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Exploration of Traditional Knowledge of wild plants of Sarsala and its adjoining areas, District Bhimber, Azad Jammu and Kashmir, Pakistan

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The present study deals with the ethnobotanical exploration of the wild plants of Sarsala, District Bhimber, AJK. The ethnobotanical data was collected by interviewing 72 local informants, including herbal dealers and inhabitants of the study area. So, total 62 wild plant species belonging to 22 families were found. The data collected, was further analyzed and tabulated showing botanical, common names, families and parts of plant used. The habit of plants includes 53% herbs, 17.7% shrubs, 11.2% trees, 3.22% climbers, 11.2% grasses and 3.22% ferns. Plants having single usage were 37%, 34% double-usage and 33% multiple-usage. The recipes are in the form in the form of paste, decoction, infusion and extract. The higher number of medical plants recorded, perhaps indicated the rich plant diversity of the area. Thus the native flora of study area needs its preservation.

Keywords: Ethnobotany, Medicinal Plants, Traditional uses, Bhimber

INTRODUCTION

Ethnobotany is the liability between native people and plants surrounding folk perception of their classification, their application and their habitation. Ethnobotanical information regarding curative plants and their uses by aboriginal traditions is valuable in both ways as for the protection of conservative cultures and biodiversity but also for community health care and drug development (Ajaib et al. 2014; Altaf et al. 2019). Traditional herbal remedies provide health services even in highly industrialized society because they are significant pillars of culture and socialization (Owour and Kisangau, 2006; Maqbool et al. 2019a).

For the treatment of diverse maladies and illnesses, about 70% of populations in underdeveloped countries depend on medicinal plants. Medicinal plants play a vital role in opposing the medical and health needs of people (Ngari et al. 2010). Plants are medicinally important because they contain metabolites that generally stay intense with in plant parts (Himesh et al. 2011). Ethnobotany is the biological, economic and cultural inter-relationship between people and plants of an area (Parade et al. 2009; Ajaib et al. 2016).

Plants have prejudiced the individuals and human race has observed the increasing logical and profitable inquisitiveness in medicinal plants because of their immense financial prospective and the widespread academic sufficiency of plant based goods (Zareen et al. 2013). Due to presence of various bioactive compounds medicinal plants are used to sustain healthy life, prevent diseases and cure ailments.

Figure 1: Map of study area

Plants can be used straightly or in extracted form to cure different ailments (Santhi, 2011). Many people recommended cultivating wild plants as a source of medicines. Due to increase their popularity the demand of such plant has also been increased (Maqbool et al. 2019b; Ajaib et al. 2013).

The study was carried out on Sarsala, sub-division Samhani, District Bhimber AJK. The District Bhimber is subtropical dry type. It is surrounded on the Northwest by Mirpur and by Punjab Province in the West and South. On the East it shares its margin with Indian Territory (Fig. 1). Bhimber covers an area of 1516 sq. Kms. (Anonymous, 2011).

MATERIALS AND METHODS

The current research work was conducted in 2016. The basic information was collected about the study area from concerned local headquarters and the study area was visited on weekly basis. A total 8 different villages of study area namely; Upper Meera, Lower Meera, Morah, Terri, Pandora, Mall Kangni, Gorra and Banng, present at different heights were visited. From the study area the plants were collected. Medicinal plants are present in great diversity. Furthermore all plants were pressed properly before drooping in newspapers and mounted on herbarium sheets. After allocating the voucher number, the plants are submitted to herbarium of the Botany Department of Mirpur University of Science & Technology, Bhimber Campus, AJK.

Open ended interviews were carried out from informants in the study area. Ethnomedicinal data was collected through questionnaire accompanying personal observations and group debate was also source of information during field review. The obtained ethnobotanical information about the usage of medicinal plants was compared with the literature available. The semi-structured questionnaire was used for interviewing old people, local inhabitant, and herbal practitioner (hakeems, pansaries) from the study area. The questions were focused mainly on the local name of the plant, uses of plant in the past and present, parts used, form used and season of growth. The inhabitant described medicinal uses of plants in local dialects and usually ranked the plants according to its medicinal uses as good or very good or excellent tonic for a disease. The herbs were said to be used in different forms such as juice, decoction, infusion or a simple fresh plant.

RESULTS AND DISCUSSION

A floristic inventory was conducted for ethno botanically important plants of Sarsala, Tehsil Samahni, District Bhimber, Azad Jammu & Kashmir.

Table 1: communal individuality of study area

Village name	Upper Meera	Lower Meera	Morah	Terri	Pandora	Mall kangni	Gorra	Banng
Village size (No. of families)	17	22	26	16	21	19	22	23
Sample size No. of informants)	8	9	12	6	10	7	9	11
Dependency on livestock as source of income	57%	42%	65%	52%	60%	68%	48%	61%
Informants age	86-76	68-58	72-62	28-18	68-58	52-42	25-15	42-32
Average no. of family members	12-6	14-7	10-7	11-5	14-9	16-8	11-8	12-7

Table 2: Percentage contribution of families collected from Sarsala, District Bhimber

Sr. No	Family	No. of Species	%age
1.	Acanthaceae	5	15.10
2.	Adiantaceae	1	3.03
3.	Amaranthaceae	1	3.03
4.	Apocynaceae	1	3.03
5.	Asclepiadaceae	1	3.03
6.	Aslepiadaceae	1	3.03
7.	Asteraceae	7	21.2
8.	Boraginaceae	1	3.03
9..	Caesalpiniaceae	1	3.03
10	Celastreaceae	1	3.03
11.	Caryophylaceae	1	3.03
12.	Convolvalaceae	1	3.03
13.	Euphorbiaceae	1	3.03
14.	Flacourtiaceae	1	3.03
15.	Fumariaceae	1	3.03
16.	Geraniaceae	1	3.03
17.	Labiatae	9	27.2
18.	Lytheraceae	1	3.03
19.	Malvaceae	1	3.03
20.	Mennisperaceae	1	3.03
21.	Moraceae	3	9.09
22.	Nyctaginaceae	1	3.03
23.	Oleaceae	1	3.03
24.	Oxalidaceae	1	3.06
25.	Papilionaceae	2	6.06
26.	Poaceae	6	18.1
27.	Polygonaceae	1	3.03
28.	Rubiaceae	1	3.03
29.	Scrophulariaceae	2	6.06
30	Theylptendaceae	1	3.03
31	Tiliaceae	1	3.03
32.	Umbellifereae	2	6.06
33.	Verbenaceae	1	3.03

Table 3: Traditional uses of wild plant recourses of Sarsala, District Bhimber

Sr. No	Spp. Name	Family	Common name	Gathering period	Plant part Used	Gathering area	Uses
1.	*Adiantum caudiatum* L.	Adiantaceae	Persio Shan	Spring	Fronds	Around running water	Fronds are used in treatment of diabetes, cough, fevers, migraine and skin disease. Fronds are also used as fodder during summer. Rhizome is boiling in water; the extract is used to make hairs strong and to induce shine.
2.	*Ajuga bracteosa* Wall. ex Benth	Labiateae	Kori buti	Summer	Whole plant, roots	Barren land	The whole plant decoction is mixed with sugar and given for relief of "Takoon" autumn fever. The roots juice commonly used in the treatment of diarrhea & dysentery. It also has significant properties against diabetes. Give to animals as fodder during digestive problems.
3.	*Anisomeles indica* (L.)	Poaceae	Boo-buti	Spring	Whole plant	Bushy land	An infusion is useful in affections of the stomach. Whole plant extract is found to be+ excellent blood cleanser. Essential oils are obtained from leaves used for flavoring of cakes.
4.	*Apluda mutica* L.	Poaceae	Santali	Summer	Bark	Mountainous slopes	Bark paste is used to treat boils with pus.
5.	*Astragalus psilocentros* Fisch.	Poaceae	Kandyari	Summer	Leaves	Waste land	Leaves are used as fodder.
6.	*Barleria cristata* L.	Acanthaceae	Meetha Sareyaka	Summer	Leaves & roots	Sandy land	The juice of leaves and roots has antibacterial and diaphoretic properties. It is used in the dealing of severe catarrhal infections.
7.	*Bidens biternata* (Lour.) Merr. & Shreff	Asteracreae	Sumal	Spring	Roots, seeds & leaves		Foliage are useful for the relief of sore illness. Roots & seeds are used for the treatment of pharyngeal and bronchial diseases.
8.	*Boerhavia procumbens* Banks ex Roxb.	Nyctaginaceae	Sanati	Summer	Flower and leaves	Waste- land	Flower and leaves are used as stimulant. It often counter lack of iron.
9.	*Calatropis procera* (Aiton) Dryand.	Aslepiadaceae	Aak	Summer	Leaves, roots and flowers	Waste land	Flowers and Leaves crushed, mixed with sugarcane and given to cattle to improve absorption in stomach. The root powder is mixed with oil of *Barrasica compestris* to get release of rabies disease. It is also used as fuel. The juice of the plant is used to cure pus boils.
10.	*Carissa opaca* Stapf ex Haines	Apocynaceae	Garanda	Spring	Roots & leaves	Pasture land	Its ground root is mixed with pericarp of mango in water and used as wormicide of intestine. Its leaves are mixed with honey and use for relief of Mokhar (in which foot & mouth of livestock become wounded) disease. It is also used as fodder for cattle.
11.	*Casearia tomentosa* Roxb.	Flacourtiaceae	Cheela	Summer	Fruit	Road side	The juice from the fruit is used as a fish poison. Used as fuel extensively.
12.	*Cassia fistula* L.	Caesalpiniaceae	Karingal	Spring	Leaves	Around fields	Leaves are useful in treating skin diseases.
13.	*Cenchrus pennisetiformis* Steud.	Poaceae	Buffel grass	Summer	Whole plant	Sandy land	It is a tremendously precious fodder grass as it remains green during dried up season.
14.	*Cenchrus bifloras* Roxb.	Poaceae	Bhurut	Spring	Root and fruit	Waste land	The root is an ingredient of traditional aphrodisiac prescriptions. The fruits are diuretic and pectoral.

							Fruits are edible.
15.	*Cissampelos pareria* L.	Mennisperaceae	Abuta	Spring	Leaves and stem	Barren land	The decoction of leaves and stems are used as oral analgesic. Leaf decoction is also used against treatment of snake- bite off and eye infection. Also utilize as good fodder.
16.	*Centaurium pulchellum* (Sw.) Druce	Gentianaceae	Pink centuary	Spring	Flowers	Hilly slope	Flowers are used for the treatment of appetite loss, indigestion, inflammation and high blood pressure. Seeds are used to abstract essential oils used for different purposes. It is also used as fodder. Seeds are dried, cooked in oil and eaten as dry fruit.
17.	*Conyza Canadensis* (L.)	Asteraceae	Cheeti booti	Summer	Whole plant	Waste land	Its extract having astringent, diuretic properties. Its extract with raw sugar is used in stomach disorders. It is also edible. Widely used as fodder for domestic animals.
18.	*Conyza stricata* Willd.	Asteraceae	Fleabane	Summer	Whole plant and flower	Waste land	The infusion of flowers used for liver decongestant. The decoction of whole plant is used as purifying and rheumatic, primarily to eliminate uric acid. Also used as fodder.
19.	*Colebrookea oppositifolia* Sm.	Labiatae	Sawali	Autumn	Whole plant and leaves	Beside water stream	It is used as fodder. Leaves paste often used for skin infections.
20.	*Cynodon dactylon* (L.) Pers	Poaceae	Khabal	Summer	Whole plant and leaves	Pasture land	The whole plant decoction given orally to treat diabetes and ulcers. Leaf juice is given for digestion. It is also a good fodder and often use as fuel.
21.	*Cyperus exaltatus* Retz.	Cyperacea	Umberalla sedges	Summer	Rhizome	Hilly slopes	Rhizome is grated and eaten, in the treatment of cases of chronic malaria.
22.	*Dicliptera bupleuroides* Nees	Acanthaceae	Pipri	Summer	Leaves	Pasture land	Foliage decoction is often given for relief to children suffering from fever.
23.	*Digera muricata* (L.) Mart.	Amaranthaceae	Daoo	Spring	Whole plant, shoots and leaves	Pasture land	Whole plant is used in urinary disorders. The leaves and young shoots of this plant are given to relieve constipation. The decoction of leaves given in kidney stone treatment. Leaves also used as vegetable. In dry season used as fuel.
24.	*Echinochloa colonoa* (L.) Link	Poaceae	Sard-kaa	Spring	Seeds	Sandy soil	Seeds cooked whole or ground into flour and use as a mush or porridge.
25.	*Eclipta alba* (L.) Hassk.	Asteraceae	Dhoodak	Summer	Roots and leaves	Waste-land	Its root decoction is effective in treating joint pain. Leaves paste are antidote for scorpion and snake bite. Also known as good fodder.
26.	*Erioscirpus comasus* (Wall.) Palla	Cyperaceae	Babyoon	Summer	Whole plant	Hilly slopes	It is used as a valuable fodder.
27.	*Euphorbia hirta* L.	Euphorbiaceae	Dhoodli	Spring	Whole plant	Waste-land	The boiled decoction of 100 grams of the fresh whole plant is used to cure gastrointestinal disorders.
28.	*Ficus auriculata* Lour.	Moraceae	Tossy	Summer	Fruit and latex	Beside water stream	The roasted fruit is used in the treatment of diarrhea and dysentery. Latex from the stems is applied on cuts and wound. Its fruit is edible.
29.	*Ficus benghalensis* L.	Moraceae	Bhoor	Summer	Roots,	Barren land	Leaves are used as tonic against chronic diarrhea

					bark and leaves		and dysentery. A paste made from leaves can be used as an application for relieving skin disorder and is known to have very soothing effect. Wood of the plant often used to make small utensils and decoration pieces. Wood used for thatching and fencing.
30.	*Ficus palmate* Forssk.	Moraceae	Jungle phakvar	Summer	Floral parts and fruit	Beside water stream	Fruit is edible. Juice extracted from fruit use as expectorant.
31.	*Fumaria indica* (Hausskn.) Pugsley	Fumariaceae	Papra	Spring	Whole plant	Crop field	2-3 gm powder of whole plant with one glass of water is affected against jaundice. Juice of fresh plant parts is used to cure restlessness and as laxative. It is also a good fodder and extensively used as fodder.
32.	*Geranium rotundifolium* L.	Geraniaceae	Jandrunu	Summer	Whole plant	Road side	It is used as fodder.
33.	*Grewia optiva* J.R.Drum. ex Burret	Tiliaceae	Tamadan	Summer	Leaves	Around crop field	Leaves show anti-microbial effects. It is also a valuable fuel source.
34.	*Gymnosporia royleana* (Wall. ex M.A. Lawson) Cufod	Celastraceae	Pataki	Summer	Leaves	Pasture land	Fresh leaves are collected, cleaned, powdered and extract is used as eye drops.
35.	*Heliotropium strigosum* Willd.	Boraginaceae	Gorakhpan	Spring	Whole plant	Waste land	It is used for the treatment of gastrointestinal pain and respiratory distress. Leaves are used as food.
36.	*Indigofera linifolia* (L.f.) Retz.	Papilionaceae	Tarum	Spring	Whole plant	Barren land	Whole plant is affected nematicide and treatment for stomach cancer. Also used as green manure because it is a good nitrogen catch crop.
37.	*Justicia adhatoda* L.	Acanthaceae	Kora bhekar	Summer	Leaves and flowers	Waste land	Fresh leaves are used with water against diabetes and blood purification. 50 gm of leaves and flower powder individually mixed with 15 ml of honey used for chest infection. A decoction is prepared by boiling half kg of leaves in 4 liters of water and used for skin infection. Also used for fuel.
38.	*Justicia peploides* (Nees) T. Anderson	Acanthaceae	Psmund	Summer	Whole plant	Waste land	It is a valuable antioxidant.
39.	*Lucas cephalotes* (Roth) Spreng.	Labiatae	Tumbaa	Spring	Whole plant and flower	Pasture land	A syrup is used a domestic remedy for coughs and cold. Whole plant in jaundice, inflammation, cough, bronchial asthma and intermediate fever. It is also useful as fodder and fuel. Wood is used to make shelters.
40.	*Mentha royleana* (Wall. ex Beth.	Labiatae	Kaala podeena	Summer	Whole plant and leaves	Crop field	Decoction of leaves are used to relief diarrhea in children. Whole powdered plant mixed with brown sugar for prevention of vomiting and indigestion. Also used as food.
41.	*Micromeria bifloras* (Buch.-Ham. Ex D. Don)Benth	Labiatae	Babori	Summer	Whole plant	Bushy land	It is used to cure sickness, nausea, constipation and diuretic. In dry condition used for fuel.
42.	*Olea ferruginea* Wall. ex Aitch	Oleaceae	Kahoo	Spring	Leaves, bark, branches	Around crop field	Leaves are used as toothache and gonorrhea while Bark is good to cure mouth infection. Branches of plant are used as miswak (as

					and fruit		toothbrush). The oil extracted from the fruits give relief from rheumatism, as used for massage. Plant is extensively utilized as fodder for livestock.
43.	*Oxalis corniculata* L.	Oxalidaceae	Khati booti	Spring	Leaves	Pasture land	Plant latex found to be affected against skin diseases. Leaves preferably used against snake-bites, cooling agent and refrigerant in stomach disorders. Useful as fodder and food.
44.	*Panicum antidotale* Retz.	Poaceae	Ghamoor	Summer	Whole plant	Hilly slopes	The smoke of the burning plant is considering to sterilize wounds and as an antiseptic in the treatment of smallpox and infections. Also used as fodder for cattle's and cows.
45.	*Pentatropis spiralis* (Forssk.) decne.	Asclepidaceae	Vanaveri	Summer	Roots	Barren land	Roots are used for gum infections.
46.	*Polygonum plebeium* R.Br.	Polygonaceae	Knotgrass	Spring	Seeds	Hilly slopes	Crushed seeds are cooked and eaten as a Nutritional food supplement.
47.	*Ipomoea carnea* Jace.	convolvalaceae	Valetii-aak	Spring	Roots	Waste land	Roots are boiled to use as laxative and to provoke menstruation.
48.	*Psammogeton biternatum* Edgew.	Umbellifereae	Izobak	Spring	Whole plant	Barren land	Used against stomach disorders.
49.	*Salvia coccinea* Buc'hoz ex Etl.	Labiatae	Scarlet sage	Summer	Whole plant	Pasture land	Oil extracted from plant used in treatment for diseases of nervous, circulatory, respiratory and digestive system. Used as ornamental plant extensively. Flowers are dried and used for fencing sometimes whole plant is dried for usage of same purpose.
50.	*Salvia moorcroftiana* Wall. ex Benth	Labiatae	Sultani booti	Summer	Roots, seed and leaves	Waste land	Roots used in treatment of colds and coughs. Seed is emetic, used for dysentery, colic, hemorrhoids, boils. Leaves are coated with *Brassica campestris* oil tied around the infected part for healing of wounds. Also used as fodder. Used as fuel, its smoke irritates mosquitoes hence used in rural areas to clean dairy environment from mosquitoes.
51.	*Salvia plebeia* R.Br.	Labiatae	Samundar sookh	Summer	Whole plant, Seeds and roots	Road side	A paste of the plant is useful for wounds between the toes caused by lengthened walking bare foot in grubby water. The seeds are often utilizing in the treatment of diarrhea and gonorrhea. The seeds are crushed and used for hemorrhoids. Oil extracted from seeds used in pharmaceutical industries. Used as fuel in rural areas.
52.	*Scandix pectin-veneris* L.	Umbelliferaea	Kangi booti	Summer	Whole plant	Pasture land	It is used as fodder.
53.	*Sclerocarpus africanus* Jacq. Ex Murray	Asteraceae	Bhangra	Summer	Whole plant	Waste land	Decoction of plant used for the relief of gonorrhea.
54.	*Sida cordata* (Burm.f.) Borss.Waalk.	Malvaceae	Pavani	Spring	Whole plant	Barren land	It is used for the treatment of inflammation of the oral mucosa. Act as anti-inflammatory for preventing cell proliferation for encouraging liver-maintenance. Also use as fodder for animals.
55.	*Sonchus asper* (L.) Hill	Asteraceae	Prickly- sow	Spring	Leaves	Bushy land	Paste of leaves help in wound healing.

			thistle				
56.	*Striga asiatica* (L.) Kuntze	Scrophulariaceae	Witchweed	Spring	Whole plant	Hilly slopes	The whole plant is used for treating intestinal parasites.
57.	*Spermadictyon suaveolens* Roxb.	Rubiaceae	Padera	Summer	Bark and leaves	Barren land	Bark and leaves show antioxidant and antimicrobial effects. Its wood is used as fuel during cold climate.
58.	*Thelypteris dentata* (Forssk.) E.P. St. John	Thelyptendaceae	Hari booti	Autumn	Fronds	Water stream	Fronds used for rheumatism. Also effective for tuberculosis, infection and chest pain. Also used as ornamental plant. Rhizome is often used as food.
59.	*Tridax procumbens* (L.) L.	Asteraceae	Karani	Autumn	Leaves	Pasture land	Leaves are used as wound healing and as an anticoagulant, antifungal, and insect repellent.
60.	*Verbascum Thapsus* L.	Scrophulariaceae	Jangli tobacco	Summer	Roots, flowers and leaves	Hilly slopes	Decoction of roots is used to cure cough and it is also alleviation for toothache. The dried leaves are smoked to reduce the annoyance of the respiratory mucus membranes. The fresh flowers soaked for 21 days in olive oil, are said to be estimable bactericide. Economically important as useful for making of cigarette. Oil extracted from flowers is used for massage of wrecked bones.
61.	*Vitex negundo* L.	Verbenaceae	Bandan	Summer	Leaves and seeds	Beside crop fields	60 gm dried seeds powder is useful to cure gastro intestinal problem and kidney stone. The decoction of leaves is used for jaundice. Extensively useful as fuel and fodder. Commercially its leaves are used in toothpaste making. Juice extract from stems are used in making mouth wash products.
62.	*Woodfordia fruticosa* (L.) Kurz	Lytheraceae	Tavi	Summer	Flowers	Roadside	Flowers are used to reduce weakness. Whole plant utilizes as fodder for domestic animals. Its wood is a good quality fuel.

To collect information related to ethnobotanical usage of plants in the study area interviews and extensive surveys were conducted. Table 1. Shows the social characteristics of study area, in which the village size, sample size, depending on domestic animals as basis of income, informant's age and average no. of family units in figures.

Number of plant species and families

In present study, 62 plant species were collected related to 30 families (Table 3). Among these Labiatae have highest number of species i.e. 9, Acanthaceae have 5, Asteraceae have 7 and Poaceae have 6 plant species each. Moraceae have 3 plant species. Papilionaceae, Scrophulariaceae, Umbellifereae, Verbenaceae having two species each. Asclepiadaceae, Adiantaceae, Apocynaceae, Boriginaceae, Calastreaceae, Caselpiniaceae, Convolvalaceae, Caryophylaceae, Euphorbiaceae, Geaniaceae, Fumariaceae, Lytheraceae, Mennisperaceae, Oleaceae, Oxalidaceae, Polygonaceae, Rubiaceae, Siliaceae, Thelyptendaceae, Tiliaceae, Vegetaginaceae having 1 species each.

Ethnomedicinal data of wild plants of study area was collected from local inhabitants on the basis of age difference which is minimum of 10 years. Members of age group 76-86 have more significant knowledge about medicinal plants, whereas age group of 15-25 has minimum medicinal knowledge.

Single-Usage plants

Those plants which are particularly used for a definite principle are known as single-usage plants, e.g. *Justicia peploides* (Nees) T. Anderson is used as remedial plant only. Among 62 plant species reported from study area (Sarsala), 23 were single-usage plants. Out of 23 plants medicinal were 16 (69.5%), whereas fodder & fuel were 5 (21.7%) & 2 (8.6%) respectively (Fig. 2).

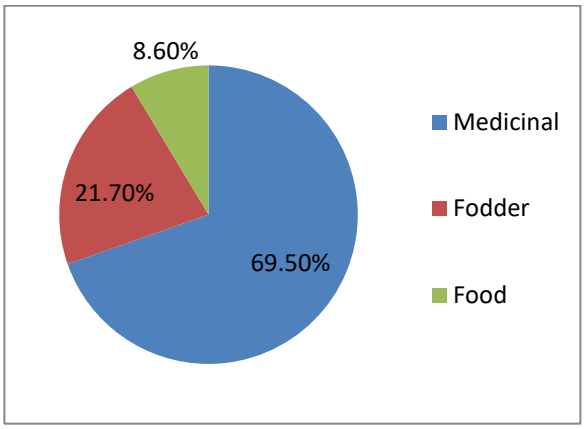

Figure 2: The pie chart showing percentages of Single-usage species of Sarsala

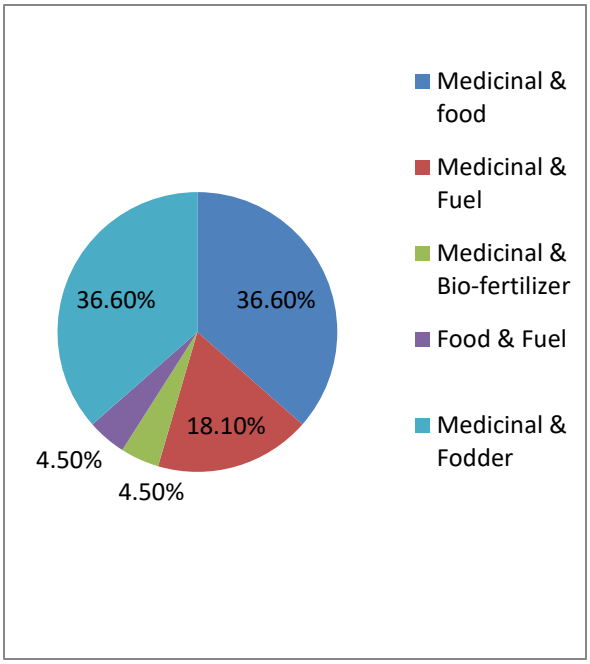

Figure 3: The pie chart showing percentages of Two-usage species of Sarsala

Two-usage Plants

Those plants which are used for any two purposes are referred as Double-usage plants, e.g. *Eclipta Alba* (L.) Hassk is used for medicinal purposes although as a food. Among 62 plant species reported from study area (Sarsala), 21 were double-usage plants. Medicinal & food, Medicinal & fuel, Food & fuel, Medicinal & Bio-fertilizer and Medicinal & fodder are the categories consider in double-usage plants. (Fig. 3).

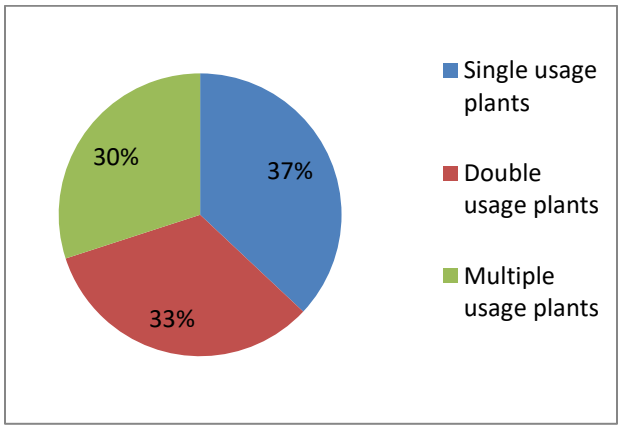

Figure. 4: Percentage contribution of plants on the basis of their usage Multi-usage Plants

Those plants which offer more than one uses such as medicinal, food, fuel, timber, fencing etc. are termed as Multi-usage plants, e.g. *Ficus benghalensis* L. have multiple uses including medicinal, fuel, utensil making and fodder. Out of 62 plants specie collected from study area 18 (32.2%) species were multi-usage plants (Fig. 4).

DISCUSSION

Medicinal plants have played a vital role in maintaining human health and improving the quality of human life and support human with helpful components of medicines, seasonings, beverages, cosmetics and dyes. In the traditional system of medicine, the main source of drugs is directly plant based that naturally grow in the field and is very cheaper. The present analysis explained the old traditional knowledge about medicinal plants used as remedy by the local natives of Sarsala, District Bhimber. 62 plant species belonging to 22 families were collected. Of these, 53% were herbs, 17% shrubs, 11% trees, 7% grasses, ferns and climbers are 3% each (Mehmood et al. 2011), reported 57% herbs, 17% trees and 5% shrubs whilst survey on plants of Neelum, Azad Jammu & Kashmir.

It was found that total 23 species (37%) had single usage, 21 species (34%) had dou ble usage and 20 species (33%) had multiple usages. Ajaib et al., (2015) has also reported during ethnobotanical survey of Darguti, Tehsil Khuriatta, AJK that among 100 plant species, 64 had multiple usages, 12 have single usage and 24 having double usage. It was observed that most of the plants species have single usage. The ethno botanical investigation accounts that almost in every house people use medicinal plant as medicine, because of the rural culture of area. People living in study area don't have easy approach to hospitals so they utilize indigenous plants to cure human as well as veterinary diseases. It can be said that population of study area directly or indirectly depends upon plants.

Beside medicinal uses, the local community of area fulfills their food, fodder, timber and fuel requirements from plants hence in resulting in exploitation and degradation of flora. Zareen et al. (2013) has also revealed similar circumstances during ethnobotanical study of shrubs of Central Punjab, the local inhabitants for their demands caused significant loss to the local vegetation. In the studied area, higher diversity of medicinal plants was found and these plants were also available in the nearby hilly areas, especially in the grazing lands and around water springs and streams. It was observed that study area was dominated by herbs and shrubs as compared to tree community.

Different study areas show different vegetation regarding to soil type, moisture, height and grazing activity. Morah as situated at height as compare to other spots have rich vegetation. Pandora, upper and lower Meera is rich in housing so vegetation is affected by human activities and rich grazing activity of domestic animals. A water stream is passing beside Gorra, hence rich vegetation was found there.

As previously no ethnobotanical research has been done particularly in the study area. The knowledge about plants usage is mostly restricted to herbalist. The main objective of this investigation was to document the medicinal data of the area and to use this documentation to impart awareness in the local communities in order to protect the valuable plants.

CONCLUSION

The research accomplished that even medicines are available for all simple and complicated diseases but still many people in the studied area rely upon aboriginal plants for the treatment of number of ailments. The present day traditional healers are very old, due to lack of interest in young generation and thus, may be losing this wealth of knowledge in their near future. So, proper documentation is thus necessary to acquire and preserve the traditional knowledge.

CONFLICT OF INTEREST

The authors declared that present study was performed in absence of any conflict of interest.

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AUTHOR CONTRIBUTIONS

MA designed the study and identified the plants, IN did field work, MI, FS, TH and KHB reviewed the manuscript. All authors read and approved the final version.

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