WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 12, Issue 15, 761-766. Research Article ISSN 2277– 7105

SURVEY OF ETHNOMEDICINAL PLANTS OF DEOBAN (CHAKRATA) REGION

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Article Received on
09 July 2023,

Revised on 30 July 2023,
Accepted on 20 August 2023

DOI: 10.20959/wjpr202315-29466

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ABSTRACT

Medicinal plants play a significant role in healthcare practices among tribal and rural communities. These communities possess extensive knowledge on the effective treatment of various health problems solely through the use of plant parts. This knowledge, which is passed down orally through generations, is invaluable. Therefore, an effort was made to assess the ethnomedicinal information of herb species utilized by the local residents of *Deoban (Chakrata)* in the Dehradun District of Uttarakhand. The information presented in this paper was collected through extensive field visits in the forest and nearby villages, participatory observations, group discussions, and interviews with local residents who possess knowledge about medicinal plants. The data collection period extended from April 2022 to July 2023. A total of 46 plant species were collected during the field visit and reported to possess ethno-medicinal properties by the local dwellers. These plants are used by the community for their primary healthcare needs. The plants utilized for various purposes are listed along with their Botanical name, family, local name, and ethno-medicinal importance. This study suggests that the inhabitants of *Deoban (Chakrata)* possess a profound traditional knowledge regarding the medicinal use of plants. Documentation of this knowledge could potentially pave the way for further pharmacological research.

KEYWORDS: Medicinal plants, Ethno medicine, Health, Local Dwellers, Species.

INDRODUCTION

India has a rich and ancient heritage of traditional medicine. It is widely recognized that the people of India have had knowledge of a vast number of medicinal plants, surpassing that of any other country on Earth.[1] The traditional use of herbal medicine refers to the long-standing historical use of medicines, which has been proven to be safe and effective and is widely accepted by national authorities. The Rigveda and other Vedic works clearly indicate that the Aryans had a deep appreciation for plants and devoted themselves to studying the flora in order to understand their potential and utility.[2] As global interest grows in adopting and studying traditional systems and exploring their potential within different healthcare systems, it is imperative to recognize and appreciate the vast heritage of traditional medicine that India possesses. Globally, about 85 % of the traditional medicines used for primary healthcare are derived from plants.[3] Herbal medicines have good values for treating many diseases like fever, skin disease, Cuts and wounds, respiratory problem, diabetes, cold & cough, joint pain etc.

AIMS AND OBJECTIVE

1. Survey, collection and identification of medicinal plants found on *Deoban (Chakrata)* of District Dehradun Uttarakhand.
2. Preparation of herbarium specimen.
3. Authentication of herbarium specimen by relevant authorities.
4. Collection of recent ethno-medicinal information and documentation of this traditional knowledge about ethno-medicinal uses of medicinal plants.

STUDT SITE

In present work, *Deoban (Chakrata)* Hill region of *Jaunsar-Bawar* Himalayas of Dehradun district of Uttarakhand has been selected as study site. *Deoban (Chakrata)* is located at 13 km from *Chakrata.* The distance between Dehradun to *Deoban (Chakrata)* is 101 km. *Deoban (Chakrata)* also known as *Jaunsar-Bawar* is a Hilly region in District Dehradun. *Deoban (Chakrata)* lies at an elevation of 2118 meteres from sea level. Geographically, it has rich vegetation and mostly covered by forest areas. The temperature of *Deoban (Chakrata)* in summers: maximum- 30^0C, minimum- 10^0C, in winters: maximum- 15^0C, minimum- -5^0C *(Chakrata* receives heavy snow fall in winter). Monsoon season of *Deoban (Chakrata)* is July to September and with expected rainfall: 178 cms per annum. This region is a mixed forest

and is very rich in medicinal plant. The area is predominantly rich in plants species like *Swertia chirayita, Bergenia ciliate, Carum carvi, Polygonatum verticillatum, Zanthoxylum armatum, Cedrus deodara, Picrorhiza kurroa, Aconitum heterophyllum, Acorus calamus, Digitalis purpurea* etc.

MATERIAL AND METHODS

The study was carried out between April 2022 and July 2023, with the aim of exploring the ethnomedicinal significance of herb species in the study area and documenting the traditional knowledge held by the local population. Regular field trips were arranged to survey the surrounding areas inhabited by the local people, with the aim of collecting plant specimens and gathering pertinent information pertaining to ethnomedicinal practices. Extensive interviews were conducted with identified traditional healers as part of the study.

Two basic approaches were employed to study traditional knowledge. The first approach, referred to as the 'Inventory' approach, involved conducting surveys of the study area and collecting plant specimens. The second approach, known as the 'Interview' approach, consisted of administering questionnaires to gather information on the local names and medicinal uses of plants utilized by the residents of *Deoban (Chakrata).* The collected plant specimens were presented to the local community members, who were then interviewed to ascertain their knowledge about these plants. Traditional healers, elders, and women were consulted regarding the medicinal uses of the plants, and their responses were cross-checked with other individuals knowledgeable in traditional healthcare. Both approaches were repeated with various informed individuals, such as elders and traditional healers.

The plants specimens were collected, numbered, photographed, documented and prepared herbarium following usual methods of herbarium preparation and preserved. Collected plant specimens were preliminarily identified with the help of Supervisor, Co-supervisor and Regional Flora and verified by Scientist, Uttarakhand Space Application Centre.

A questionnaire was designed to gather data on the local names of plants, their medicinal significance, and whether they were collected for personal use or for commercial purposes. Since the majority of traditional healers were illiterate, structured interviews were conducted using a set of predetermined questions. The data collected was obtained directly from the respondents. Information regarding the medicinal properties of plants was gathered exclusively from local residents living in the vicinity of *Deoban (Chakrata).*

The methods used in this study were specifically designed to gather valuable information on the ethno-medicinal uses of plants by the local people residing near *Deoban (Chakrata).* The plants were categorized alphabetically based on their botanical name, family, local name, growth habit, and medicinal properties.

RESULTS

In the present study total 46 plant species were collected from forest. Ethnomedicinal uses for 46 plants belonging from 29 families were reported by the local dwellers. These 46 plants species used by local dwellers of study area for their primary health care documented in Table No. 1. out of 46 plant species 05 species belongs Asteraceae, 03 species belongs to Rennunculaceae, Rutaceae, and Orchidaceae each, 02 species belongs to Amaryllidaceae, Pinaceae, Rosaceae, Scrophulariaceae, Gentiannaceae, Lamiaceae, and Liliaceae each and 01 species belongs to Acroaceae, Berberidaceae, Sexifragaceae, Apiaceae, Cornaceae, Rubiaceae, Thymelaeaceae, Ephedraceae, Elaeagnaceae, Morinaceae, Polygonaceae, Phytolaccaceae, Plantaginaceae, Podophyllaceae, Eriacaceae, Melanthiaceae, Valerianaceae, and Violaceae each. Among the reported ethno-medicinal plant species 34 species were Herbs, 07 species were Shrubs and 05 species were Tree.

Table 1: Enumeration of plants used as medicine by the local dwellers of *Deoban (Chakrata)* District Dehradun Uttarakhand.

S.No	Botanical Name	Family	Habit	Local Name	Medicinal Value
1.	*Aconitum ferox* Wall. ex Seringr	Ranunculaceae	Herb	*Mitha vish*	ETM
2.	*Aconitum heterophyllum* Wall.	Ranunculaceae	Herb	*Atis*	ETM
3.	*Acorus calamus* Linn.	Acoraceae	Herb	*Vach*	ETM
4.	*Ainsliaea aptera* DC.	Asteraceae	Herb	*Kauru*	ETM
5.	*Allium humile* Kunth.	Amaryllidaceae	Herb	*Faran*	ETM
6.	*Allium wallichi* Kunth	Amaryllidaceae	Herb	*Lainka*	ETM
7.	*Anacyclus pyrethrum* DC.	Asteraceae	Herb	*Akarkara*	ETM
8.	*Berberis aristata* Roxb. ex DC.	Berberidaceae	Shrub	*Kilmodu*	ETM
9.	*Bergenia ciliata* (Haworth) Sternberg	Sexifragaceae	Herb	Silphara	ETM
10.	*Boenninghausenia albiflora* (Hook.)	Rutaceae	Herb	Pissumar	ETM
11.	*Carum carvi* Linn.	Apiaceae	Herb	*Kala jeera*	ETM
12.	*Cedrus deodara (*Roxb. ex D.Don) G.Don.	Pinaceae	Tree	*Deodara*	ETM
13.	*Cornus macrophylla* Wall.	Cornaceae	Tree	*Khagsa*	ETM
14.	*Cotoneaster microphyllus* Wall. ex Lindl.	Rosaceae	Shrub	*Bhandera*	ETM

15.	*Daphne papyracea* Wall. ex G.Don.	Thymelaeaceae	Shrub	*Satpura*	ETM
16.	*Digitalis purpurea* Linn.	Scrophulariaceae	Herb	*Tilpushpi*	ETM
17.	*Ephedra gerardiana* Wall.	Ephedraceae	Shrub	*Somalata*	ETM
18.	*Gentiana kurro* Royle.	Gentianaceae	Herb	*Neelkanthi*	ETM
19.	*Habenaria edgeworthii* Hook.f. ex Collett.	Orchidaceae	Herb	*Riddhi*	ETM
20.	*Habenaria intermedia* D.Don. S	Orchidaceae	Herb	*Vriddhi*	ETM
21.	*Hippophae salicifolia* D.Don.	Elaeagnaceae	Tree	*Chuk*	ETM
22.	*Mentha piperita* Linn.	Lamiaceae	Herb	*Pudina*	ETM
23.	*Microstylis wallichii* Lindl.	Orchidaceae	Herb	*Jeevaka*	ETM
24.	*Morina longifolia* Wall. ex DC.	Morinaceae	Herb	*Bushiyaan*	ETM
25.	*Pesicaria amplexicaulis* (D.Don) Ronse Decr.	Polygonaceae	Herb	*Kutrya*	ETM
26.	*Phytolacca acinosa* Roxb.	Phytolaccaceae	Herb	*Jagarya*	ETM
27.	*Picrorhiza kurroa* Royle ex. Benth	Scrophulariaceae	Herb	*Kuru*	ETM
28.	*Pinus roxburghii* Sargent.	Pinaceae	Tree	*Chira*	ETM
29.	*Plantago major* L.	Plantaginaceae	Herb	*Lahyrya*	ETM
30.	*Podophyllum hexandrum* Royle.	Podophyllaceae	Herb	*Bankakri*	ETM
31.	*Polygonatum cirrhifolium* (Wall.) Royle	Liliaceae	Herb	*Mahameda*	ETM
32.	*Polygonatum verticillatum* (L) All.	Liliaceae	Herb	*Meda*	ETM
33.	*Potentilla fulgens* Wall. ex Hook.	Rosaceae	Herb	*Bajardanti*	ETM
34.	*Rubia cordifolia* Linn.	Rubiaceae	Herb	*Manjeettha*	ETM
35.	*Rhododendron arboretum* Sm.	Ericaceae	Tree	*Buransha*	ETM
36.	*Saussuria lappa* C.B Clarke	Asteraceae	Herb	*Kut*	ETM
37.	*Saussurea roylei* C.B. Clarke.	Asteraceae	Herb	*Jungli Kapas*	ETM
38.	*Skimmia laureola* sensu Hook. f.	Rutaceae	Shrub	*Nazar Panra*	ETM
39.	*Swertia chirayita* (Roxb. ex Flem.)	Gentianaceae	Herb	*Chirayata*	ETM
40.	*Taraxcum officinale* Weber.	Asteraceae	Herb	*Kanphool*	ETM
41.	*Thalictrum foliolosum* DC.	Ranunculaceae	Herb	*Kirmuli*	ETM
42.	*Thymus serpyllum* Linn.	Lamiaceae	Shrub	*Van ajwain*	ETM
43.	*Trillium govanianum* Wall. ex D.Don	Melanthiaceae	Herb	*Satuwa*	ETM
44.	*Valeriana wallichii* DC.	Valerianaceae	Herb	*Sumaya*	ETM
45.	*Viola pilosa* Blume.	Violaceae	Herb	*Kauru*	ETM
46.	*Zanthoxylum alatum* Roxb.	Rutaceae	Shrub	*Timru*	ETM

ETM= Ethno-medicinal

DISCUSSION

The use of plant species as medicine by the local inhabitants of *Deoban (Chakrata)*, District Dehradun, Uttarakhand, has been a prevalent practice in the region throughout history. This knowledge has been accumulated through the experiences of multiple generations. It was observed during the study that older traditional healers possess a vast amount of traditional

knowledge regarding the uses of medicinal plants in the study area. However, it was also noted that the younger generation showed little interest in the traditional system of medicine. Despite this, there is a consensus among users that these wild herb species have a curative effect.

CONCLUSION

The ethno-medicinal survey conducted in *Deoban (Chakrata)* in the Dehradun district of Uttarakhand revealed that the local inhabitants of this area possess extensive knowledge of herbal medicine. However, due to the increasing exposure to modernization, it is possible that their knowledge of traditional plant uses may diminish over time. Therefore, it is crucial to conduct further research and investigations to preserve and expand their knowledge, particularly in the isolation and purification of active compounds from these plants. Such investigations will provide valuable insights for future drug therapy development.

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