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NOTES ON ETHNOBOTANY OF ERICACEAE FROM THE EASTERN HIMALAYAS AND NORTH-EASTERN INDIA

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ABSTRACT

Ethnobotanical first hand information, mostly on traditional phytotherapies of 23 taxa in the family Ericaceae from different ethnic groups in the Eastern Himalayas and North-Eastern India, has been investigated. Besides some folk therapies for treating various human diseases, other uses such as vegetables, preparation of good quality jams and tart, insecticides, biofertilizers, fodder for cattles and making incence sticks are also described. Data presented are first hand and based on field studies with experienced and elderly tribal people, local medicinemen and forest guards. All 23 taxa of Ericaceae were collected, botanically identified and voucher specimens were deposited in Central National Herbarium (CAL). The traditional pharmaceutical practice shows trends towards development and modernization in aspects like preparation of dosage forms, administration, use of additives and mode of uses.

INTRODUCTION

Today, it is estimated that about 64% of the total global population remains dependent on traditional medicines (Sindiga, 1994) and nearly 7000 species of plants are recognized as of ethnobotanical importance (Anonymous, 1994). As a result of revisionary work under "Flora of India Project" in Botanical Survey of India, several field tours to the Eastern Himalayas and North-eastern India (except Tripura and Mizoram) were undertaken during 2001 to 2003. The study resulted in documentation of 23 taxa in Ericaceae regarding uses as ethnomedicine, insecticides, biofertilizers, vegetables, jams, tarts, incence sticks, fodder for cattles etc. The specific state and it's ethnic groups visited including Sikkim (*Nepalese*, *Sherpas*, *Tibetans*, *Lepchas* and *Bhutias*), West Bengal (*Tamang Nepalese* of Darjeeling), Arunachal Pradesh (*Akas*, *Monpas*, *Mishmese* and *Nepalese*), Meghalaya (*Khasis*), Nagaland (*Imchung* and *Amakhang Nagas*) and Manipur (*Mao* and *Tankul Nagas*).

METHODOLOGY

The above study area was surveyed four times between 2001 and 2003 in three seasons. The ethnobotanical study of 23 taxa in Ericaceae in the Eastern Himalayas and North-eastern India belong to 6 genera (*Cassiope* D. Don, *Enkianthus* Lour., *Gaultheria* L., *Lyonia* Nutt., *Pieris* D. Don and *Vaccinium* L.). The first hand new information recorded during field visits in different areas mentioned above through on oral interviews of experienced and elderly tribal people, local medicinemen those who were sometimes employed as field guides. The data thus collected were further verified among different ethnic groups in a particular district or a state and even comparing with different states for a particular species and finally cross-checked with the help of available published literature and from annotated herbarium specimens (where mentioned). Detailed information regarding local name(s), part(s) used, mode of administration or preparation and dosimetry were recorded in the field note book. Botanical identity was confirmed with the help of Central National Herbarium (CAL), Howrah, India. Voucher specimens are also deposited there, with the first author's field numbers. Information regarding the mode of preparation of the drugs and methods of their administration along with dosages, were recorded. The quality of herbs and additives used for medicinal therapeutic purpose

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were not measured but estimated carefully at these areas. The medicinal properties and other uses of 23 taxa were reported by the knowledgeable Informants.

ENUMERATION

23 taxa are enumerated alphabetically with their botanical name, particular state (alphabetically), particular tribe(s) in a given area, vernacular name(s) and mode of use. The collection number of each taxon is given in the parenthesis followed by the tribe(s) given below. Voucher specimens collected by the author are deposited in Central National Herbarium (CAL).

1. Cassiope fastigiata (Wall.) D. Don

Nepalese of Tsoka village and Yuksum, West district, Sikkim (*S. Panda* 29944). Vernacular name: *Sukpa*. Mode of use: the whole plant is allowed to sun dry for several days and kept for use as incence sticks in their houses as well as in Monastries.

Bhutias of Yuksum, Sikkim (*S. Panda* 29945). Vernacular name: *Norbu*. Mode of use: like the *Nepalese* of Yuksum.

2. Enkianthus deflexus (Griff.) C. K. Schneid. var. **deflexus**

Lepchas of Lachung, North district, Sikkim (*S. Panda* 29996). Vernacular names: *Chattusing*, *Chhutak*. Mode of use: the branch with long stem and the short radiating branchlets is cut into pieces and used for churning stick in boiled 'dal' *Tibetans* of Lachen and Chhaten, North district, Sikkim (*S. Panda* 29904). Vernacular names: *Thibu*, *Thibushi*. Mode of use: raw fruits are used in preparing 'dal'

3. Enkianthus deflexus (Griff.) C. K. Schneid. var. **acuminatus** Panda & Sanjappa

Bhutias of Lachung, Sikkim (*S. Panda* 30080). Vernacular name: *Chhatuk*. Mode of use: the fresh leaf extract is applied on wounds and burns.

4. Gaultheria brevistipes (C. Y. Wu & T. Z. Hsu) R. C. Fang

Apatanese of Ziro, Lower Subansiri district, Arunachal Pradesh (*S. Panda* 30841). Vernacular name: *Talleiang*. Mode of use: 5-dried or 3-fresh fruits are prescribed by the Apatanese doctors twice in a day before meals for six months to the patients suffering from acute gastric ulcers (The study was based on oral interview with the Ranger of Ziro).

During field trip to Talle valley (December, 2002), the expedition team faced an acute shortage of food and drinking water and we survived two days by taking its juicy and pulpy fruits (sweet and little bit sour in taste). Edible fruits look like a bunch of grapes which may be used as value added non timber forest produce. It may be popularised for marketing purpose.

5. Gaultheria codonantha Airy Shaw

Nepalese of Hayuliang, Lohit district, Arunachal Pradesh (*S. Panda* 30883). Vernacular name: *Laligeddi*. Mode of use: raw fruits used as appetizer and cold resist. Ripe fruits are used in preparing tarts and jams.

6. Gaultheria discolor Nutt. ex Hook. (Plate 1)

Akas of Jamiri, West Kameng district, Arunachal Pradesh (*S. Panda* 30828). Vernacular name: *Sezegeu*. Mode of use: the extract of 4 – 8-leaves mixed with powder of 5-dried fruits is administered to drink in a glass of cold water in the morning after breakfast for 5-days, to the patient suffering from amoebic dysentery. It is followed twice in a day up to one month or more in chronic cases. If more fruits and leaves are taken together at a time, it causes immediate vomiting and diarrhoea (The study was based on interview with tribal doctor at his dispensary at Jamiri).

7. Gaultheria fragrantissima Wall.

Nepalese of Bomdi-La, West Kameng district, Arunachal Pradesh (*S. Panda* 30832). Vernacular name: *Kalima*. Mode of use : 10 – 12-dried ripe fruits are ground into powder and taken in a glass of cold water to

cure stomachache. 4 – 5-fruits are used in case of children. It is prescribed to drink in the early morning with empty stomach and twice daily for chronic cases.

Khasis of Jongksha village, Meghalaya (*S. Panda* 30701). Vernacular name: *Lathynrait*. Mode of use: they are used to keep fresh leaves at each and every ant hole (10 – 15-leaves) in their houses to repel ants, scorpion and other insects throughout the year and particularly during rainy season. They keep fresh leaves in food grains for long time storage purpose. A few drops of tender leaf extracts applied against Centepede bites.

Nepalese, Sikkim (*S. Panda* 29928). Vernacular names : *Machino*, *Dhasingare*. Mode of use: 8 – 10-dried ripe fruits are ground into powder and taken in a glass of cold water to cure stomachache; preferably in the early morning with empty stomach and once a day up to six months for acute cases. Sherpas of East district (*S. Panda* 30100). Vernacular name: *Jathyroid*. Mode of use: ripe fruits are used in preparing jams and jellies and are sold in to the local markets.

Tamang Nepalese, West Bengal (Darjeeling) (*S. Panda* 30896). Vernacular name: *Chanchhewaa*. Mode of use : the extract of leaf juice is used to get relief from rheumatic pain. Fresh leaves are cut into pieces and oil extracted by boiling is kept for future uses.

8. Gaultheria griffithiana Wight

Nepalese of East district, Sikkim (*S. Panda* 30004). Vernacular name: *Lexifal*. Mode of use: axillary buds are consumed as vegetables. *Sherpas* of West district (*S. Panda* 30042). Vernacular name: *Dudlara*. Mode of use: leaves and branches are used as fodder for cattle and raw fruits are given to children to expel intestinal worms.

9. Gaultheria hookeri C. B. Clarke

Bhutias of Chhaten, Sikkim (*S. Panda* 29968). Vernacular name: *Kalim*. Mode of use : leaves are used as fodder for cattle. Raw fruits are eaten raw by children and ripe fruits are used in preparing tarts and jams. *Lepchas* of Lachung (*S. Panda* 30070). Vernacular name: *Kalum*. Mode of use : plant is a source of fuel.

10. Gaultheria nummularioides D. Don

Nepalese of West distict, Sikkim (*S. Panda* 30017, 30051, 29939). Vernacular name: *Kalizar*. Mode of use : the whole plant is used for organic manure in the potato field by the Nepalese of Hilley, Ribdhi, Okhrey and Bhanzang areas of West Sikkim. After ploughing the field fresh plants of Kalizar are mixed with small quantity of cow-dung for cultivation of potatoes. It is a common practice among the Nepalese of West Sikkim from time immemorial. The *Nepalese* of Tsoka and Yuksum are used to prepare good quality jams, jellies and tarts from ripe fruits and are sold in the market of Gangtok.

Nepalese of Batasia, West Bengal (Darjeeling) (*S. Panda* 30899). Vernacular name: *Kaligeddi*. Mode of use: 4 – 5-ripe fruits are administered to resist cold, expel cough and for relieving neck pain due to cough.

Tamang Nepalese of Darjeeling (*S. Panda* 30897). Vernacular name: *Nobo*. Mode of use: 10 – 15-drops of tender leaf juice are administered to drink in a glass of cold water for one month in the early morning with empty stomach to cure painful urinary problem. Decoction of tender leaves is applied on severe wounds.

11. Gaultheria semi-infera (C. B. Clarke) Airy Shaw

Nepalese of Batasia, West Bengal (Darjeeling) (*S. Panda* 30766). Vernacular name: *Patpate* (due to 'patpat' sound on burning). Mode of use: 10-drops of leaf juice are administered with a glass of cold water in acute stomachache. It is also used as diuretic and tonic.

12. Gaultheria sinensis J. Anthony

Nepalese of Tsoka village, West district, Sikkim (*S. Panda* 29940). Vernacular name: *Somba*. Mode of use: ripe fruits are eaten to expel phlegum due to cold and cough.



Plate 1. *Gaultheria discolor* Nutt. ex Hook.
A. Flowring and Fruting twig. **B.** Aka Medicineman with the plant part.

13. Gaultheria stapfiana Airy Shaw

Lepchas of Chhaten, Sikkim (*S. Panda* 29906). Vernacular name: *Pochu*. Mode of use: 10 – 15-ripe fruits are eaten raw in the early morning in empty stomach to cure stomachache.

14. Gaultheria trichophylla Royle

Monpas of Tawang district, Arunachal Pradesh (*S. Panda* 30839). Vernacular names: *Vish*, *Shachando*, *Chhewaa*. Mode of use: The root, flower and fruit extracts with leaf paste are administered after meals with cold water to the patients suffering from malaria, pneumonia and syphilis.

Bhutias of Lachen, Sikkim (*S. Panda* 29901). Vernacular name : *Sombu*. Mode of use: 5 – 10- ripe fruits are administered to eat after lunch for one month to cure acute stomachache. The decoction of leaves is applied on wound and cut. Leaf extract often applied to get relieve from rheumatic pain.

15. Lyonia ovalifolia (Wall.) Drude var. **ovalifolia**

Khasis of East and West Khasi hill districts, Meghalaya (*S. Panda* 30702). Vernacular names: *Diengla*, *Samiang*, *Dieng-soh-laru*, *Jarahap*. Mode of use: the juice of tender leaves applied on skin diseases.

Amakhangese of Thanamier village, Tuensang district, Nagaland (*S. Panda* 30861). Vernacular name: *Litchisang*. Mode of use: older leaves are used for rapping medicated 'Biri' Smoking of this 'Biri' is advised to the asthma patient to give relieve pain.

Sherpas of West district, Sikkim (*S. Panda* 30031). Vernacular name: *Saakam*. Mode of use: the extract of roots is used as an antidote against dog bite. *Lepchas* of Lachung and Chungthang, Sikkim (*S. Panda* 29956). Vernacular names: *Kangshior*, *Taksol*, *Kechung*. Mode of use : the infusion of tender leaves is used in cutaneous diseases. Tender leaf powder is often used as insecticide by the *Lepchas* of Lachung.

16. Lyonia ovalifolia (Wall.) Drude var. **lanceolata** (Wall.) Hand.-Mazz.

Khasis of Shillong, Meghalaya (*S. Panda* 30709). Vernacular name: *Teyning*. Mode of use: the tender leaves and leaf buds are used as natural insecticides for long term preservation during storage of food grains. The infusion of them is used in skin diseases.

17. Lyonia villosa (Wall. ex C. B. Clarke) Hand.-Mazz.

Nepalese of Chungthang, North district, Sikkim (*S. Panda* 30801). Vernacular name: *Lekh Angeri*. Mode of use: juice of tender leaves is applied on scabies, other skin diseases like boils and pimples.

18. Pieris formosa (Wall.) D. Don

Lepchas of Lachung, Sikkim (*S. Panda* 30056). Vernacular names: *Aphin*, *Ainfe*. Mode of use: the Lepchas considered the plant a highly poisonous. They taught their children not to touch the plant and even cattle do not touch the plant by getting their smell. They call 'Ghost Plant'. According to Lepcha belief, death soul of devil activities permanently lives on this plant. But the beneficial importance is not known to them so far interviewed conducted among four villages (Lachung, Dombyang, Bitchu and Maltin).

Nepalese of East and West districts, Sikkim (*S. Panda* 30058, 29937). Vernacular names: *Bolu*, *Balu*, *Sheaboge*. Mode of use: the plant is considered as highly poisonous to them but not as 'Ghost Plant'

19. Vaccinium vacciniaceum (Roxb.) Sleumer

Khasis of East Khasi hill district, Meghalaya (*S. Panda* 30711, 30714). Vernacular names: *Soti-pydung*, *Dieng-soh-lardii*, *Soh-pydung-rit*, *Soh-pydung-ut*, *Soh-lia*, *Soh-pelang*, *Ksehblei*. Mode of use: flowers and flower buds are used in preparation of curries and ripe fruits are eaten raw by children.

Tankul Nagas of Siroi village, Ukhrul district, Manipur (*S. Panda* 30738). Vernacular name: *Mikiseng*. Mode of use: tender leaves, flowers and fruits are used as vegetable, preparation of curries and even eaten raw.

Nagas of Sweba village, Kohima district, Nagaland (*S. Panda* 30723). Vernacular name: *Fira*. Mode of use : the extract of 5 – 10-tender leaf paste is applied on new cut and wound for immediate stop of bleeding from the cut and wound.

Nepalese of West district, Sikkim (*S. Panda* 29915, 29917, 29921). Vernacular names: *Charu*, *Umbrella*, *Umbilo*, *Godra dana*, *Liso*, *Zinguney*. Mode of use: leaves, flowers including flower buds and fruits are used as fodder to cattle, preparation of curries and tarts respectively. *Lepchas* and *Bhutias* of Gangtok, West Bengal (Darjeeling), Sikkim (*S. Panda* 2992). Vernacular name: *Ajamithai*. Mode of use: tender leaves and fruits are used as vegetable and eaten raw also.

Tamang Nepalese of Darjeeling, West Bengal (Darjeeling) (*S. Panda* 30765). Vernacular names: *Tambare*, *Firfire*, *Bandriphul*. Mode of use: tender leaves, flowers and fruits are used as vegetable, preparation of curries and eaten raw also.

20. Vaccinium retusum (Griff.) Hook.f. ex C.B. Clarke

Nepalese of East and West districts, Sikkim (*S. Panda* 29930, 30005, 30023). Vernacular name: *Tomarke* (Dada). Mode of use: flowers and ripe fruits are used in preparation of delicious curries and jams respectively.

Nepalese of Pankabari, West Bengal (Darjeeling) (*A. T. Guha* 2, DD). Vernacular name: *Ruk-ko-aziro*. Mode of use: leaves are used as adulterant of tea leaves. Boiling leaves decoction give colour of tea.

21. Vaccinium nummularia Hook. f. & Thomson ex C. B. Clarke

Nepalese of East and West district, Sikkim (*S. Panda* 29936, 30020). Vernacular name: *Tomarke* (Didi). Mode of use: tuberous roots, flowers and fruits are used as vegetable, preparation of curries and jams respectively.

22. Vaccinium glauco-album C. B. Clarke

Lepchas of Lachung and Lachen, Sikkim (*S. Panda* 29959, 30071). Vernacular names: *Khecha*, *Khetha*. Mode of use: sweet and scented globose fruits are used to prepare good quality jams and tarts and are sent to Gangtok market. Leaves are also used as fodder for cattle.

23. Vaccinium exaristatum Kurz

Tankul Nagas of Siroi village, Lambui and Gwaltabi, Ukhrul district, Manipur (*S. Panda* 30755, 30756, 30757). Vernacular name: *Ringseng*. Mode of use: tender leaves and shoots are used as vegetable.

Imchung Nagas of Pungro village, Tuensang district, Nagaland (*S. Panda* 30857). Vernacular name: *Mopungaso*. Mode of use: tender leaves and ripe fruits are used as vegetable and tarts respectively.

DISCUSSION

The present study records the first hand information on ethnobotany of 23-taxa in Ericaceae in India and includes some contemporary folk herbal recipes used to get relieve from common and chronic ailments including gastro-intestinal, dermal, wounds and burns, fever and respiratory complaints along with other uses like vegetables, jams, tarts, insecticides, manure, fodder for cattles, incence sticks, etc.

Traditional knowledge and ethnomedicinal uses of Ericaceous taxa in various ailments such as, chronic dysentery, gastric ulcer, asthma, fever, and other uses such as insecticidal, manure in the potato fields, preparing good quality jams and tarts have been recorded for the first time. Some known ethnobotanical uses *viz.*, vegetables, foods, fodder for cattles and common ailments like wounds and burns, germicide effects, antidermal and antigastro-intestinal problems have also been confirmed and recorded during the field studies which are already reported in literature (Anonymous, 1956, 1976; Bennet, 1983; Chopra & al., 1956; Dam & Hajra, 1991; Gurung, 2002; Kanjilal & al., 1939; Kirtikar & Basu, 1918; Rao, 1963; Saklani & Jain, 1994). However their mode of administration method of preparation of drug, use of additives are different in majority of the cases.

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पूर्वी हिमालय एवं पूर्वोत्तर भारत से इरिकेसी के नृवनस्पति पर टिप्पणी

एस. पाण्डा

सार संक्षेप

पूर्वी हिमालय एवं पूर्वोत्तर भारत में विभिन्न नृजातीय समूहों से इरिकेसी कुल में 23 टैक्सा के मुख्यतः परम्परागत वनस्पति चिकित्सा (फाइटोथैरैपी) पर साक्षात नृवनस्पतीय जानकारी के अन्वेषण हुए हैं। विभिन्न रोगों के लिए कुछ लोक चिकित्सा (फॉकथैरैपी); सब्जी अच्छी गुणवत्ता वाले मुरब्बे व टार्ट, कीटनाशक, जैव उर्वरक, मवेशी के लिए चारे तथा धूपकाठी बनाये जाने का भी वर्णन हुआ है। जनजातीय समूह के अनुभवी बुजुर्ग, स्थानीय चिकित्सक व फॉरेस्ट गार्ड के साथ मिलकर किये गये अध्ययन पर आधारित आंकड़े साक्षात प्राप्त किये गये हैं। इरिकेसी के सभी 23 टैक्सा के संग्रह, अभिनिर्धारण कर वाउचर नमूने केंद्रिय राष्ट्रीय पादपालय (सी.ए.एल.) को सौंपे गये। परम्परागत भेषज्य पद्धति में खुराक बनाने की प्रक्रिया, उसके सेवन, एडिटिव के उपयोग व उपयोग के तरीकों में विकास एवं आधुनिकीकरण की प्रवृत्ति दिखाई देती है।