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An Ethno-Botanical Study of Plants Found in Timli Forest Range, District Dehradun, Uttarakhand, India

Deepak Upadhyay

G.B. Pant Institute of Himalayan Environment and Development, Kosi-Katarmal, Almora, Uttarakhand, India

Correspondence should be addressed to Deepak Upadhyay, deepakupadhyay26@gmail.com

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Abstract The Present study has been conducted in the surrounding area of Timli village which is situated in Timli forest range in the foot hills of Shivalik occurring in Dehradun district of Uttarakhand. A survey for identification of plants was conducted in this region. A number of plants were collected from the study area and identified with the help of available literatures and local inhabitants. The information on botanical, family, local name, habit and medicinal and other uses was collected discussed and documented. These plants are used extensively by local village communities to cure a number of diseases. Some of them are Aaola (*Phyllanthus emblica* L.), Behada (*Terminalia bellirica* (Gaertn.) Roxb) and Harad (*Terminalia chebula* Retz.). Other than medicinal use Bakli (*Anogeissus latifolia* (Roxb. ex DC.) Wall. Ex Beddome) and Dhaman (*Grewia tiliifolia* Vahl) tree are used maximum for fuel wood.

Keywords *Ethno-Botanical; Timli Village; Dehradun*

1. Introduction

Himalayan forests are known for its rich Biodiversity. Uttarakhand is endowed with a rich wealth of medicinal plants. It is traditionally known as gold mine of medicinal plants [1]. Shivalik hills of Dehradun are recognized as home to many medicinal and economic important plants. The present study was conducted in Timli forest range which is situated in the western part of Dehradun. People of the Timli village are highly dependent on surrounding forest for many uses including medicinal and fuel wood plants. The major ethnic groups in the study area are Van-Gujjars.

1.1. Study Area

Uttarakhand comprises 34 651 km^2 of forest area covering 64.79 % of its geographical area [2]. The study was carried out in Timli Forest Range located approximately 45 Km from Dehradun. If we go further ahead of Timli village it is lies next to Saharanpur district of Uttar Pradesh. The study area consists of undulating hills and some plane. Timli Village and chidiya valley falls in the study area (Figure 1). The forest of this area has Sal (*Shorea robusta* C.F. Gaertn.) as a major species however,

nearby area of the village is degraded up to certain extent. Climate of the area is subtropical type. According to Champion and Seth (1968) forest types found in this area are: Moist Shivalik Sal Forest, Moist Bhabar Dun Sal Forest, Dry Shivalik Sal Forest, Northern Dry Mixed Deciduous Forest and Dry Deciduous Scrub etc. [3].

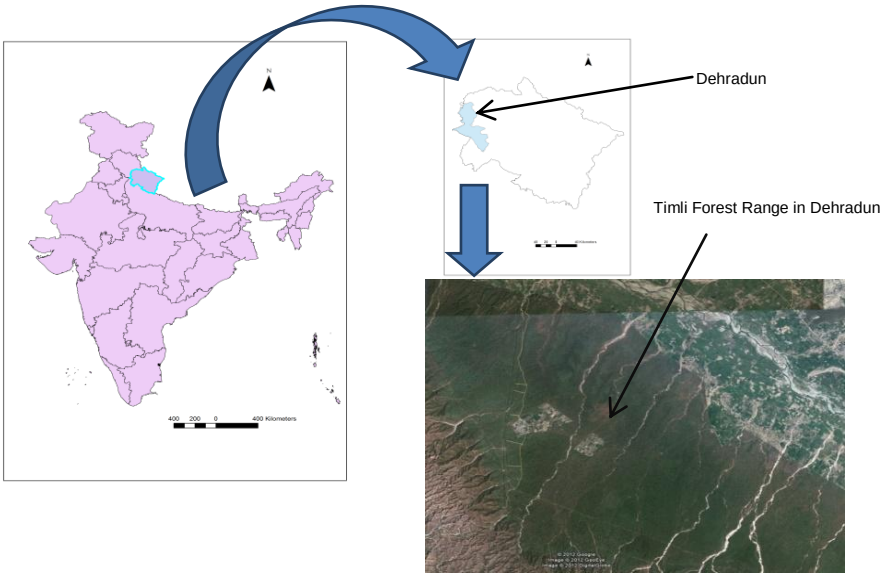

Figure 1: *Study Area*

2. Materials and Methods

2.1. Procedure

The present study was conducted in the Timli forest area which lies in west of Dehradun. The methodology adopted for the study was based on random personal interview with the local villagers having knowledge on the use of different plants species by the people.

The plants were identified comparing with the classification system of Bentham and Hooker and Hutchinson System of Classification. Identification of specimens was done with the help of latest monographs and floras. The identification and nomenclature of all species was performed in accordance with the international code of botanical nomenclatures and with the help of GRIN and Kew botanical garden websites and also help was taken from the different reputed botanical flora namely (Flora of British India) [4], Flora of upper gangetic plane [5], Forest Flora of the Siwalik and Jaunsar Forest Divisions of the United Provinces of Agra and Oudh [6], Flora of Chakrata, Dehradun and Sharanpur [7].

3. Results

A total of 50 plants species belong to 28 families were recorded and identified from the survey. Out of 28 families maximum species belongs to family Fabaceae followed by Combretaceae, Meliaceae and Malvaceae (Figure 2). The information collected regarding ethno-botanical plants are documented with their scientific name, local name, habit, family and ethno-botanical uses (Table 1). The recorded plants are being used by local inhabitants for treatment of various ailments. The information provided in the paper is limited and there is further scope to gather more information about the various medicinal and economically important plants found in this area.

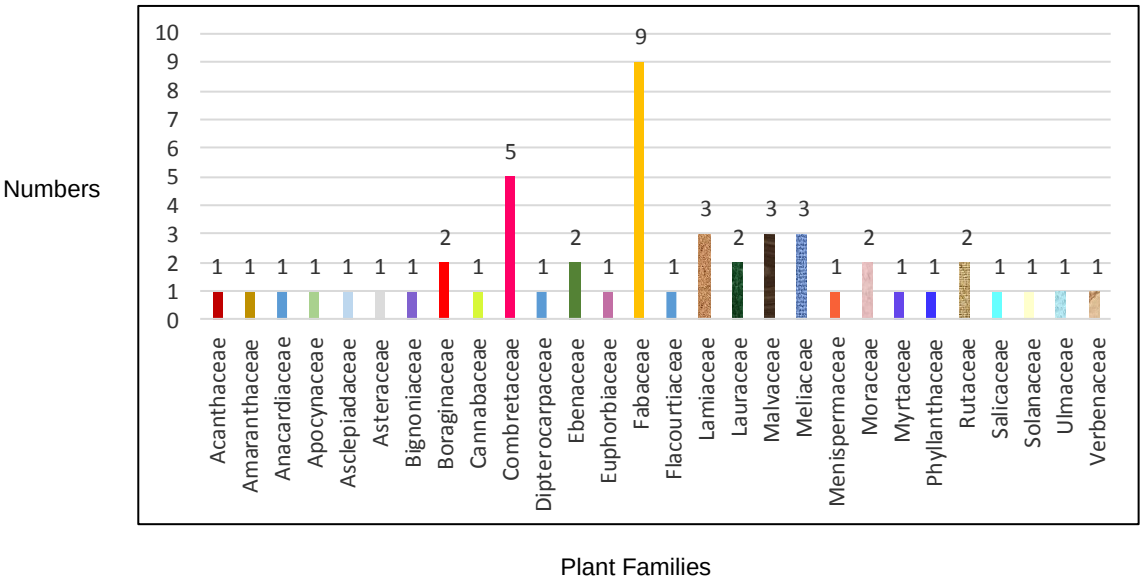

Figure 2: *Showing Number of Families of Plants*

Table 1: *List of Some Common Plants Found in Timli Forest Range, Dehradun, Uttarakhand*

S. No.	Scientific Name	Local/Common Name	Habit	Family	Uses
1	*Acacia catechu* (L. f.) Willd.	Khair	Tree	Fabaceae	Used as timber. Katha is obtained from the bark. Resin is used by for healing wound.
2	*Achryanthes aspera* L.	Chirchita	Shrub	Amaranthaceae	Roots are used in tooth ache.
3	*Adhatoda vasica* Nees is Synonym of *Justicia adhatoda* L.	Arusa	Shrub	Acanthaceae	Leaves are used to treat cough and cold.
4	*Aegle marmelos* (L.) Correa	Bel	Tree	Rutaceae	Ripe fruit is used for preparing aromatic drink.
5	*Ageratum conyzoides* L.	Visadodi	Herb	Asteraceae	Used in Skin ailments, cuts, sores, diarrhoea, snake bite.
6	*Albizia lebbeck* (L.) Benth.	Siris	Tree	Fabaceae	Seeds are used to treat piles, tuberculosis, and snake bite. Wood is used for making furniture. Leaves and twigs are used as fodder.
7	*Anogeissus latifolia* (Roxb. ex DC.) Wall. ex Beddome	Bakali	Tree	Combretaceae	Used for timber, fodder, gum, tannin and pulp.
8	*Azadirachta indica* A. Juss.	Neem	Tree	Meliaceae	Twigs are used as datun for teeth's brushing.
9	*Bombax malabaricum* DC. is Synonym of *Bombax ceiba* L.	Semal	Tree	Malvaceae	Roots, flower, stem and bark possess medicinal property.
10	*Butea monosperma* (Lam.) Taubert	Dhak	Tree	Fabaceae	Used for timber, resin, fodder, medicine, and making dye.
11	*Calotropis procera* (Aiton.) W. T. Aiton	Aak	Shrub	Asclepiadaceae	Plants have anti-inflammatory, analgesic, and antioxidant properties.
12	*Cannabis sativa* L.	Bhang	Herb	Cannabaceae	Leaves are commonly smoked by people and leaf paste is used by females in uterus prolapse.

13	*Cassia fistula* L.	Amaltash	Tree	Fabaceae	Fruits are used as medicine to treat cholera, jaundice and urinary tract problems.
14	*Casearia tomentosa* Roxb.is Synonym of *Guidonia tomentosa* (Roxb.) Kurz.	Chillha	Tree	Salicaceae	Wood is used as fuel wood.
15	*Clerodendrum viscosum* Vent. is Synonym of *Clerodendrum infortunatum* L.	Katu	Shrub	Lamiaceae	Used as herbal remedy for asthma, cough, fever and skin diseases.
16	*Cordia dichotoma* G. Forst.	Lasora	Tree	Boraginaceae	Ripe fruit used by local people for curing many ailments.
17	*Dalbergia sissoo* Roxb. ex DC.	Sheesham	Tree	Fabaceae	Used for timber.
18	*Datura inoxia* Mill.	Dhatura	Shrub	Solanaceae	Sacred plant. Flowers and fruits are offered to Lord Shiva.
19	*Desmodium gangeticum* (L.) DC. is Synonym of *Hedysarum gangeticum* L.	Salparni	Under Shrub	Fabaceae	The roots possess medicinal property.
20	*Diospyros melanoxylon* Roxb.	Tendu	Tree	Ebenaceae	The leaves are used for making bidis (Cigarette). Branches are used for fuel wood.
21	*Diospyros tomentosa* Roxb. is Synonym of *Diospyros exsculpta* Buch. –Ham.	Dudhi	Tree	Ebenaceae	Various parts are used to cure cough and pneumonia.
22	*Ehretia laevis* Roxb.	Chamror	Tree	Boraginaceae	Root and bark have medicinal property. It is used as fire wood.
23	*Emblica officinalis* Gaertn. Synonym of *Phyllanthus e mblica* L.	Aola	Tree	Phyllanthaceae	Its fruits are full of vitamin C and used commonly by people for making pickle.
24	*Ficus racemosa* L.	Gular	Tree	Moraceae	Fluid of root is used as tonic. Leaves are used as fodder.
25	*Flacourtia indica* (Burm. f.) Merr.	Kangu	Shruby Tree	Flacourtiaceae	Used in Hepatitis, rabbies and diarrhoea.
26	*Flemingia chappar* Buch. – Ham. ex Benth.		Shrub	Fabaceae	Stem is used to clean teeth's.
27	*Grewia tiliifolia* Vahl	Dhaman	Tree	Malvaceae	Used as fuel wood.
28	*Holorrhena antidysenterica* (G. Don) Wall. ex A. DC. is Synonym of *Holorrhena pubescens* Wall. ex A. DC.	Kura	Shrub/ Small tree	Apocynaceae	Stem bark used in amoebic dysentery and diarrhoea.
29	*Holoptelea integrifolia* (Roxb.) Planch.	Papri	Tree	Ulmaceae	Fruits are eaten locally.
30	*Lannea coromandelica* (Houtt.) Merr.	Zhingan	Tree	Anacardiaceae	Used in dysentery and stomach ache.
31	*Lantana Camara* L.		Shrub	Verbenaceae	Used as fire wood.
32	*Litsea glutinosa* (Lour.) C.B. Robinson is Synonym of *Litsea chinensis* Lam.	Singrau	Tree	Lauraceae	Bark used in dysentery and diarrhoea.
33	*Tetranthera monopetala* Ro xb. is synonym of *Litsea monopetala* (Roxb.) Pers.	Meda	Tree	Lauraceae	Leaves are used in dysentery and diarrhea.
34	*Mallotus philippensis* (Lam.) Müll. Arg.	Rohini	Tree	Euphorbiaceae	Used in skin disease and snake bite.
35	*Morus indica* L. Synonym of *Morus australis* Poir.	Shatoot	Tree	Moraceae	Fruits are eaten.

36	*Melia azedarach* L.	Bakain	Tree	Meliaceae	Used in pain and skin infection also used to cure many ailments.
37	*Millettia extensa* (Benth.) Benth. ex Baker	Gauz	Shrub/Climber	Fabaceae	Used in tooth ache and fever.
38	*Murraya koenigii* (L.) Spreng. Synonym of *Bergera koenigii* L.	Kathneem	Shrub	Rutaceae	Leaves possess medicinal value used in curry by local people. Wood is used as fire wood.
39	*Ougeinia oojeinensis* (Roxb) Hochr. Is Synonym of *Desmodium ojeinense* (Roxb.) H. Ohashi	Sannan	Tree	Fabaceae	Used in diarrhoea, dysentery and also used as fodder.
40	*Oroxylum indicum* (L.) Vent.	Soana/Arula	Tree	Bignoniaceae	Seed are traditionally used in Ayurvedic medicine. The root and bark are also known to be astringent and bitter.
41	*Sida indica* L. is Synonym of *Abutilon indicum* (L.) Sweet	Kanghi	Shrub	Malvaceae	The entire plant is medicinal. The leaves are used as a demulcent and aphrodisiac.
42	*Shorea robusta* C.F. Gaertn.	Sal, saku	Tree	Dipterocarpaceae	Boiled seeds are eaten. Wood is used for building purposes, making furniture and agricultural implements, leaves are used as fodder.
43	*Syzygium cumini* (L.) Skeels	Jamun	Tree	Myrtaceae	Fruits are eaten
44	*Tectona grandis* L. f.	Sagwan	Tree	Lamiaceae/Verbenaceae	Used as timber for making furniture.
45	*Terminalia alata* B. Heyne ex Roth is Synonym of *Terminalia elliptica* Willd.	Sain	Tree	Combretaceae	Wood is used for making furniture.
46	*Terminalia arjuna* (Roxb. ex DC.) Wight & Arn.	Arjun	Tree	Combretaceae	Bark and twig have medicinal value. Twig is used as datum for cleaning teeths.
47	*Terminalia bellirica* (Gaertn.) Roxb.	Bahera	Tree	Combretaceae	Its fruits are used for treating cough, sour throat and also used in treatment of constipation.
48	*Terminalia chebula* Retz.	Harad	Tree	Combretaceae	Used in treatment of constipation.
49	*Toona ciliata* M. Roem.	Toon	Tree	Meliaceae	Used for timber.
50	*Tinospora cordifolia* (Willd.) Hook. f. & Thomson	Giloe	Herbaceous Vine	Menispermaceae	Its liquid is have medicinal value and taken with water.

4. Discussion

The main focus of this study was to gather information on plant species which are used by local inhabitants of the Timli forest range. Plant species recorded from the study area were used for many purposes like fuelwood, fodder, healing many diseases etc. Figure 3 showing plants of the study area.

5. Conclusion

During this study it was observed that traditional knowledge and wisdom of the local inhabitants for conservation and sustainable use of various plant species is decreasing especially among young generation thus there is urgent need to spread awareness among them to protect biodiversity and plant more species for future generations.

Ficus glomerata

Mallotus philippensis an associate of Sal

Tectona grandis

Sal forest

Ageratum conyzoides

Figure 3**:** *Some Plants of the Study Area*

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