Ethnobotanical Studies and Traditional use of Medicinal plants in Bhandal Valley, Chamba, Himachal Pradesh, India

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ABSTRACT-Current study was focused on Bhandal Valley, situated in District Chamba, Himachal Pradesh for proper documentation of medicinal plants used by local people for the treatment of various human and animal diseases. The selected area has great diversity of plant species and two main tribes Gaddis and Gujjars use mostly traditional medicines for health issues. In scientific advancement, people are losing connection with their traditional culture and knowledge is limited only to ethnic people. As it is an undocumented knowledge, future generations would not be aware about the traditional culture and many of these traditional skills and beliefs are getting lost among younger generation. During this study, information was collected regarding various factors like health conditions, economic status and education by using well structured questionnaire, google form and interacting with local people to understand the traditional use & significance of medicinal plants as these factors also affect the reliability of the people on traditional use of medicines. Study has shown that Indigenous knowledge is having treasures of information about the plants and animals relations and around 34 medicinal plant species were identified most commonly used by locals for the treatment of various ailments. These plants are having great pharmaceutical importance that needs to be studied and these plants should be conserved for the future use. There is a need to conserve the indigenous knowledge especially in this growing phase of life by proper documentation.

Index Terms: Indigenous, Ethnobotany, Medicinal plants, Ethnic reliability, Sustainability.

I. INTRODUCTION

Chamba is a beautiful hill station in Indian state of Himachal Pradesh. Chambail were the rulers of Chamba state Chambial's used suffix Vermans. The Chamba district has rich plant diversity used for treating many diseases. There are 705 scheduled Tribes notified under article 342 of constitution of India [1]. There are mainly two tribal areas Pangi and Bharmour .The main occupation of people in Chamba is agriculture on which maximum population depend. The tribes in India do not present in homogeneous ethnic stock but they differ from one another in a physical appearance, language forms and socio-cultural patterns. Based on their historical its socio - cultural relations and geographical distribution, tribes in India have been classified into five categories i.e. Central and Eastern India, Western India, North East India, Southern India Sub- Himalayan region of North and North, West India [2].

Tribal Communities inhabits forests that constitute about 50% of the total geographical area. Traditionally these tribal groups use a large number of wild plants for various purposes like medicine food fodder fuel culture and other purposes. That is why the forests have been maintained

for the existence of many tribes and their culture for centuries and also for their nutritional and medicinal needs. About 5,000 plant species are recorded to be employed by ethnic communities in several states thus far nearly 500 million people living in and around forest in India believe non Timber forest products as a critical component for his or her survival [3]. Worldwide the amount of species used for medicinal purposes is estimated at quite 50,000 which is about 13% of flowering plants. There is an excellent wealth of data on tribal medicines available in India as over 7,500 plants are utilized in traditional folk and herbal medicines representing about 75% of medicinal needs of the Third World. Out of 8,000 medicinal plant species belonging to 2,200 genera under 386 families in India (Planning Commission, 2000). It is estimated that there are over 7,800 medicine manufacturing units in India which consume about 2,000 tones of herbs annually. People have been dependent on forests for their day to day needs which include the medicinal plants, aromatic plants etc [4]. The trees envisaged that they contribute more than 60% of annual income of forest dependent Traditional people [5]. This low traditional medicinal knowledge in a community relies on the traditional medicinal plants, so there is an urgent need to conserve the information and knowledge [6]. Gaddis and Gujjars are the ethnic tribes. Their main profession is shepherding and rearing the cattle yet now the vast majority of them practice settle farming and animal husbandry. Gaddi - Mostly are Hindus make their livelihood by selling and rearing sheep, goats, horses and mules. Gujjar: it comprise of both Hindu and Muslims [7]. The Natural resources are shrinking in their natural habitats due to many factor and human activities so it needs to be reduced [8]. The Traditional knowledge of plants and use of lesser known plants rapidly declining so there is a need to increase the awareness among people [9]. Ethnobotany is a part of natural science that deals with many aspects such as religious, medicinal, agriculture, household, medicinal and many other Tribal people depend on many plant species for their survival [10]. A large population relies on Herbal medications for treating different aliments, because no medicinal facilities are available there in these areas [11]. The Ethnic people believe in the curing power of these herbs along with the power of Tantra and Mantra but that knowledge is restricted to very few people mainly the elderly folks have the treasure of traditional knowledge. This place can be studied when the area is snow free before their migration period from the upper Hills [12].

II. METHODS & METHODOLOGY

2.1. SELECTED AREA

Study area: Chamba District is situated in north L. 32° 11′ 30” and 33° 13′ 6” and east L. 75°49 and 77° 3′ 30”, with the area of 6522 square kilometers; altitude of mountains ranging from 2,000 to 21,000 feet. From Salooni, Bhandal Valley is 21 km away (1,730m) with its wealth of wildlife. At the height of 1,831 meters (6,006 ft) it is connected with Jammu and Kashmir. Various parameters like Locality, Educational qualification, Economic status, different age groups, Occupation were studied to check the relation of these parameters traditional medicinal use.

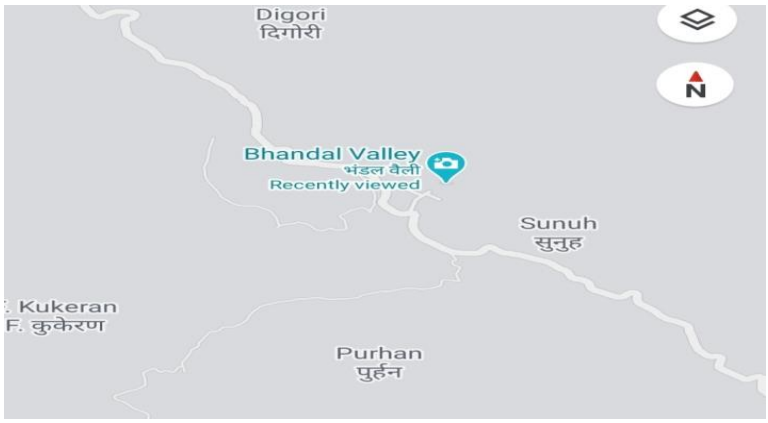

FIGURE : 2.1 Google map of Bhandal valley showing the location of surveyed place.

2.2 OBJECTIVE OF STUDY

Study was initiated to prepare the ethnobotanical database to understand the indigenous culture and to document unwritten traditional knowledge of plants used by tribal communities to describe the folklore and folk tales. Understanding complex physiology and uses of medicinal plants could empower the pharmaceutical industries in manufacturing drugs for various diseases. Also, traditional ecological knowledge could support in biodiversity conservation, community development & sustainability. During this survey, various factors like health conditions, economic status and education were also studied by interacting with local people and collecting information through google form to understand the traditional use of medicinal plants as these factors also affect the reliability of the people on traditional use of medicines.

2.3 METHODOLOGY

Primary data was collected through Field survey, interview of the residents and also information collected through Well-formulated questionnaires, through Google form. Secondary data was collected from literature review which comprises of official information (legal documents) and chronology.

III. RESULTS AND DISCUSSION

3.1 FIELD SURVEY

Adhwaris are the places or homes for nomads in uphills and to reach out trekking of about 20 Km was done. Almost about 139 informants within the age group of 12-85 years were interviewed to understand the flow of Ethnobotanical knowledge between different age and classes. Botanical survey was carried out from May 29 to September 2020. When the area is snow free, different localities were visited in bhandal valley 2-3 times (Salooni - 1,950m), (Bhandal-2,200m). First-hand information gathered through interviews with elderly people, women shepherds and tribal people about their occupation, medicinal plants being used by them, local name of medicinal plants & curative properties. Different plants were identified by comparing with the flora of Chamba. Field survey consists of qualitative method which includes the collection of data and interaction with people near the studied area.

During this field survey, 34 Plant species were identified being used by tribal people to treat various human and animal diseases because of its effectiveness.

Table 3.1 Various medicinal plants used by the Local/Tribal people in Bhandal valley, Chamba are listed below:

Sr. No.	Botanical Name	Local Name	Uses
1	*Morchella esculena*	Gucchi	Used in pharmaceutical Industries and also as a vegetable
2	*Urtica dioica*	Aan	Used as vegetable
3	*Berberis aristata*	Kehmlu	Used against cold, fever, piles, cough, toothache
4	*Viola odorata*	Banksha	To cure cold, cough, fever
5	*Amaranthus Paniculatus*	Chola	Used as a vegetable and seeds are also edible
6	*Taxus baccata*	Barmi	Leaves have been used to cure asthma, bronchitis, epilepsy
7	*Acer caesium*	Panu	Used as fodder plant also to treat muscular swellings
8	*Rumex hastatus*	Amlora	Used in bloody dysentery and Throat aches
9	*Aconis calamus*	Bacch	Used to treat gastrointestinal problems
10	*Tinospora cordifolia*	Giloy	Used for gonorrhea and Syphilis
11	*Carum carvi*	Kala Jeera	Used against diarrhea also in increasing the maternal milk

12	*Thymus serpllum*	Pahadi Ajwain	Used to cure cough, stomach pain
13	*Picrorhiza kurroa*	Kood	Used in liver disorders
14	*Aconitum violaceum*	Kodi patis	Used against snake bites
15	*Cinnamomum tamala*	Tej Patta	Used to cure toothache and asthma
16	*Salviya glutinosa*	Makhiyar	Used as edible useful oil
17	*Abies spectabilis*	Tapis patra	Used to treat Asthma and cold
18	*Prunus armenica*	Chir	Used to treat skin dryness and diabetes
19	*Valeriana wallichii*	Shumak	Used to cure skin diseases
20	*Haematoxylum campechianum*	Shafu	Used as a antidode for Rhus javanica plant
21	*Selinum vaginatum*	Bhutkeshi	Used in the treatment of Anxiety And painful conditions
22	*Adiantum lunulatum*	Dung tulli	Used to cure dysentery, pimples, Wounds
23	*Rheum emodi*	Rabadchani	Used as antiseptic and tonic
24	*Bergenia ligulata*	Pathar tod	Used to treat ulcers
25	*Artemisia sp*	Santo nika	Used to treat fever, rashes, asthma
26	*Fiddlehead fern*	Kisrod	Used as vegetable as also to treat sore throat
27	*Ramaria botrytoides*	Bakri	Used as anticancer drug and also as a vegetable, to make curry
28	*Dalbergia sissoo*	Timber	Used as antipyretic agent also to cure skin aliments
29	*Solanum indicum*	Ban	Used to cure stomach ache and aching teeth
30	*Lichen*	Chalora	Used to cure infections
31	*Malva verticillata*	Sochal	Used at the time of delivery of cows; helps in the removal of placenta.

32	*Sonchus oleraceus*	Doodhi	Used to treat the blockage of milk in cows
33	*Galium asprellum*	Thau	Used to cure the skin infections.
34	*Rumer obtusifolius*	Oobel	Used in skin problems against itching and ring worm disease.

3.2 FINDINGS THROUGH INTERACTION

During interaction with people, it was found that mostly people suffer from cough & cold, skin infections, piles, fever, joint pains, tuberculosis, fracture, dysentery, stomach ache, asthma and bronchitis. And they rely on traditional medicines for the cure.

3.3 FINDINGS THROUGH GOOGLE FORM

In Salooni, District Chamba, 109 people were interviewed through Google from under prevailing by pandemic situation. 53.7% of males and 46.3% females were interviewed. 17% of interviewers were students, 9% were from educational department (Teacher), in which 7% females were house wives, and 5% people were involved in agriculture (farmers). It also includes the people from banking sector, Government employee, doctor, Politician, physician, farmer; nurse etc. 109 responses recorded which shows 99.1% belongs to the rural area. It has been observed that mainly people belong to the 22-25 age group, 5% people belongs to 44.

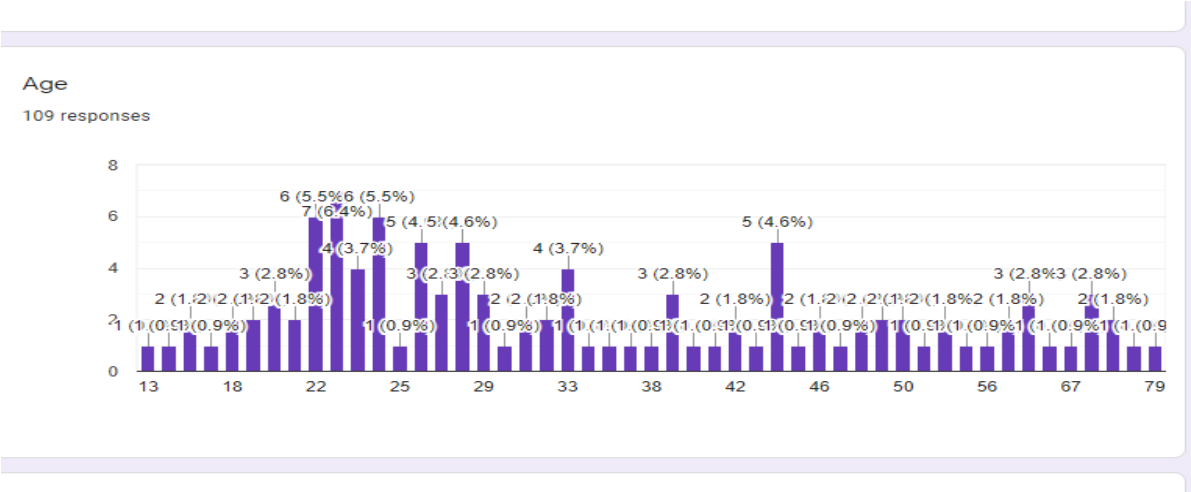

FIGURE : 3.3 Showing different age groups of the informants responded for current study

Figure 3.3 represents that 94.4% people were familiar with herbs they rely on herbal medications for different diseases, 5.6% people weren't familiar with the Herbs. It has been observed that mostly 24.7% Traditional knowledge was passed by the family, 11.8% by parents, grandparents, teachers, relatives and other family members of the locals. 90.8% of the herbal medications were

recommended to them by to other people also and they have also seen their parents, friends, family members, using medicinal plants (94.4%).

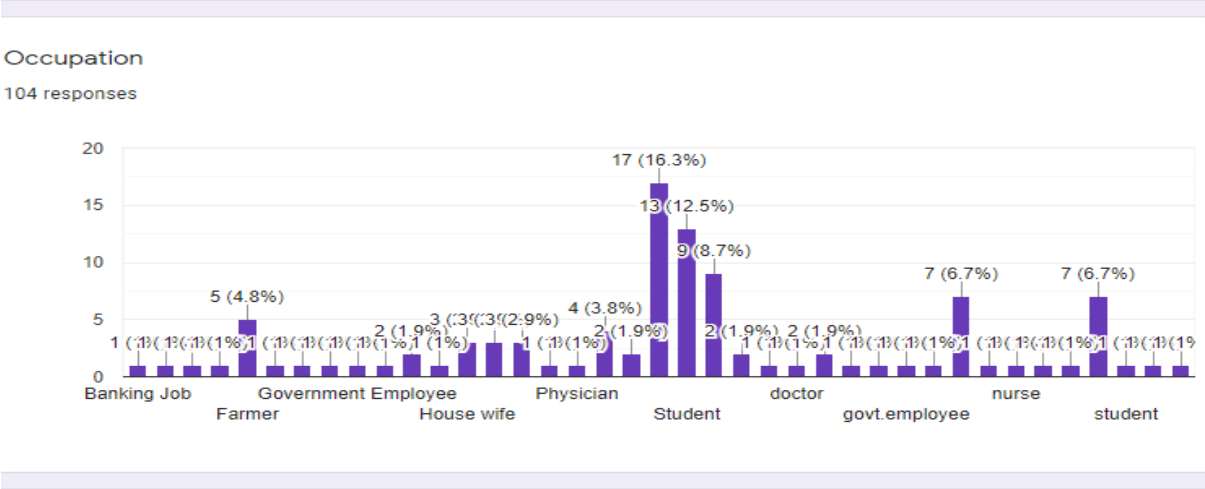

FIGURE: 3.4 Showing Different Occupation of Locals responded for current study

Figure 3.3 represents that 34% were graduate, 24.1% were post graduate and 5% of people were uneducated, 9.3% of doctorate and 30.6% people were metric who are dependent upon the traditional medicines. This shows that people of Salooni rely on the traditional medicines irrespective of their educational level.

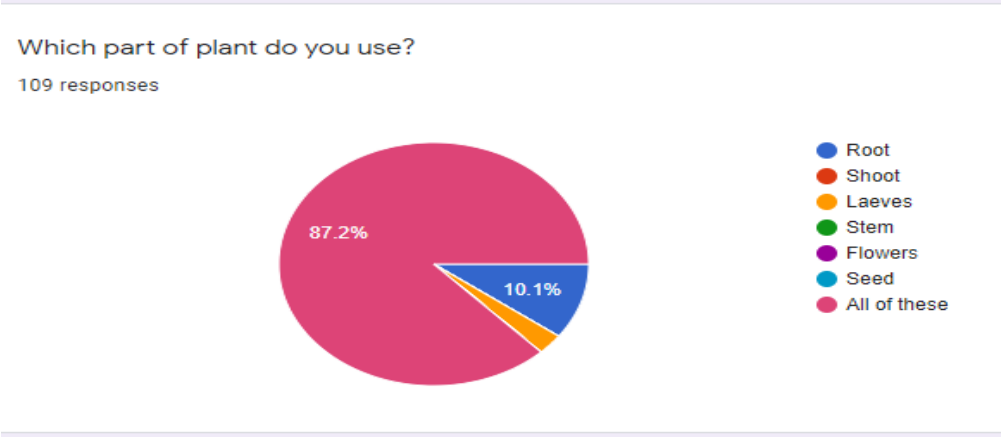

FIGURE: 3.5 Different Plant Parts used by Traditional People.

Figure 3.4 represents that 87.2% people use all of these parts for different purposes. 10.1% people use roots and 2.8% people use leaves as medicines. It is used in Dried as well as in the fresh form.

Plants were used in the form of paste, tropical application, paste, tea and infusion. Mostly plants were used for medicinal purposes, food, and fodder (92.7%). During this study, it was found that 96.3% people consider the traditional medicines effective that is why they rely on the traditional medicines. The most common used plants were Alovera, tulsi, Garlic, Haldi, Amla, Mint, Galium asprellum, Desi dhoop, Bheda, Harar, Cloves, Berberis aristata, neem etc. 99.1% people think that there is a need to conserve the Traditional knowledge of the plants and needs proper documentation. Mostly medicinal plants are being used for Skin problems, drugs, respiratory problems, Animal diseases, 95.4% people were reliable on plants for these needs. They use plants for different purposes. Responses have shown 77.1% people use Herbal medications due to its accessibility, more effectiveness and cost-effective.

IV. CONCLUSION

This survey concluded that medicinal plants have been of great help to mankind in relieving many diseases but this traditional knowledge is limited to only few religious people so by proper documentation and conservation of this knowledge we can this conserve. Efforts were made to collect the information by interacting with locals and nomads to understand the nature and uses of medicinal plants and most importantly to document this very important piece of work. Validity & Reliability of the information gathered is documented as shared by the local people; yet many medicinal plant species in the area yet to be explore. Currently local have been using these medicinal plants for the cure of common diseases like cough, cold, fever, dandruff, fractures, skin infections, piles etc. They use these medicinal plants for curing many animals' diseases as well. In-depth study of these medicinal plants will empower the pharmaceutical industry and it would a great contribution in medicinal world. By applying the Traditional ecological knowledge, the conservation of biodiversity and community development can be enhanced for the welfare of mankind.

CONFLICTS OF INTEREST

Authors declare that they have no conflict of interest

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