharus treat their diseases and disorders with a single plant or with combinations of different plants. They prepare paste, pills, powders, decoctions, aqueous extracts, juice, etc., from plant parts and use these preparations directly for common diseases and disorders such as diarrhoea, dysentery, jaundice, cough, cold, headache, fever, piles, skin and ophthalmic diseases, bone fractures, boils, blisters, rheumatism, gout, and antifertility.

## RESULTS

### Herbal drugs

#### A. Malaria

1. *Caesalpinia bonduc* L. Roxb. emend. Dandy ex Excell. (Caesalpiniaceae)

*L.n.*: Kanja

The young leaves along with the leaves of Neem (*Azadirachta indica* Juss) are roasted and made into powder and given three times a day for three days to cure malarial fever (EBH 4968).

2. *Cassia tora* L. (Caesalpiniaceae)

*L.n.*: Panwar.

A decoction of the seeds is given three times a day for three days to cure malarial fever and cough (EBH 5920).

3. *Cyperus rotundus* L. (Cyperaceae)

*L.n.*: Moth

The whole plant along with young leaves of Neem (*Azadirachta indica*) Juss., black pepper and leaves of Tulsi (*Ocimum sanctum* L.) is made into a decoction. The vapour is used to cure malarial fever; decoction is given three times a day for three days for the same purpose (EBH 5923).

#### B. Febrigue

1. *Cissampelos pareira* L. (Menispermaceae)

*L.n.*: Madrachi.

The aqueous extract of the root is given three times a day for three days in fever (EBH 4972).

2. *Luffa graveolens* Roxb. (Cucurbitaceae)  
L.n.: Ghosrain.  
The leaf powder, with black salt, is given three times a day for two days to cure fever (EBH 4969).
3. *Tinospora cordifolia* Miers (Menispermaceae)  
L.n.: Gurech.  
The leaf juice, with black pepper, is given in fever (EBH 4912).
4. *Vernonia anthelmintica* (L.) Willd. (Asteraceae)  
L.n.: Kalajiri.  
The leaf paste, with black pepper, is made into pills. Three pills a day are given for two days to cure fever. The seed powder is also given in fever (EBH 4955).
5. *Vitex negundo* L. (Verbenaceae)  
L.n.: Meudi.  
The leaf juice is given three times a day for three days to cure fever (EBH 4905).

### C. Bone fracture

1. *Equisetum debile* Roxb. (Equisetaceae)  
L.n.: Jor Katora.  
The paste of the plant with Hardi (*Curcuma longa* L.), salt and calcium is applied to fractures. The aqueous extract of the plant is taken internally for 15 days for treating bone fracture (EBH 4995).
2. *Peristrophe bicalyculata* (Retz.) Nees (Acanthaceae)  
L.n.: Patrang.  
The paste of the plant is applied to bone fracture, for 15 days, daily (EBH 4939).
3. *Vanda tessellata* (Roxb.) Hook. ex G. Don (Orchidaceae)  
L.n.: Harjodi.  
The paste of the whole plant is applied with salt on the fractured portion. The aqueous extract is also given internally for the same purpose (EBH 4919).

### D. Rheumatism, gout/inflammation

1. *Aloea vera* (L.) Burm. f. Syn. *A. barbadensis* Mill. (Liliaceae)  
The pulp of the plant, with salt and fermented sugarcane juice, is mixed together and taken to treat pain and inflammation of the body (EBH 4923).
2. *Celastrus paniculatus* Willd. (Celastraceae)  
L.n.: Malkakani.  
The paste of the fruit mixed with warmed mustard oil is applied externally in rheumatism and gout. The seed oil is massaged in body pain and rheumatism (EBH 4909).
3. *Cuscuta reflexa* Roxb. (Cuscutaceae)  
L.n.: Saragbaburi, Akashbel.  
The warm paste of the plant is applied in rheumatism and gout to affected parts of the body (EBH 4920).
4. *Dalbergia sissoo* Roxb. (Fabaceae)  
L.n.: Shisham.  
The seed oil and decoction of the wood is used in the treatment of rheumatic pain. The oil is also used in skin diseases. The aqueous extract of the leaves is given in sun stroke and the paste of the leaves is applied on the forehead for sunstroke (EBH 4937).
5. *Ipomea carnea* Jacq. subsp. *fistulosa* Austin (Convolvulaceae)  
L.n.: Behaya, Besharam.  
The warm leaves in mustard oil are applied as bandages in rheumatism and gout for one month (EBH 5910).
6. *Pterocarpus marsupium* Roxb. (Fabaceae)  
L.n.: Bijasar.  
The powdered gum, powdered alum and hot milk, is given for rheumatic pain. The powdered stem bark is given orally in inflammation of the body for ten days (EBH 4917).

**E. Jaundice**

1. *Allium cepa* L. (Liliaceae)  
L.n.: Piaj.  
The juice of the leaves is put into the eyes for treating jaundice.
2. *Cuscuta reflexa* Roxb. (Cuscutaceae)  
L.n.: Saragbaburi.  
The plant is tied on the neck of the patient, and is also spread on the bed, to cure jaundice. The water vapour of this plant is inhaled for treating jaundice, and tetanus (EBH 4920).
3. *Mangifera indica* L. (Anacardiaceae)  
L.n.: Aam.  
The decoction of the stem bark is given in jaundice for six days. Its vapour is also inhaled (EBH 4928).
4. *Terminalia arjuna* W. & A. (Combretaceae)  
L.n.: Koorasan.  
The aqueous extract of the bark is given three times a day for seven days in the treatment of jaundice. The leaves spread on the bed of the patient are said to give quick relief in curing jaundice (EBH 4927).

**F. Boils and blisters**

1. *Achyranthes aspera* L. (Amaranthaceae)  
L.n.: Chirchira, Latjeera.  
The paste of the leaves is applied on cuts, boils and blisters (EBH 4983).
2. *Amorphophallus paeonifolius* Nicolson syn. *A. campanulatus* (Roxb.) Bl. ex Decne. (Araceae)  
L.n.: Jimikand.  
The warm paste of the corm is applied on boils, to induce suppuration and healing (EBH 5000).
3. *Basella alba* L. (Basellaceae)  
L.n.: Poy  
The warm paste of the leaves is applied on boils and blisters (EBH 4930).
4. *Caesulia axillaris* Roxb. (Asteraceae)  
L.n.: Goragantha.  
The paste of the flowers is applied on cuts and boils (EBH 4936).
5. *Canna indica* L. (Cannaceae)  
L.n.: Cana  
The paste of the root is applied for suppuration of boils.
6. *Cannabis sativa* L. (Cannabiaceae)  
L.n.: Bhang.  
The leaf paste is applied on cuts, boils and blisters for four days (EBH 4941).
7. *Euphorbia nivulia* Buch. – Ham. (Euphorbiaceae)  
L.n.: Sehund.  
The latex of the plant is applied to induce suppuration of boils and blisters (EBH 4990).
8. *Ipomea carnea* Jacq subsp. *fistulosa* Austin (Convolvulaceae)  
L.n.: Besharam.  
The warm paste of the leaves is applied on cuts and boils for three days (EBH 5910).
9. *Melia azaderach* L. (Meliaceae)  
L.n.: Bakain.  
The paste of the leaves is applied to induce suppuration and healing of boils (EBH 4932).
10. *Opuntia dillenii* (Ker. -Gawl) Haw. (Cactaceae)  
L.n.: Nagphani.  
The paste of the phylloclade (stem) mixed with powder of haldi (*Curcuma longa* L.) salt and butter is made into an ointment which is applied on boils and blisters to induce suppuration and healing (EBH 4944).
11. *Sida rhombifolia* L. (Malvaceae)  
L.n.: Bariara.

- The leaf paste is applied on cuts and to induce suppuration of boils (EBH 5913).
12. *Solanum viarum* Dunal syn. *S. khasianum* Clarke (Solanaceae)  
*L.n.*: Kacharia.  
 The pulp of the fruits is applied for suppuration and healing of boils and blisters (EBH 4958).
  13. *Xeromphis spinosa* (Thunb.) Keay (Rubiaceae)  
*L.n.*: Mainphal.  
 The paste of the root is applied on boils for four days. The fruits are also used for stupefying fish and as detergent (EBH 4950).
- G. Diarrhoea, dysentery and other stomach disorders**
1. *Gaesalpinia bonduc* (L.) Roxb. (Caesalpinaceae)  
*L.n.*: Kanja.  
 The seed paste is given for stomach pain, for one day (EBH 4968).
  2. *Curcuma amada* Roxb. (Zingiberaceae)  
*L.n.*: Biada.  
 The powdered rhizome mixed, with jaggery, is given for stomach pain (EBH 5911).
  3. *Echinops echinatus* Roxb. (Asteraceae)  
*L.n.*: Katila.  
 The powdered root is given three times a day for three days to cure colic (EBH 4947).
  4. *Ficus racemosa* L. (Moraceae)  
*L.n.*: Gular.  
 The latex of the plant is used, with sugar, in dysentery. The unripe fruit powder is given in diarrhoea, for three days (EBH 4978).
  5. *Lawsonia inermis* L. (Lythraceae)  
*L.n.*: Mehendi.  
 The leaf juice along with black pepper and liquid curd cures dysentery within two days (EBH 4957).
  6. *Millettia extensa* Baker (Caesalpinaceae)  
*L.n.*: Bhambhiri, goja.  
 The powdered root mixed with powdered root of Neebu (*Citrus* sp.) and salt is given for stomach pain (EBH 4945).
  7. *Momordica dioica* Roxb. (Cucurbitaceae)  
*L.n.*: Khagasa.  
 The aqueous extract of the rootstock with black pepper is given three times a day for three days to cure stomach disorders (EBH 4943).
  8. *Oroxylum indicum* (L.) Vent. (Bignoniaceae)  
*L.n.*: Sona.  
 The stem bark juice is given for indigestion three times for one day (EBH 4904).
  9. *Polygonum barbatum* (L.) subsp. *gracile* Dans. (Polygonaceae)  
*L.n.*: Miria.  
 The juice is given three times for one day for stomach pain (EBH 4994).
  10. *Syzygium cumini* L. Skeels (Myrtaceae)  
*L.n.*: Jamun  
 The paste of the bark and curd given three times a day is said to cure dysentery in two days (EBH 4951).
  11. *Tinospora cordifolia* Miers (Menispermaceae)  
*L.n.*: Gureich.  
 The aqueous extract of the plant is given for stomach disorders and indigestion, two times a day for two days (EBH 4912).

**H. Antifertility**

1. *Millettia extensa* Baker (Caesalpinaceae)  
*L.n.*: Bhambhiri.

The aqueous extract of the root bark, with black pepper, is given after menstrual period, daily for five days to prevent conception (EBH 4945).

2. *Momordica dioica* Roxb. (Cucurbitaceae)

*L.n.*: Khegsa.

The aqueous extract of rootstock of the male plant, with powdered root of 'Kanja' (*Caesalpinia bonduc* L. Roxb.) given two times a day for two days after menstrual period to check conception in women (EBH 4943).

3. *Polygonum barbatum* L. subsp. *gracile* Dans. (Polygonaceae)

*L.n.*: Miria.

The aqueous extract of the root with the root of 'Mehandi' (*Lawsonia inermis* L.) given three times in one day after menstrual period to prevent conception (EBH 4994).

#### I. Abortifacients

1. *Amorphophallus paeonifolius* (Denn.) Nicolson syn. *A. campanulatus* (Roxb.) Bl. ex Decne. (Araceae)

*L.n.*: Jimikand.

The decoction of the corm mixed with the powdered seeds of gajar (*Daucus carota* L.) and old jaggery given two times a day for seven days, to cause abortion of one to three months pregnancy (EBH 5000).

2. *Citrus medica* L. (Rutaceae)

*L.n.*: Biura.

The aqueous extract of the root, with black pepper, is given to induce abortion (EBH 4935).

#### J. Eye diseases

1. *Achyranthes aspera* L. (Amaranthaceae)

*L.n.*: Chirchiri.

The root paste is applied in the eyes to remove cataracts (EBH 4983, 5903).

2. *Calotropis gigantea* (L.) Ait. (Asclepiadaceae)

*L.n.*: Akahua.

The ash of the leaves mixed with wax is dropped in eyes to remove redness (EBH 5916).

3. *Capsicum annum* L. (Solanaceae)

*L.n.*: Mircha.

The leaf juice is applied in eye diseases for three days (EBH 4977).

4. *Cissampelos pareira* L. (Menispermaceae)

*L.n.*: Madraichi.

The leaf juice is applied to remove redness of the eyes, twice a day for three days (EBH 4972).

5. *Luffa graveolens* Roxb. (Cucurbitaceae)

*L.n.*: Ghosran.

The paste of the fruit is applied in eye diseases (EBH 4969).

6. *Terminalia chebula* Retz. (Combretaceae)

*L.n.*: Had.

The fruit paste mixed with powder of 'Haldi' (*Cucurma longa* L.) is applied for inflammation of the eyes (EBH 4979).

#### K. Spermatorrhoea

1. *Achyranthes aspera* L. (Amaranthaceae)

*L.n.*: Chirchira.

The root paste mixed with black pepper is given for 15 days (EBH 4983, 5903).

2. *Clerodendrum viscosum* Vent. (Verbenaceae)

*L.n.*: Bhand.

The paste of the root, mixed with curd, is given (EBH 4962).

3. *Dendrophthoe falcata* (L.f.) Ettingh. (Loranthaceae)

*L.n.*: Banda.

- The powdered leaves are given (EBH 5912).
4. *Ficus bengalensis* L. (Moraceae)  
*L.n.*: Bargad.  
 The latex is used; the aerial root along with flowers of gurhal (*Hibiscus rosa-sinensis* L.) is given (EBH 5909).
  5. *Grewia hirsuta* Vahl (Tiliaceae)  
*L.n.*: Gursakri.  
 The root paste, with sugar, is given for 15 days (EBH 5906).
  6. *Sida cordata* (Burm. f.) Borss. syn. *S. veronicifolia* Lamk. (Malvaceae)  
*L.n.*: Sahdevi.  
 The aqueous extract of the whole plant is given twice a day for seven days. (EBH 4940).
  7. *Tridax procumbens* L. (Asteraceae)  
*L.n.*: Kateri.  
 The aqueous extract of the whole plant is given in spermatorrhoea and general weakness (EBH 5915).

#### **L. Diabetes**

1. *Ficus bengalensis* L. (Moraceae)  
*L.n.*: Bargad.  
 The aerial root paste is mixed with salt, and after filtering, is given as a diuretic and also in diabetes once a day in the morning for eight days (EBH 5909).

#### **M. Piles (Hemorrhoids)**

1. *Chenopodium ambrosioides* L. (Chenopodiaceae)  
*L.n.*: Kirmari.  
 The leaf paste is applied to hemorrhoids for twenty days. The juice is also given internally (EBH 4980, 5902).
5. *Nyctanthes arbor-tristis* L. (Oleaceae)  
*L.n.*: Harsingar.  
 The seed paste is applied to hemorrhoids (EBH 5908).

#### **N. Skin diseases**

1. *Kigelia pinnata* DC. (Bignoniaceae)  
*L.n.*: Balamkhira.  
 The fruit paste is applied in eczema (EBH 5905).
2. *Lablab purpureus* (L.) Sweet. (Fabaceae)  
*L.n.*: Sem.  
 The paste of the leaves is applied on skin diseases (EBH 5918).

#### **O. Snake bite**

1. *Achyranthes aspera* L. (Amaranthaceae)  
*L.n.*: Chirchiri.  
 The root extract is given as an antidote (EBH 4983).
2. *Boerhavia diffusa* L. (Nyctaginaceae)  
*L.n.*: Biskhapara.  
 The leaf juice, with black pepper, is given (EBH 5922).

#### **P. Cough, cold and headache**

1. *Eucalyptus tereticornis* Sm. (Myrtaceae)  
*L.n.*: Liptus.  
 The paste of the leaves is applied on the forehead for headache. The leaf decoction is to treat cough and cold (EBH 5924).
2. *Musa paradisiaca* L. (Musaceae)

*L.n.*: Kela.

The ash of the leaves, mixed with honey, is given to treat cough (EBH 5928).

3. *Piper longum* L. (Piperaceae)

*L.n.*: Peeper.

The ripe fruit powder, mixed with honey, is given for cough and cold. The powdered root sniffed for headache (EBH 4933).

## DISCUSSION

This ethnobotanical survey and field study among the Tharu tribe highlighted the practise of traditional phytotherapy for the treatment of various diseases and disorders, has brought to light new information concerning medicinal plants that may be useful for phytochemists and pharmacologists. Future investigations will be required to establish therapeutic properties for safe use, and clinical trials may eventually be considered. Further, there is the potential need of establishing herbal drug farms for the production and processing of herbal drugs, and this may improve the economy of the tribes.

## ACKNOWLEDGEMENTS

The authors thank Dr. P.V. Sane, Director, National Botanical Research Institute, Lucknow for providing facilities for carrying out this investigation, to Development Officers of Khatima and Sitarganj Blocks of Nainital district, U.P. for help rendered during field work.

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Accepted June 30, 1992