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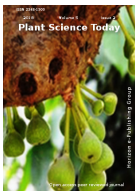

Mini Review

An ethnobotanical study of plants used by forest fringe communities of Lwali village (Pauri Garhwal, Uttarakhand)

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Abstract

The paper provides information on traditional knowledge of plants used by fringe forest communities of village Lwali (District Pauri Garhwal). The paper deals with 35 plant species belonging to 34 genera of 29 families, that find mention in the local folklore. The plants have been provided with botanical names, vernacular names, parts used and ethnobotanical uses.

Keywords

Ethnobotany; Fringe communities; Lwali village; Pauri Garhwal; Uttarakhand

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Introduction

Ethnobotany is a traditional branch of science which deals with the utility of various plants species as food, fodder, fruit, fiber, medicine and other forest based products. World health organization (WHO) estimated that 80 % of the population of developing countries used traditional medicine in the form of various plant parts (1).

Uttarakhand, a part of western Himalaya has a geographical coverage of over 5.37 Lakh km^2 with a diverse assemblage of natural ecosystems ranging from Cold arid ecosystems of Nilang valley to moist lowland forest ecosystems of Tarai region. The state has a vast floristic wealth which consists of a range of plants with medicinal, fodder, fiber, timber values etc. The Indian Himalayan region is the abode of about 18,440 plant species (2) many of which have medicinal properties. Uttarakhand alone contains *ca.* 4700 species, 1503 genera and 213 families of flowering plants, 487 species of ferns and 18 species of gymnosperms (3).

Several forest fringe communities inhabiting in Uttarakhand particularly in the rural areas are dependent on the plant derived medicines which are prepared from locally available plants. In the rest of India as well, traditional medicinal knowledge has been used in curing ailments. Several reports on the Ethnobotany of Uttarakhand have been published in the last two decades (4-33).

Garhwal Himalayan region of Uttarakhand has been reservoir of enormous natural wealth and traditional medicinal knowledge. Several fringe forest villages situated in district Pauri Garhwal, harbor rich traditional ethnobotanical knowledge which is yet to be explored and documented. Therefore the present study was conducted to document various plants and their traditional uses so as to preserve the knowledge for future generations.

During this study, information of 35 plant species was collected from fringe forest village of Lwali, which has been presented here.

Materials and Methods

Study area: The village Lwali (district Pauri Garhwal) is situated at 30°7'13"N and 78°44'6"E, at an elevation of 1351m. The fringe forest of the village is mainly covered by conifer and oak forests. The prevalent species are *Pinus roxburghii* Sarg., *Quercus leucotrichophora* A.Camus, *Myrica esculenta* Buch.-Ham. ex D. Don, *Rhododendron arboreum* Sm. and *Cornus capitata* Wall.

Methodology: The present investigation is a result of extensive and intensive field surveys, conducted at Lwali village in different seasons during the year 2017. All through the surveys, plant specimens were collected and authenticated at DD Herbarium, Forest Research Institute, Dehradun. Medico-ethnobotanical uses have also been appended wherever applicable. The ethnobotanical information related to collected specimens were gathered through direct observation, guided field walk, survey and semi-structured personal interviews with key informants and knowledgeable society members based on a checklist of questions prepared before hand in English and simultaneously translated into Garhwali. Out of the total population of 105 people inhabiting this small hamlet of 25 houses, thirty informants (12 males and 18 females) aged 14 to 83 were interviewed. Random sampling techniques were employed to choose traditional herbalists and common informants. Old women of the village were more knowledgeable in herbal healing and consequently most of the practitioners were women. The information was further confirmed by cross examination of informants of different age groups. Informant's demographic features including sex, age, occupation and time spent by the informant in the study area were also taken into account. The major part of the interviews focused on the local names of plants used, their habits, plant part/s used, remedy preparation methods and materials used during preparation.

Results and Discussion

A total of 35 plant species belonging to 34 genera and 29 families were recorded including 17 herbs, 8 trees, 7 shrubs, and 3 climbers (Table 1). Most of the species recorded had medicinal properties and were used in traditional healing practices. Many of the species also had other uses and were indispensable in the day to day lives of the people. Thus most of the plant species had multiple uses. *Grewia optiva* J.R.Drumm. ex Burret locally called Bhimal have many uses; leaves are used as fodder, young stems are used to wash hair by women, fiber is extracted from its wood which is also used as fuel. *Ficus palmata* Forssk. (Jangali anjir) and *Ficus auriculata* Lour. (Timla) fruits are relished by villagers; in fact popular folk songs of the village allude to these trees. The herbs and shrubs are easily available and are seen growing in the forest fringe as well as in the fields. Elderly women of the village had greater traditional knowledge than the younger generation.

The use of traditional healing methods was much higher among the upper age group when compared to the lower age group. One of the problems faced during interviews the informants knew the use of a particular plant and its properties but was not aware of the vernacular name and hence referred to the plant simply as vanaspati. However the use of certain medicinal plants is kept secret and disclosing the information is believed to reduce the effectiveness. As a result of modernization efforts, hospitals and clinics have come up in the village. The younger generation favour the fast-acting allopathic medicines that give quick relief. They are either totally unaware of the traditional uses of the plants or have limited information on the most frequently used ones. Thus there is a gradual erosion of traditional knowledge.

Conclusion

The study concludes that forest fringe communities of Lwali village utilized 35 plant species in different forms mainly as medicines for curing different ailments. During the study it has been found that that the decreasing dependence on forests has resulted in the rapid loss of traditional knowledge. Due to urban migration there has been a demographical change, with a predominantly aging population in the villages. Shifting trends in healing methods were also observed. Due to the increasing availability of modern allopathic medicines, the traditional healing methods have unfortunately taken a back seat.

Competing interests

The authors have declared that no competing interests exist.

Authors contributions

PKV conceived the idea and helped in manuscript writing. Field visit, collection and identification of specimen was done by NB. RN and AC contributed in specimens identifications and Manuscript corrections.

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Table 1: Enumeration of plants used by Forest Fringe Communities of Lwali village, Pauri Garhwal

S. No.	Vernacular name	Botanical name of plant	Family	Habit	Plant part/s used	Uses
1	Kirmoli	*Thalictrum clavatum* D.C.	Ranunculaceae	Herb	Roots	Cured worms in to kill intestine worms of the kid
2	Timru	*Zanthoxylum armatum* D.C.	Rutaceae	Shrub	Stem	Mouth cleaner
3	Kingoda	*Berberis asiatica* Roxb. ex D.C.	Berberidaceaeae	Shrub	Roots	Diabetes
4	Bhaang	*Cannabis sativa* Linn.	Cannabaceae	Shrub	Roots, Leaves, Fiber	To get rid of drowsiness
5	Kadhwi	*Roylea cinerea* D. Don.	Lamiaceae	Shrub	Leaves	Used in heal the boil
6	Neelkanthi	*Elephantopus scaber* Linn.	Asteraceae	Herb	Leaves	Cure for intestinal worms specially for kids
7	Almoru	*Rumex hastatus* D. Don.	Polygonaceae	Herb	Leaves	Use for healing on wounds and cuts
8	Genthi	*Dioscorea bulbifera* Linn.	Dioscoreaceae	Climber	Fruits	Diabetes
9	Gindaru	*Stephania glabra* (Roxb.) Miers	Menispermaceae	Climber	Roots	Stomachache, constipation
10	Hinsar	*Rubus ellipticus* Sm.	Rosaceae	Shrub	Whole plant	Diarrhea
11	Toon	*Toona ciliata* M. Roem.	Meliaceae	Tree	Bark	Healing wounds as well as timber
12	Samoya	*Valeriana jatamansi* Jones	Valerianaceae	Herb	Whole Plant	Leaves kept in clothes, paste applied on body on wedding
13	Kachoor	*Curcuma zeodaria* (Christm.) Roscoe	Zingiberaceae	Herb	Rhizomes	Paste applied on body on wedding ceremony
14	Akhrot	*Juglans regia* Linn.	Juglandaceae	Tree	Fruits	Cure for ringworm
15	Lichkur	*Sigesbeckia orientalis* Linn.	Asteraceae	Herb	Leaves	For heal wounds & blood clots
16	Bedu	*Ficus palmata* Forssk.	Malvaceae	Tree	Fruits	As fruit
17	Timla	*Ficus auricalata* Lour.	Moraceae	Tree	Fruits	Quickly heal clot
18	Bhimal	*Grewia optiva* J.R. Drumm. ex Burret	Moraceae	Tree	Leaves, Branches	Hair dandruff and anti fungal as well as fine fiber
19	Binda	*Colebrookea oppositifolia* Sm.	Lamiaceae	Shrub	Leaves	Wounds healing
20	Chirchita	*Achyranthes aspera* Linn.	Amaranthaceae	Herb	Seeds	Fever
21	Papkakani	*Celastrus paniculatus* Willd.	Celastraceae	Climber	Seeds	Seed oil applied to skin itching
22	Mehal	*Pyrus pashia* Buch.-Ham. ex D.Don	Rosaceae	Tree	Fruits	Digestive disorder
23	Lingoda	*Diplazium esculentum* (Retz.) Sw.	Athyriaceae	Herb	Leaves	As vegetable
24	Bishkhap	*Boerhavia diffusa* Linn.	Nyctaginaceae	Herb	Leaves and stem	Piles, urinary troubles, dropsy condition, Inflammatory renal diseases
25	Genti	*Boehmeria rugulosa* Wedd.	Urticaceae	Tree	Bark	Blood coagulation
26	Gokharu	*Tribulus terrestris* Linn.	Zygophyllaceae	Herb	Seeds	Gout and urinary disorder
27	Pathar chatta	*Bergenia ciliata* (Haw.) Sternb.	Saxifragaceae	Herb	Leaves as well as whole plant	Dissolving kidney stones and urinary releases
28	Kharna	*Eupatorium adenophorum* Hort.Berol. ex Kunth	Asteraceae	Herb	Leaves	Wounds
29	Bhilmori	*Oxalis corniculata* Linn.	Oxalidaceae	Herb	Leaves	Cough and bronchitis
30	Dubla	*Cynodon dactylon* (L.) Pers.	Poaceae	Herb	Roots	Fever
31	Kansura	*Commelina benghalensis* Linn.	Commelinaceae	Herb	Leaves	Swelling in body
32	Kuthhi	*Dicliptera bupleuroides* Nees	Acanthaceae	Herb	Seeds and leaves	Used for dysentery in children
33	Kandali	*Urtica dioica* Linn.	Urticaceae	Herb	Whole plants	Stem used as fiber; fresh leaves as vegetable
34	Saunla	*Rhus parviflora* Roxb.	Anacardiaceae	Shrub	Branches	Teeth cleaner
35	Reetha	*Sapindus mukorossi* Gaertn.	Sapindaceae	Tree	Fruits	Hair shampoo

Fig. 1-25. 1-4. Interaction with inhabitant, 5. *Berberis asiatica* Roxb. ex D.C., 6. *Cannabis sativa* Linn., 7. *Dioscorea bulbifera* Linn., 8. *Ficus auricalata* Lour., 9. *Ficus palmata* Forssk., 10. *Juglans regia* Linn., 11. *Rhus parviflora* Roxb., 12. *Roylea cinerea* D. Don., 13. *Grewia optiva* J.R. Drumm. ex Burret, 14. *Rubus ellipticus* Sm., 15. *Rumex hastatus* D. Don., 16. *Sapindus mukorossi* Gaertn., 17. *Sigesbeckia orientalis* Linn., 18. *Stephania glabra* (Roxb.) Miers, 19. *Toona ciliata* M. Roem., 20. *Zanthoxylum armatum* D.C, 21. *Valeriana jatamansi* Jones, 22. *Boehmeria rugulosa* Wedd., 23. *Urtica dioica* Linn., 24. *Curcuma zeodaria* (Christm.) Roscoe, 25. *Bergenia ciliata* (Haw.) Sternb.

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