

Full Length Research Paper

The folklore of medicinal plants recorded from Leepa Valley, Azad Jammu and Kashmir

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The folklore of 43 species of 'medicinal plants' belonging to 27 families was recorded from Leepa Valley, Muzaffarabad. Out of 43 medicinal plants, 4 gymnosperms, 38 angiosperms and 01 fern species were used against different diseases. The major problems cured by 'medicinal plants' were digestive problems (24 spp), dermal system problems (13 sp), hepatic problems (11 spp) and respiratory problems (7 spp). Further, 4 species were used as spices and vegetables and six species recorded have biological activities; whereas joint problems and cardiac problems were treated by 3 species each. Most of the medicinal plants were uprooted by the inhabitants for selling or for local use. The results also indicated that among the recorded species, 44% were used as 'medicinal food plant', 23% as 'medicinal gathered food plant' and 'orally administrated medicinal plant' were 32.56%. The utility of these plants for different purposes poses a great threat to the plant resources in the area. Huge quantities of MPs were lost every year owing to lack of proper collection, over exploitation and deforestation.

Key words: Medicinal plants, folk uses, over exploitation, local residents, cure.

INTRODUCTION

Man has always been dependent upon the plants for food, shelter, health fragrance, cosmetics, dyeing agent, soap and body care since the prehistoric times. Human being and plant populations have direct interaction through culture, belief, dependence, economy and commerce (Dashora, 2006). Each human civilization classified plants, developed attitudes and learned the uses of plants. Local residents have diverse and disperse knowledge about the indigenous uses of the plants. There is no clear dividing line between food and medical plants in indigenous and local traditions. Food can be used as a medicine and vice versa. Although, certain foods are used because of certain assumed health benefits and thus called Medicinal Food (MF). Medicinal

plants could be grouped into three categories. Firstly, those which received recognition as traditional medicine and were either cultivated or protected in wild (MFP). Secondly, those gathered from the wild or among the crops but not cultivated properly (MGFP). Thirdly, those not injected as food (OAMP). Generation of new era has neglected the folk medicinal practices. Knowledge of traditional uses of plants is vanishing day by day (Raju, 2006). In this context, this study was in the need of time to document and accumulate wide and disperse knowledge about plants.

Leepa Valley, District Hattian Bala lies in the northern side of the State of Azad Jammu and Kashmir at the line of control between India and Pakistan. It is a mountainous

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Abbreviation: MPs, Medicinal plants; MF, medicinal food; MFP, medicinal food plants; MGFP, medicinal gathered food plants; OAMP, orally administrated medicinal plants.

Table 1. Age group and literacy level frequencies of the interviewed people in the Study area of Leepa Valley.

Age group	Individuals	Percentage	Literacy level	Individuals	Percentage
15-30	6	8.7	Illiterate	31	44.92
31-40	10	14.49	Primary	14	20.29
41-50	21	30.43	Middle	9	13.04
51-60	23	33.33	Secondary	8	11.59
>61	9	13.04	University	7	10.14

region with sparsely distributed population located between 34° 14.17 to 34° 17.48 N latitude and 73° 50.87 to 73° 63.14 E longitude at an altitude of 1700 to 3300 m. The physical features of study sites exhibit valleys and plateaus on the northern and western sides while the rest of the area is occupied by hillocks, ravines and other forms of topography. The slopes of the area are steep; this sub-range of western Himalaya by virtue of its location falls in moist temperate and subalpine region (Anonymous, 2010) with varied climate. This unique fragmented habitat with abrupt altitudinal variation affects the temperature, rainfall, humidity and snowfall.

MATERIALS AND METHODS

Extensive field surveys were undertaken during 2011, to gather ethnomedicinal information on vegetation of Leepa Valley and the traditional uses of medicinal plant species across various localities in the Leepa Valley to document their indigenous knowledge on medicinal plants. Information was gathered using semistructured questionnaires about the types of ailments treated by the traditional use of medicinal plants from 8 target villages namely; Rashian, Moji, Banamula, Leepa, Gheekot, Hanjna, Chananian and Mandakuli. The questions were administered in Hindko and Kashmiri for maximum accuracy in data and convenience of respondents. The information regarding the authentic data about the local names, local uses, diseases treated, plant parts used, their routes of administration and mode of application were gathered. Questionnaire data was initially analyzed for basic categorization of the respondents' gender, age groups and literacy ratio etc. This data was additionally analyzed for local uses, diseases treated, plant parts used, their routes of administration and mode of application of plant species. Plant specimens were collected, dried and preserved. Identification was carried out with the help of flora of Pakistan (Nasir and Ali, 1971-1990; Ali and Nasir, 1990-1992; Ali and Qasir, 1994-2008). The voucher specimens were deposited in Department of Botany, University of Azad Jammu and Kashmir, Muzaffarabad.

RESULTS

The ethnobotanical study of the communities around the leepa Valley in Azad Jammu and Kashmir, Western Himalaya revealed the usage of 43 plant species belonging to 27 families of which Asteraceae was recorded dominant family with 4 species followed by Lamiaceae with 3 species. The families with 2 representative species were Amaranthaceae, Apiaceae, Moraceae,

Polygonaceae, Rosaceae and Solanaceae in the investigated area. Out of 43 recorded plant species, 4 gymnosperms, 38 angiosperms and 01 fern species was found medicinal (Table 2). The questionnaire respondents represented a diverse array of people including farmers, women, literate, illiterate, young and elders. Among the 69 informants, the largest proportion of the respondents was of elderly, above 40 years age (76.80%). More than half of the respondents were literate (55.08%), as compare to 44.92% of uneducated respondents (Table 1). These very basic results also reflect the reality that indigenous knowledge is well established but seems to be decreasing in the younger generation. The leading components of plants used in treatment were recorded as herbs (23 species), trees (10), shrubs (8) and fern (01 species). The common ailments, botanical and common names of the plants used to treat the corresponding ailment, parts used and mode of utilization were detailed. The major problems cured by MPs were digestive problems (24 spp), dermal system problems (13 sp), hepatic problems (11 spp) and respiratory problems (7 spp). Further, 4 species were found, used as spices and vegetables and six species recorded have biological activities; whereas, joint problems and cardiac problems were treated by 3 species each (Figure 1).

Among the recorded species, 44% were used as medicinal food plant (MFP), 23% as medicinal gathered food plant (MGFP) and 32.56% orally administered medicinal plant (Figure 2). Results of this paper also demonstrate that most of the plants were either used as a whole or its parts like roots, leaf, inflorescence, seed and rhizomes distinctively (Table 2).

DISCUSSIONS

Plant are the prime source of life supporting systems and are readymade source of food, medicines, fodder and forage, fuel and furniture wood, construction and manufactures (Iqbal and Hamayun, 2006). Traditional medicines are now a day defined as the sum total of all the diagnosis, preventions of physical, social and mantle imbalance and relying exclusively on the practical experience and observations handed down from generation to generation weather verbally or in writing (Ahmad et al., 2009).

Table 2. Folk uses of plant species recorded from Leepa Valley, Muzaffarabad.

S. No	Species Name	Family	Local Name	Habit	Part used	Group	Preparation	Folk uses
Gymnosperms								
1	<i>Cedrus deodara</i>	Pinaceae	Deodar	T	Re	OAMP	Extract	Resin is used to join broken pains. LOU, extracted by wood is used against snow, burn, skin cracks and antimicrobial.
2	<i>Juniperus communis</i> L	Cupressaceae	Bither	S	Se	OAMP	Powder	Berries are used against kidney stone, urine problems, leucorrhoea
3	<i>Pinus wallichiana</i> A.B.Jackson	Pinaceae	Cheer	T	Re	OAMP	Extract	Resin used against wounds, antimicrobial. Ash is used as cleanser, antidandruff
4	<i>Taxus wallichiana</i> (Zucc) Pilger	Taxaceae	Perhunge	T	Br	MGFP	Extract	Bark is used boiled in water to make tea which is anticancerous
Angiosperms								
5	<i>Achyranthus asper</i> L	Amaranthaceae	Puthkanda	H	W,R,Se	MGFP	Extract	<i>R. dermatitis</i> , <i>S. tooach</i> seed ceprosy, <i>F. diuretic</i>
6	<i>Amaranthus viridis</i>	"	Ganhyar	H	Se. L,R	MGFP	Extract	L. vegetable seed coolant internal wounds
7	<i>Coriandrum sativum</i> L	Apiaceae	Dhania	H	Se. L	MGFP	Juice spice sag	Hepatitis, small pox, Carminative of flavoring
8	<i>Foeniculum vulgare</i> Nill	"	Saunf	H	Se. L	MGFP	Juice, powder	Stomach, eye-sight, Spice, Kidney Obstructs, Sharbt-e-Bazori
9	<i>Achillea mellifolium</i> L	Astraceae	Berageer	H	L, St	MGFP	Decoction	Internal coolant, toothache
10	<i>Artemisia vulgaris</i> L	"	Chaou	H	L	OAMP	Decoction	Antitoxic, snake and bite. Scorpion sting
11	<i>Saussurea lappa</i> (Decne.) Sch	"	Kuth	H	R	MGFP	Powder extract	Internal/external wounds leprosy. Rehnatism diuretic. Antitoxic
12	<i>Taraxicum officinale</i> L	"	Hundh	H	L	MGFP	Sag juice	L. vegetable blood purification, R. swelling joints W. Liver disease
13	<i>Impatiens biflora</i> L	Balsomonaceae	Banteel	H	L, St	OAMP	Sap extract	Skin inflammation and dermatitis
14	<i>Betula utilis</i> D. Don	Betulaceae	Bhorz	T	Br.	OAMP	Sap extract	Skin problems. Dermatitis
15	<i>Berberis lycium</i> Royle	Berberidaceae	Sumbal	S	R. Br.	MFP	Extract	Internal/external wound, diabetic, swelling, kidney infection.
16	<i>Commelina bengalensis</i> L	Commelineaceae	Chura	H	L	OAMP	Sag, extract	Laxative, leprosy, for normal delivery
17	<i>Cuscuta reflexa</i> Roxb	Cuscutaceae	Neelatari	C	W	OAMP	Extract	Antidandruff, blood purification, fever
18	<i>Cyperus rotundus</i>	Cyperaceae	Muthar	H	L Rh	OAMP	Decoction	Stomach, pain killer
19	<i>Dryopteris stewartii</i>	Dryopteridaceae	Kungi	F	L	MFP	Sag	Gyne problem
20	<i>Ricinus communis</i> L	Euphorbiaceae	Around	H	RSF	OAMP	Poultice	Skin care, lubricant, paralysis asthma
21	<i>Juglans regia</i> L	Juglandaceae	Akhrot	T	L, Ba, Se	MFP	Oil, extract	Hair dying, Toothache, oil Joint pain
22	<i>Leucus caphalotus</i> (Roth) Spereng	Lamiaceae		H	L. Se	MFP	Vegetable decoction	Respiratory, cancer, digestive mnsanlar
23	<i>Mentha longifolia</i>	"	Podiva	H	W	MFP	Powder	Appetizer, larminati, asthma, dyspepsia
24	<i>Plectranthus regosus</i>	"	Peemar	S	L. Inf	OAMP	Extract	Antilice, insect killer
25	<i>Althea rosea</i> L.	Malvaceae	Gul-Khyr	H	R	MGFP	Extract	Coolent, stomach, heat
26	<i>Ficus carica</i> L	Moraceae	Angeer	T	Fr.	MFP	Direct edible	Stomach, antiseptic, ulcer
27	<i>Morus alba</i> L	"	Toot	T	Fr. L	MFP	Edible	Constipation hose bloody, cold influence
28	<i>Boerhavia procumbans</i> Banks	Nyctaginaceae	Jnati	T	LR. Se	MGFP	Powder	Appetizer, constipation, divertic
29	<i>Olea ferruginaea</i> Royse	Oleaceae	Kahou	T	Br	OAMP	Decoction	Anti fever
30	<i>Cynodon dactylon</i>	Poaceae	Khabbal	H	W	OAMP	Extract	Cuts and wound, inflammation divretic
31	<i>Polygonum avicular</i>	Polygonaceae	Tarobra	H	L	MFP	Vegetable	Stomach disorder

Table 2. Cont.

32	<i>Polygonum amplexicaule</i>	"	Masloon	H	R	MFP	Tea/extract	Stomach disorder
33	<i>Punica granatum</i>	Punilaleal	Anar	S	W, Se	MGFP	Decoction	Diarhia, stomach, astringent
34	<i>Plantago major</i> L.	Plantaginaceae	Aspagol	H	Se, Inf.	MGFP	Decoction	Stomach, kidney. Cough cold, cholesterol level
35	<i>Aconitum heterophyllum</i> Wall & Royle	Ranunculaceae	Patrees	H	R	MGFP	Powder	Abdominal pain
36	<i>A. chasmentum</i> L.	"	Mori	H	R	MGFP	Powder	Abdominal pain, asthma
37	<i>Rosa indica</i> L.	Rosaceae	Ghulab	S	Fl.	MGFP	Decoction	Eye initiation, ashtma,
38	<i>Rubus fruticosus</i> Hook	"	Garacha	S	Fr	MFP	Edible	Constipation, impress digest
39	<i>Zanthoxylum alatum</i>	Rutaceae	Timmer	S	L, Fr	MGFP	Powder	Rhumatisin, toothache.
40	<i>Bergenia ciliata</i> Haw	Saxifragaceae	Zakhm-e-Hayat	H	R L	MGFP	Powder extract	DSA Internal wounds, abdominal pain DSA internal wounds, abdominal pain. Rheumatism wounds.
41	<i>Verbascum thapsus</i> L.	Scrophulariaceae	Gidartamaku	H	L	MGFP	Poultice powder	Asthma, cough, swelling, wound, given to animals in cold.
42	<i>Datura innoxia</i> Mill	Solanaceae	Datura	H	F	OAMP	Juice	Tonic, antidandruff
43	<i>Solanum nigrum</i> L.	"	Khachmach	H	W	MFP	Edible decoction	DSP, Asthma, antidandruff, antiseptic.

Keys: T: Tree, S: shrub, H: herb, R: root, L: leaf, F: flowering, W: whole plant, Fr: fruiting, St: stem: Inf, inflorescence: Re, resin: Rh, rhizome: Se, seed: Br, bark: MFP: medicinal food plant, MGFP: medicinal gathered food plant, OAMP: orally administrated medicinal plant and MPs: medicinal plants.

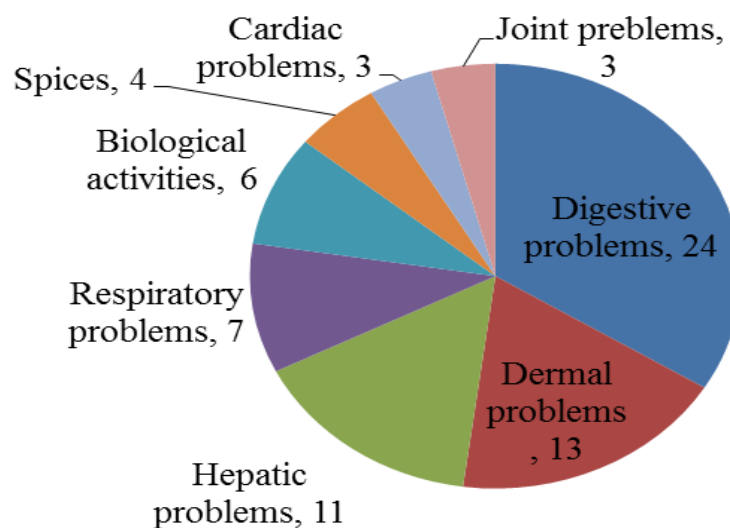


Figure 1. Diseases treated by plant species recorded from Leepa Valley, Muzaffarabad, Azad Jammu and Kashmir.

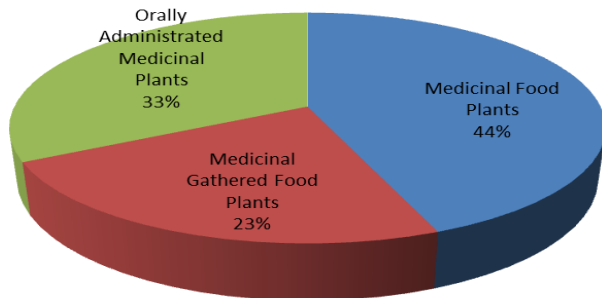


Figure 2. Percentage of orally administrated medicinal plants and medicinal food plants recorded from Leepa valley.

Our results reveal that the residents of this area use the maximum number of plants for curing fever, body pain, abdominal pain, joint pain, cuts and wounds, constipation headache and gynecological disorders. The MPs are categorized into three groups that is, MFPs, MGFPs and OAMPs. MFPs usage of the plants could be grouped into three types, fruit, vegetable and food supplement. Fruits of *Rubus fruticosus*, *Solanum nigrum*, *Morus alba* and *Ficus carica* are eaten and have medicinal importance. Similar reports have been made by Hussain et al. (1996). Leaves of *Amaranthus spinosis*, *Polygonum avicular*, *Dryopteris stewartii*, *Taraxicum officinale*, *Commelina bengalensis* and *Leucus cephalotus* are taken as vegetable in the area. Similar findings were made by Ibrar et al. (2009).

Boiled extract of *Saussurea lappa*, *Bergenia ciliate*, *Polygonum amplexicaule*, *Berberis lycium*, *Taxus wallichiana*, *Amaranthus spinosis*, *Achillea mellifolium* and *Juglans regia* are used frequently by the local inhabitants during cold season as a food supplement. Such type of usage of MPs leads to over exploitation of these species from the area. MGFPs such as *Verbascum thapsis*, *Althea rosea*, *Plantago major*, *Aconitum heterophyllum*, *S. lappa* and *Achyranthus asper* which are collected by locals for their medicinal importance. These plants are used to cure different problems such as digestive system problems, respiratory problems, abdominal disorders and joint pains. These results agrees with the findings of Gupta et al. (1995), Lewis and Elvin (1995), Dastagir (2001) and Hussain et al. (2005), who reported plants that are traditionally used for curing many diseases. Four species such as *Coriandrum sativum*, *Foeniculum vulgare*, *Punica granatum* and *Mentha longifolia* are used as spices and flavoring agents. These species are cultivated as well as collected in wild. Cultivation of these plants is limited only for domestic use. They are used for culinary, confectionary, perfumery, cosmetics and medicinal purposes. The study area has varied climatic conditions with a variety of habitats, which are quite conducive for the cultivation of different types of spices. The utility of these plants for

different purposes poses a great threat to the plant resources in the area. Huge quantities of MPs are lost every year owing to lack of proper collection, cleaning, packing, storage and lack of standard. The knowledge of MPs is now confined mostly to old people. They are reluctant to share this heritage to outsiders (Ahmed and Hussain, 2008).

Young generation is not interested in traditional medication and are adopting the allopathic medicines (Shinwari and Khan, 2000). However, some MPs are widely used in the investigated area. The area is under heavy deforestation and overgrazing pressure. Overgrazing has deteriorated the habitat, as there is no management of grazing land. Most of the medicinal plants are uprooted by the local people for selling or for local use and are also grazed heavily. There is a dire need of time to create awareness to local inhabitants about the importance of this precious lifeline.

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