

## ETHNO BOTANICAL SURVEY OF LEEPA VALLEY AJK

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### ABSTRACT

Country Pakistan has considerable significance due to variety of medicinal plants and has been called as the floral emporium of medicinal plants. It has about 6000 species of wild plants, among them almost 4000-6000 are considered to carry or of medicinal importance. During the ethno botanical elaboration of Leepa valley 106 plant species of 55 families were recorded. Among them 93 are considered to carry great medicinal values. Residents of the area use these plants for different medicinal purposes by mixing them with other plants. Some of plants like wise *Saussuria lappa*, *Rheum emodi*, *Cuscuta reflexa* and *Fumeria indica* are used for curing different ailments. The study area is considered as a hub of medicinal plants. The main objective of the study was to prepare checklist of important medicinal plants, to document the indigenous knowledge of use of important medicinal plants and problems regarding conservation of medicinal plants.

### INTRODUCTION

Pakistan is bestowed with unique biodiversity, comprising of different climatic zones and a wide range of plant species. The country has about 6000 species of wild plants, of which about 600 are considered to be medicinally important (Faisal *et al.*, 2012). Use of plants as a source of medicine has been inherited and is an important component of the health care system in different countries of the world (Pandey *et al.*, 2013). Medicinal plant are the one whose parts can be used for therapeutic purposes and can turn out to be a precursor for the synthesis of useful drugs (Majeed, 2008). Medicinal plants are those plants which contain medicinal values in their bark, stem, root or any other part and can produce physiological response against any enmity when used against it (Nwachukwu *et al.*, 2011). A very large number of medicinal plants are found in the northern and western parts of the country. Out of these 600 plants having physiochemical properties, 350-450 species are traded in different markets of the country and used by leading manufacturing units of unani and homeopathic medicine. Mazhar in 2012 stated that ethno botany is the study of particular culture and region that make a use of indigenous plants and deal with the complete relation of man with plant. The plant used for the extraction of drugs to different ailments are also termed as medicinal plants. These plants or their part when used medicinally have synergy and symmetry within the human body due

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to the combination and connection of the chemical constituents they contain (Rehana, 2002).

Geographically, Leepa valley is situated in the north and northeast of Muzaffarad Azad Kashmir, Pakistan. It is characterized by rugged topography, mountain terrains of lofty glaciated peaks, perennial snowfields, glaciers, falls, pastures, river, streams, nallahs and intact forest. It has dry temperate, moist temperate forests, sub alpine, high alpine forests, high elevated peaks and cold desert constitutes. Major portion of the area which experience long severe winter. These specific physiographic and climatic feature present ecosystem diversity with variety of vegetation and wildlife.

In ethnological perspectives, Leepa valley depicts a rich ethnic and cultural diversity. In Leepa valley, 15 different tribes are living, including different casts. There are different sections on religious basis such as Sunni, Shiya, Wahabi, Aele-Hadees etc and these people speak different local languages with variable dialects changing from one valley to other or one side to other side of mountain. This does have paramount impacts on their habits and culture and subsequently on flora and fauna too. Hence, the specific geographic, phytogeographic, plant and ethnic biodiversity makes this area very crucial to explore and hence the phototherapeutic potential of flora of the area.

## **MATERIALS AND METHODS**

The research was carried out in Leepa valley and the purpose behind this selection was that Leepa valley is regarded as a prime center for evolutionary development for a number of endemic medicinal and economic plants like Kuth, Ban kakair, Masloon, Banafsha, Tripathra etc. Its climatic and soil condition was conducive for cultivation of large number of important plants. On the basis of this, Leepa valley was selected for the study. The area was surveyed through questionnaire by selecting 7 villages and 49 respondents were interviewed. The villages of Nokot, Kesar Kot, Ghee Kot, Threda Sharif, Hachri, Lub Garan and Chinnian were selected for socio economic survey.

## **SAMPLING OF THE STUDY AREA**

The population of the valley according to the available data is 11690. For the purpose to take sample of households the sample size was found through using sample size calculator in which the following entries were made and it was found to interview 49 students through socio economic survey.

## **DATA COLLECTION**

During the course of the study altitude was determined, then plants were

collected from Leepa valley and its allied areas. Plants were pressed in blotted papers and were dried carefully. Data about various Ethno botanical aspects were collected from the people of the area. The required data was collected on the basis of a questionnaire, which is prepared in the light of objective of the study. This questionnaire was carefully designed and discussed with experts. Most of the data was primary that was about Ethno botanical studies. This data was supplemented through secondary data that was collected from library and other government department. The questionnaire was pre tested in the field and modified according to the situation in the study area. The sample respondents were interviewed through personal contact and medium of data collection was Urdu and Hindko.

### **DATA ANALYSIS**

After receiving the required information, data was transferred on tally sheets for statistical analysis based on simple averages and percentages. Simple statistical package and MS Excel were used.

### **MATERIALS**

The following materials were used for the collection and analysis of data:

1. Measuring tape
2. Clinometer (For plant height)
3. Blotted papers
4. Scotch tape
5. Computer programs for the analysis of data

### **RESULTS**

The survey conducted during visit to Leepa valley showed that two ethnic groups i.e. Gujjars and Mughals are in majority with 14% ratio and Butts are in minority with 4% of ratio. Through questionnaire 49 respondents were interviewed which showed that most of the inhabitants are governments with 34.6% ratio and on the other side the least percentage value is of the students with 6 percent of ratio. In spite of the hilly and backward area there is a greatest literacy rate i.e. 34.6 % above matric, 26% matric pass, 24% illiterate and 14% below matric. Results also showed that 63%, 61% and 10% of the women, men and children are involved in the collection of the medicinal plants. The area of study was not fully developed yet so majority of the people are poor. 19 respondents i.e. 38% have income range of 5-14k and very minor part i.e. 4 (8%) have income range of 45-54k.

### Problem in the collection of the Medicinal plants

Among the problems in collection of medicinal plants the main barricade is that of Army restrictions. About 17 respondents stated that problem which has a ratio of 34.6%. The least one is that of wildlife danger which is 14%.

### Problems in collection of Medicinal Plants

Problem	Frequency	Percentage
Inaccessible	13	26%
Rare	7	14%
Army Restrictions	17	34.6%
Wild Life danger	7	14%

### Kind of Treatment

Most of the people take herbal treatment 31 (63%) and rest take allopathic treatment 18(36.7%), no other treatment was reported.

### Kind of Treatment

Kind of Treatment	Frequency	Percentage
Allopathic	18	36.7%
Herbal	31	63%
Others	-	-

### Income from the sale of Forest products

Results showed that most of people spends more that they earn but most of their income fraction comes from the sale of forest products. Below table depicts that about 26% of the people earn in the range of 11-20k besides their government salary.

### Income from the sale of Forest products

Income	Frequency	Percentage
1000-10000	6	12%
11000-20000	13	26%
21000-30000	7	14%

### Problem regarding conservation of Medicinal plants

Among the problems regarding conservation of medicinal plants nomads are the major problem who take most of the medicinal plants illegally during their drift towards the high lands like Leepa valley. 44 respondents i.e. 89.9% said that nomads illegally extract medicinal plants during their grazing visit to Leepa valley in summer. About 40 (81.6%) of the respondents recorded grazing as the second most problem.

### Problem regarding conservation of Medicinal plants

Problems	Frequency	Percentage
Nomads	44	89.9%
Fire	20	40.8%
Over exploitation	36	73%
Extraction in early stage	16	32.6%
Non scientific extraction	24	49%
Illegal extraction by mafia	34	69%
Over grazing	40	81.6%

### Source of Medicinal plants

Forest area were the major source of extraction of medicinal plants. Below table shows that 85.7% people extract medicinal plants from the forest area, while 14.2% of the people extract from the farmlands.

### Source of Medicinal plants

Source	Frequency	Percentage
Forest Area	42	85.7%
Farmlands	7	14.2%
Other places	-	-

### Percentage of species near to extinction

Due to heavy extraction of medicinal plants for both the treatments of herbal and allopathic and for income are sold to local and international markets. Medicinal plants are diminishing with alarming rate and yet no such conservative steps have been taken to increase the survival rate of these precious plants. In the below table survey results depicts that Medicinal plant Tripathra is near to extinction. The least vulnerable among the medicinal plants of Leepa valley is Ghaus.

**Percentage of species near to extinction**

Specie (Common name)	Frequency	Percentage
Tripathra	37	75.5%
Pathress	17	34.69%
Ghaus ban	11	22.4%
Zakhme-hayat	12	24.4%
Gul Kher	18	36.73%
Rathan joth	13	26.5%
Kut	15	30.6%

**CONCLUSION**

The present study emphasis on the utilization and conservation of the economically and medicinally important species. There is an immense need to look forward deliberating for the preservation of this natural wealth. After detailed study it was concluded that factors like deforestation, over grazing and eradication of medicinal plants, over exploitation of medicinal plant, threatened the floristic composition of the area. The finding of the study clearly indicates that the area needs much attention for plant conservation, protection by the government, non-government organization, local communities and establishment of herbal necessaries. Some plants which are really of great medicinal importance have become scarce or extinct due to excessive use and exploitation by the people. Some of the medicinal plants due to its high effectiveness, low prices, easy availability have been used and exploited by the people up to such a great extent that they are hard to find and observe. The local representative of every community is compulsory to involve for achievement of well-established protection of diversity of area. It was concluded that due to unawareness and improper guidance about medicinal plants and use of allopathic medicines on large scale, indigenous knowledge has not transferred properly among new generation. The knowledge among individual by oral tradition through generation require systematic documentation.

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