INT. J. BIOL. BIOTECH., 11 (1): 71-83, 2014.

ETHNOBOTANICAL STUDIES OF HERBS OF AGRA VALLEY, PARACHINAR, UPPER KURRAM AGENCY, PAKISTAN

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ABSTRACT

Plants have complex biological and cultural relationships with mankind because of their reliance upon floral diversity to fulfill their needs. The present study was conducted in 11 villages of Agra Valley, Parachinar because despite of its rich floral diversity, almost no ethnobotanical research was carried out. 64 herbs of ethnobotanical importance including 1 Pteridophyte, 1 Gymnosperm and 62 Angiosperms having 3 monocot (Poaceae, Liliaceae, Asparagaceae) and 29 dicot families (predominantly Asteraceae, Lamiaceae, Papilionaceae) were recorded, of which 31 (48%) single-usage, 14 (22%) two-usage and 19 (30%) multi-usage herbs were consumed as medicinal (40%), culinary (19%), fodder (14%), essential oil (5%), ornamental (4%), fuel (3%) and for miscellaneous purposes (15%). Different parts of plants were utilized either in powdered form, decoction or whole plant extract to cure various diseases. Unfortunately, the knowledge of beneficiary plants initially acquired by trial and error, inherited to generations is lost within the urge of industrialization as no written form of data exists. Therefore, the documentation of plants along with their important uses will be beneficial, not only for the indigenous people of the area but also for the country as a whole. Also, there is a need of sustainable use of the plants to preserve them for future generations and prevent their extinction.

Keywords: Ethnobotany, Herbs, Agra Valley, Parachinar, Upper Kurram Agency, Pakistan.

INTRODUCTION

Ethnobotany is the study of the wide spectrum of complex relationships found between people and plants (Choudhry *et al*., 2008). In past ethnobotany was thought to be as survey of the aboriginal knowledge of the people of tribal societies. Now it has been assumed that ethnobotany that encompasses all the traditional uses of the plants by humans is a multi-disciplinary science, including food, clothing, shelter religious ceremonies, ornamentation and health care (Schultes, 1992).

Plants and human beings have complex biological and cultural relationships (Balick, 1996). Dating far back, mankind has relied upon the floral diversity to fulfill their needs. Initially, the trial and error technique was observed to acquire the knowledge of beneficiary plants, thus securing the list of plants that can be beneficial or harmful to human beings. The initial knowledge was then inherited to generations accommodating further additions and refinements. However, to our misfortune, most of the information gathered by our ancestors is lost within the urge of industrialization. To date a large number of Third World inhabitants rely on plants for food, construction materials, fuel wood, medicine and various other purposes. The long forgotten knowledge can be rescued and preserved by the efforts of the ethnobotanists before it is too late (Rao & Henry, 1997).

The present study was conducted keeping in view the significance of rich floral biodiversity in Agra Valley, Parachinar - the administrative head quarter of Kurram Agency. It lies in between 33º20’ to 34º03’ N and 69º50’ to 70º45’ E at an elevation of about 6000 feet above sea level. The climate of Kurram varies at different altitudes and presents striking contrasts from sultry oppressive heat to bitter cold. Summer and spring is quite pleasant. But winter is extremely harsh as it is quite usual that mercury drops upto -10°C. The annual rainfall in Parachinar is 1239.96 mm. Humidity is found higher in morning than found in evening.

MATERIAL AND METHODS

The materials required included: Notebook, blotting paper, pencil, newspaper, knife, polythene bags, map and plant presser.

The ethnobotanical study was carried out in the following steps:

Survey of the area:

11 villages were visited on weekly basis and plants alongwith the information regarding their usage were collected from these areas. Information was compiled from the local endemics of the area, i.e. aged man and women, hakims, farmers, pansaries and shopkeepers, etc. through formal as well as informal interviews in Pashto language

and a questionnaire. Personal observations had also added more knowledge to the research work. Major areas visited include Malayano Kalay, Malyawarti, Wazir Kalay, Laghara, Chaka Agra, Dinga Agra, Mirza Kalay, Noor Gul Kalay, Khatchan Kalay, Uzbak and Sher Ali Khan Kalay.

Laboratory study: The laboratory work was done by:

- **Pressing and drying:** The plants collected from the field were initially pressed immediately before wilting in between the sheets of newspapers, followed by blotting papers to remove all their moisture content in laboratory. Finally, wooden pressers were used to remove wrinkles.
- **Mounting and identification:** After drying, individual plant specimen was identified with the help of Flora of Pakistan and mounted on each standard herbarium sheet via glue and fiber tape provided with local name, botanical name, family name, habit, habitat, and other suitable information regarding the plant specimen.
- **Preservation:** Voucher specimens were assigned with voucher number and were then submitted to Dr. Sultan Ahmad Herbarium, Botany Department, GC University Lahore, Pakistan.

RESULTS AND DISCUSSION

In study area, 64 herbs of ethnobotanical importance including 1 Pteridophyte of family Marsileaceae, 1 Gymnosperm that belong to family Ephedraceae and 62 Angiosperms were recorded from the village Agra Parachinar, Kurram Agency. Out of these 62 Angiospermic herbs, monocots included 3 species, having one each of Poaceae, Liliaceae and Asparagaceae. The remaining 59 plants belong to dicot families: Asteraceae with 13 species; Lamiaceae (Labiatae) with 8 species; Papilionaceae and Amaranthaceae with 3 species; Apiaceae, Fabaceae, Malvaceae, Onagraceae, Plantaginaceae, Rannunculaceae, Solanaceae and Violaceae are represented by 2 species each. The remaining families are Alismataceae, Apocyanaceae, Asclepidaceae, Boragniaceae, Brassicaceae, Cannabaceae, Caryophyllaceae, Dipsacaceae, Euphorbiaceae, Fumariaceae, Nyctaginaceae, Oxalidaceae, Polygonaceae, Portulacaceae, Rubiaceae, Scrophulariaceae and Zygophyllaceae (Table 1).

Agra Valley Parachinar, Upper Kurram Agency has large diversity of vegetation because of its proximity to River Kurram. These herbs are of annual habit and flower during different months throughout the year with the maximum vegetation blooming from June to August (Fig. 1), but due to change in social status most of its inhabitants rely upon allopathic medicinal products. They do not know much about the plants and therefore, ethnobotanical knowledge is only restricted to local hakims and old aged people as indicated by Ajaib *et al.*, (2010), while working with shrubs of District Kotli, Azad Jammu and Kashmir. However, still the people living in far flung areas depend upon plants for their daily needs because of the poverty, lack of education and basic health services as reported by Azaizeh *et al.*, (2003).

Single-Usage plants are those plants which are used for only one specific purpose. Out of 64 herb species, 31 (48%) were single-usage (Fig. 2). Most of the single-usage herbs are of medicinal importance including *Asparagus prostratus* Dumort., *Anisomeles indica* (L.) Kuntze, *Caralluma tuberculata* N.E.Br., *Centaurea iberica* Trevir. & Spreng, *Cousinia thomsonii* C.B. Clarke, *Eryngium caucasicum* Trautv., *Hibiscus trionum* L., *Marrubium vulgare* L., *Mentha longifolia* (L.) Huds, *M. royleana* Wall. ex Benth., *Persicarira barbata* (L.) Hara, *Plantago lanceolata* L., *P. major* L., *Ranunculus laetus* Wall. ex Hook, *Scandix pecten-veneris* L., *Silybum marianum* (L.) Gaertn., *Teucrium stocksianum* Boiss., *Verbascum thapsus* L. and *Vernonia cinerea* (L.) Less. The herbs utilized as fodder by the inhabitants are *Atriplex crassifolia* Ledeb., *Galium palustre* L., *Lathyrus aphaca* L., *Scabiosa olivieri* Coult., *Trifolium resupinatum* L. and *Vicia sativa* L. Moreover, *Astragalus psilocentros* Fisch. and *Onosma graecum* Boiss. were used for fuel purpose. The herbs cultivated for their ornamental possession are *Oenothera affinis* Cambess and *Tulipa clusiana* DC. Others include *Conyza aegyptiaca* (L.) Aiton. employed to treat skin pimples, *Phlomidoschema parviflorum* (Benth.) Vved. kept in Wheat storage to protect grains from insects and *Traxacum officinale* F.H. Wigg. is used as salad.

Two-usage plants are those used for two purposes. Out of 64 herb species, 14 (22%) were two-usage herbs with medicinal herbs being the most prominent accounting a total of 9. These include *Artemisia scoparia* Waldst. & Kitam., *Boerhavia procumbens* Banks ex Roxb., *Clematis grata* Wall., *Datura stramonium* L., *Fumaria indica* (Hausskn.), *Matricaria chamomilla* L., *Portulaca oleracea* L., *Setaria viridis* (L.) P. Beauv. and *Sisymbrium irio* L. 8 herbs having dual-usage were utilized for culinary purposes i.e., *Amaranthus retroflexus* L., *Boerhavia procumbens* Banks ex Roxb., *Chenopodium album* L., *Oenothera rosea* L'Hér. ex Aiton., *Portulaca oleracea* L., *Sagittaria trifolia* L. and *Sisymbrium irio* L. Moreover, only 5 herbs lying within this category were considered for fodder including *Amaranthus retroflexus* L., *Chenopodium album* L., *Clematis grata* Wall., *Sagittaria trifolia* L. and *Setaria viridis* (L.) P. Beauv. Only *Oenothera rosea* L'Hér. ex Aiton. serves for ornamental purpose. Others are *Artemisia scoparia* Waldst. & Kitam. used for making brooms, *Datura stramonium* L. employed to treat dandruff as

well as hair fall, *Fumaria indica* (Hausskn.) employed to enhance skin beauty, *Matricaria chamomilla* L. prescribed as the mouthwash, *Vinca major* L. not only prevent soil erosion but also serve in basket making.

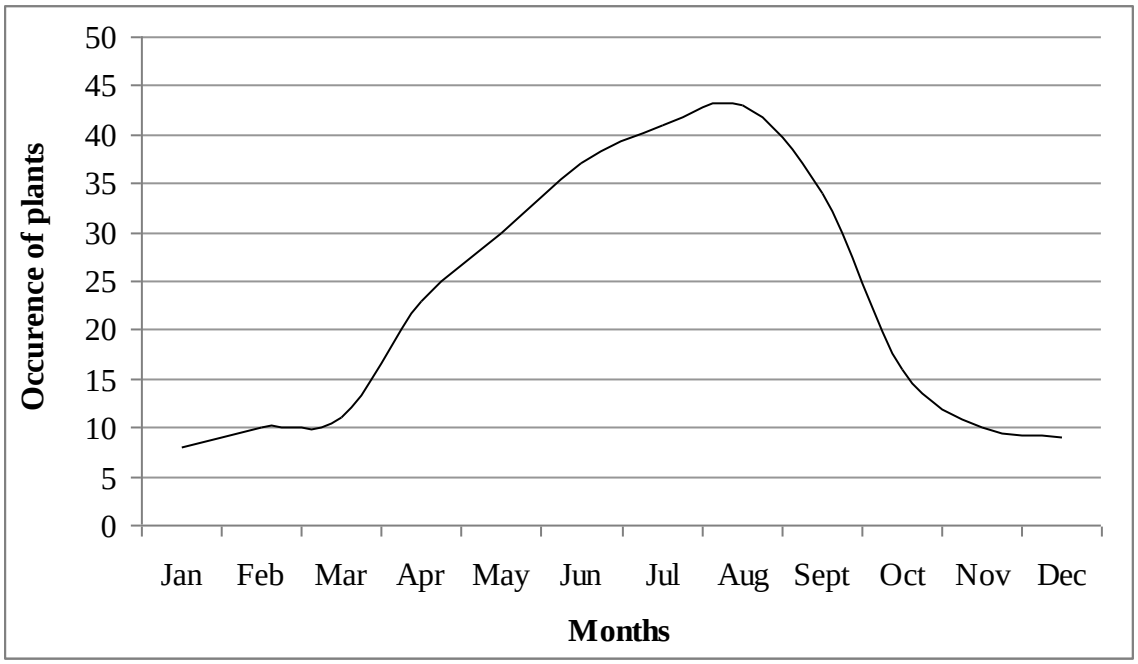

Fig. 1. Annual distribution of ethnobotanically important herbs in Agra Valley Parachinar, Kurram Agency.

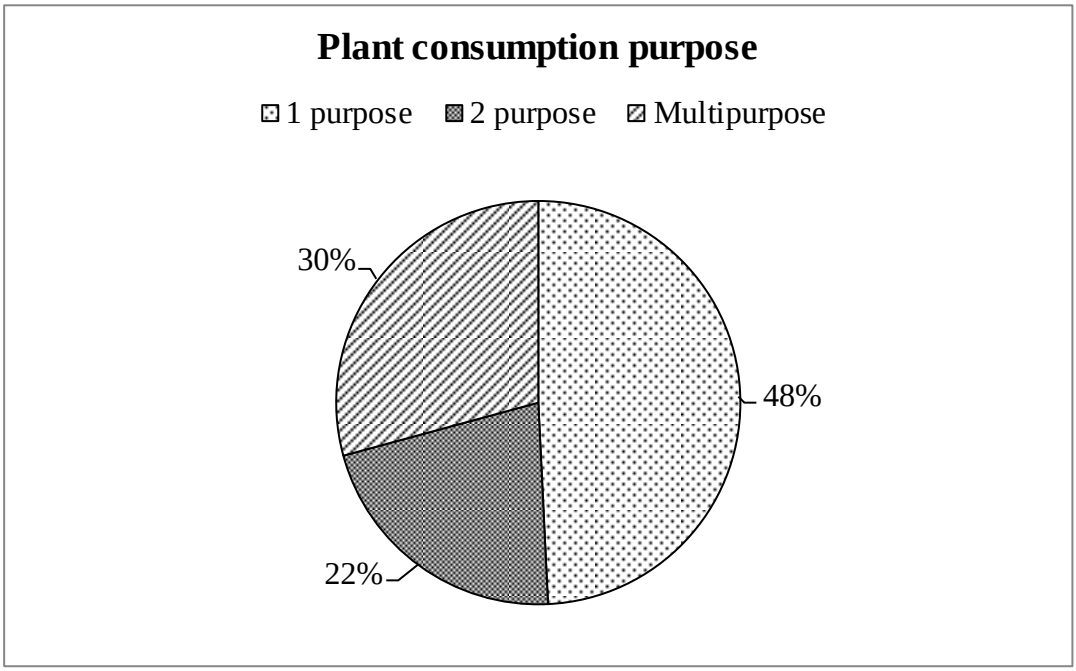

Fig 2. % of herb consumption purpose used ethnobotanically by people in Agra Valley Parachinar, Kurram Agency (n=64).

The current study revealed that the indigenous people use some plants for more than one purpose to fulfill their needs. Those plants which are used for more than two purposes are called multi-usage plants. Out of 64 plant species, 19 (30%) herbs were of multi-usage. Few important multi-usage plants included *Artemisia absinthium* L., *Cannabis sativa* L., *Cichorium intybus* L., *Ephedra gerardiana* L., *Euphorbia helioscopia* L., *Glycyrrhiza glabra* L., *Lactuca serriola* L., *Malva parviflora* L., *Marsilea minuta* L., *Mentha arvensis* L., *Oxalis corniculata* L., *Peganum harmala* L., *Silene canoidea* L., *Solanum virginianum* L., *Sonchus oleraceus* (L.) L., *Thymus linearis* Benth. in Wall., *Viola odorata* L., *V. pilosa* Blume and *Xanthium strumarium* L. Of these 19 serve for medicinal purpose, 14

serve for culinary purpose, 5 were used as fodder, 4 serve for ornamental purpose, 5 yeild essential oil and 1 serve as feul. There are 12 such herbal species that were employed for wide range of functions as in plug tobacco, shoe polish, soap, fibre for plastic production, rust removal, etc. (Fig. 3).

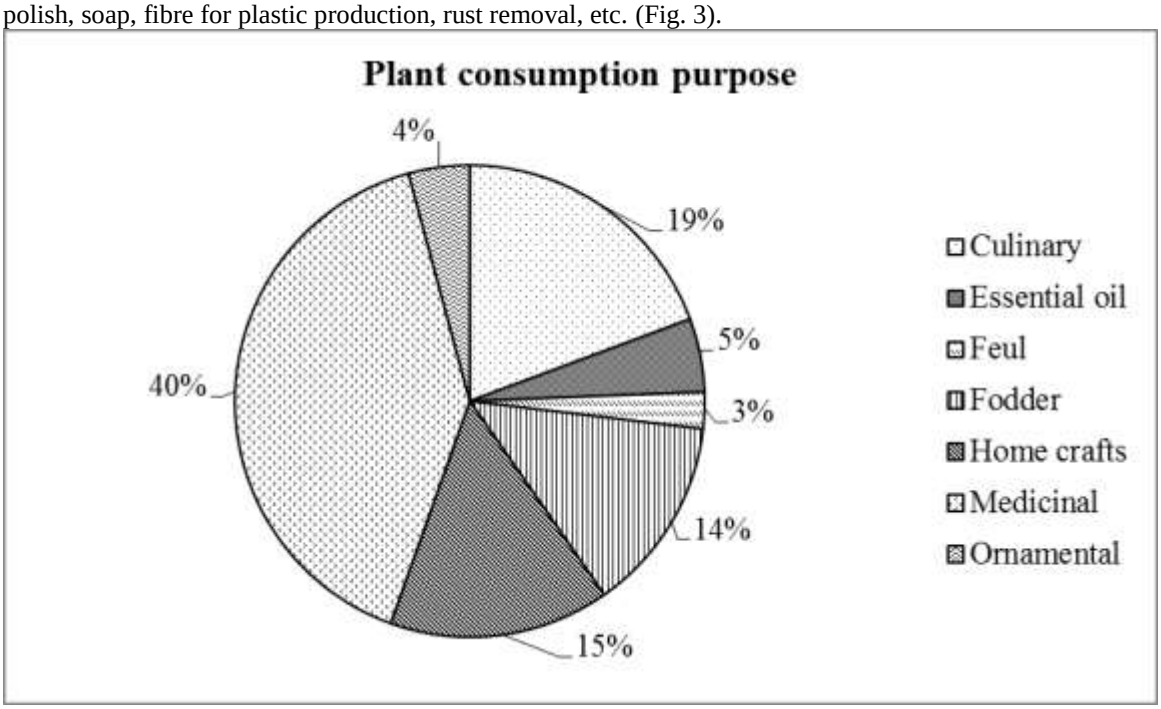

Fig 3. % of herb ethnobotanical consumption by people in Agra Valley Parachinar, Kurram Agency.

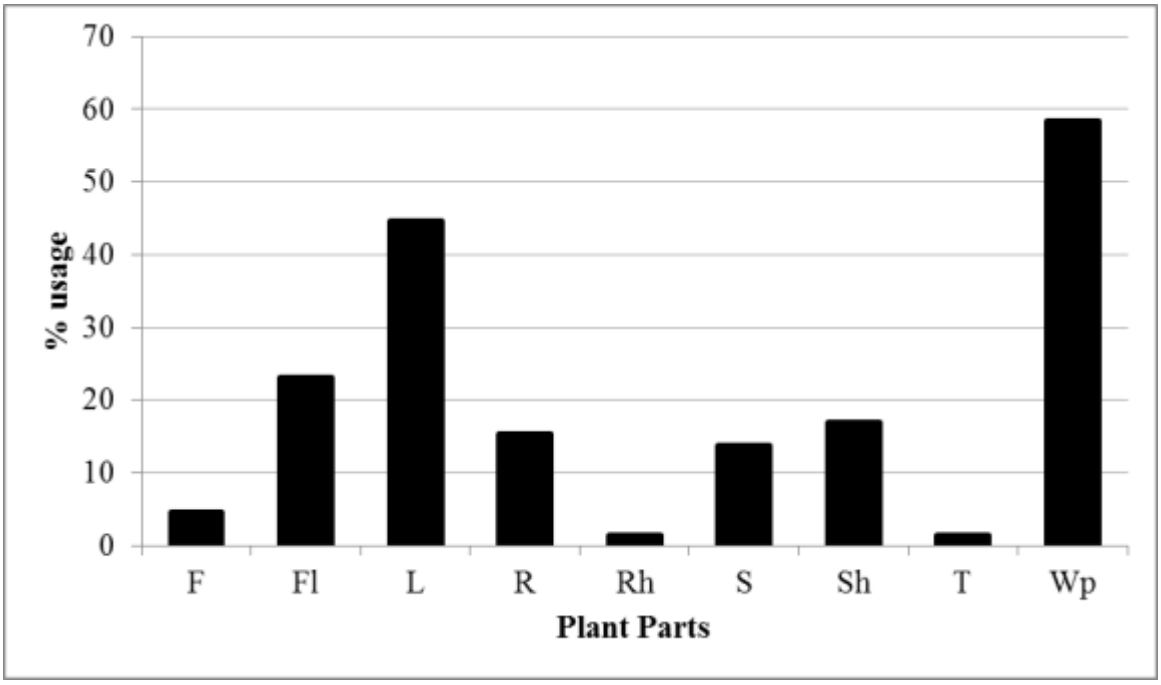

Fig 4. % plant part used ethnobotanically in Agra Valley Parachinar, Kurram Agency.
Note: More than one part of some plants is used. F: Fruit, Fl: Flower, L: Leaf, R: Root, Rh: Rhizome, S: Seed, Sh: Shoot/Stem, T: Tuber, Wp: Whole plant.

The relationship between plants and man is profound because plants not only provide us with food, but also medicines for curing different diseases, fuel wood, fodder and forage for domestic animals, wood for furniture and many other useful products. In the present work, it was strongly noticed that most herb species have single-usage. It

was also observed that the number of species used for medicinal purpose were greater than any other category. Majority of people residing in different villages of Agra Valley are agriculturist having lot of domestic animals, so they use different plants to cure various diseases of animals.

Old aged people and local hakims had great familiarities with medicinal plants and their uses. Different parts of the plants were utilized either in powdered form, decoction, or whole plant extract to cure various diseases (Fig. 4), like the decoction of *Artemisia absinthium* L. is given in malaria 2 times a day, powder of *Boerhavia procumbens* Banks ex Roxb. is snuffed in flue or is taken along with honey in cough and asthma, *Euphorbia helioscopia* L. is mixed with roasted pepper to be used in treatment of cholera, *Fumaria indica* (Hausskn.) is mixed with honey to prevent vomiting and *Matricaria chamomilla* L. is cooked in rice and given to babies in dysentery.

As previously mentioned, there is almost no ethnobotanical research done in the area. The knowledge about plant uses is usually transferred in verbal form and there is no written form of data existing. This would lead to the loss of important ethnobotanical information. Therefore, the documentation of important plants along with their important uses will be beneficial, not only for the indigenous people of the area but also for the country as a whole.

Most of the ethnobotanically important plants are recorded in published form but still there is a variety of plants that remain unexplored. Therefore, it is necessary to document uses of such plants of an area for future use. Also, there is a need of sustainable use of the plants, so that they can be preserved for future generations and also prevent the extinction of plants.

Recommendations: For the sustainable use of the plants of Agra Valley Parachinar, Upper Kurram Agency, some important suggestions are as follows:

- Awareness regarding preservation and sustainable uses of plants should be provided to local community.
- Cultivation of more plants should be practiced.
- There should be an alternative way of earning for nomads in order to prevent deforestation.
- Educate the people about the worth of the plants and consequences followed from lack of plants.
- Awareness about the organized cultivation should be provided.

Table 1. List of Ethnobotanically useful herbs of Agra Valley Parachinar, Kurram Agency.

Species and Voucher No.	**Family**	**Local name (Pashto)**	**Traditional local uses and Recipes**
1. *Anisomeles indica* (L.) Kuntze GC.Herb.Bot.2326	Lamiaceae	Shna Spairaponri	L: Chewed to cure toothache.
2. *Artemisia absinthium* L. GC.Herb.Bot.2327	Asteraceae	Mastyara	Fl: Extracted oil used as cardiac stimulant, improve blood circulation. L: Decoction given in malaria 2 times a day, used in temporary loss of appetite, anthelmintic, antiseptic, antispasmodic, carminative, cholagogue, febrifuge, tonic and stomachic. Wp: Ornamental.
3. *Artemisia scoparia* Waldst. & Kitam. GC.Herb.Bot.2328	Asteraceae	Shna Tarkha	Sh: Used for making brooms. Wp: Treat burns, jaundice and hepatitis, cure for ear-ache, fumes are inhaled for chest illnesses.

4. *Asparagus prostratus* Dumort. GC.Herb.Bot.2324	Asparagaceae	Lakhtay	Sh: Cooked, considered to heal internal wounds.
5. *Astragalus psilocentros* Fisch. GC.Herb.Bot.2329	Fabaceae	Tooyeazghye	Wp: Used as fuel.
6. *Atriplex crassifolia* Ledeb. GC.Herb.Bot.2330	Amaranthaceae	Khara Rinzaka	Wp: Used as fodder for cattle, goat and sheep.
7. *Boerhavia procumbens* Banks ex Roxb. GC.Herb.Bot.2331	Nyctaginaceae	Nari Warkohri	L: Cooked as potherb to be given in edema, jaundice and dropsy. R: Powder is snuffed in flue or is taken along with honey in cough and asthma. Wp: 50 ml juice is given thrice a day in dysmenorrhea.
8. *Cannabis sativa* L. GC.Herb.Bot.2332	Cannabaceae	Bhang	Fl: Contain psychoactive chemical compounds - cannabinoids consumed for recreational, medicinal and spiritual purposes. S: Increase egg laying ability in birds, used to gain weight, serve as the source of hempseed oil (used for cooking, lamps, lacquers or paints), folk remedy for tumors and cancerous ulcers. Wp: Used as anodyne, anti-inflammatory, antispasmodic, cholagogue, diuretic, emollient, hypnotic, hypotensive, laxative, narcotic, ophthalmic, sedative.
9. *Caralluma tuberculata* N.E.Br. GC.Herb.Bot.2333	Asclepidaceae	Pawanki	T: Especially cooked for diabetics.
10. *Centaurea iberica* Trevir. GC.Herb.Bot.2335	Asteraceae	Azghye	R: Decoction used for urinary problems.
11. *Chenopodium album* L. GC.Herb.Bot.2333	Amaranthaceae	Naray Rinzaka	L: Edible, used as fodder for cattle.
12. *Cichorium intybus* L. GC.Herb.Bot.2334	Asteraceae	Shingul	Fl: Used as tonic, help in human weight loss, constipation, improve bowel function.

			L: Edible, used as salad. R: Used as coffee substitute, as additive, eliminate intestinal worms. Wp: Powdered to be used against obesity, serve as forage for livestock.
13. *Clematis grata* Wall. GC.Herb.Bot.2336	Ranunculaceae	Prewati	Sh: Antimycotic, used against ring worm and baldness. Wp: Used as fodder for cattle.
14. *Conyza aegyptiaca* (L.) Dryand. ex Aiton GC.Herb.Bot.2337	Asteraceae	Spin Rinzaka	Fl: Dried to powder form and used to remove pimples from skin.
15. *Cousinia thomsonii* C.B. Clarke GC.Herb.Bot.2338	Asteraceae	Sorazhye	R: Used by patients having kidney stones.
16. *Cyanthillium cinereum* (L.) H.Rob. GC.Herb.Bot.2382	Asteraceae	Venasafi	Wp: Used to reduce fever, draw out pus, promote digestion, relieve dyspepsia, as tranquilizer, sedative and also helpful in blood purification.
17. *Datura stramonium* L. GC.Herb.Bot.2339	Solanaceae	Shna Datura	F: Juice applied on scalp to treat dandruff and falling hair. L: Wrapped around the effected skin for whole day if young ones are dunged by wasp or bee. Wp: Used to treat madness, epilepsy and depression because of its anticholinergic and antispasmodic properties, extracts used for treatment of asthma, intestinal cramps, diarrhea.
18. *Ephedra gerardiana* Wall. ex Stapf GC.Herb.Bot.2340	Ephedraceae	Mava	Sh: Burnt and ash is used in making snuff locally called “naswar”, decoction is used to treat cough and flu, diaphoretic. diuretic and vasodilator, also used as feul. Wp: Reduce swellings of mucous membranes and has antispasmodic properties.
19. *Eryngium caucasicum* Trautv. GC.Herb.Bot.2341	Apiaceae	Shanazghee	Fl & Sh: Aphrodisiac.
20. *Euphorbia helioscopia* L. GC.Herb.Bot.2342	Euphorbiaceae	Peshkhwatay	L & Sh: Febrifuge and vermifuge. Milky latex is applied on pimples and fungal infections two times a day for 4-5 days. R: Anthelmintic S: Mixed with roasted pepper to be used in treatment of cholera, extracted oil has purgative properties.

21. *Fumaria indica* (Hausskn.) Pugsley GC.Herb.Bot.2343	Fumariaceae	Laila Sonray	Wp: Mixed with honey to prevent vomiting, infusion used to treat fever, constipation and dyspepsia, used as a blood purifier for skin diseases, applied externally in leucoderma, serve as fomentation for swollen joints, used in combination with black pepper for jaundice.
22. *Galium palustre* L. GC.Herb.Bot.2344	Rubiaceae	Zagooki	Wp: Used as fodder for cattle.
23. *Glycyrrhiza glabra* L. GC.Herb.Bot.2345	Fabaceae	Khwagawoni	R: Chopped to prepare decoction effective in treating cough, used for upset stomach (indigestion), also given to cattles during birth to young ones. Rh: Chewed or made into tea for menstrual cramps, used in fire-extinguishing agents, serve as compost for growing mushrooms. Sh: Used to flavour confectionery, serve in production of drinks. Wp: Used in plug tobacco, shoe polish, soap, fibre for plastic production.
24. *Hibiscus trionum* L. GC.Herb.Bot.2346	Malvaceae	Ghazaki	Fl: Diuretic, used in treatment of itch and painful skin diseases, boiled in water and given to babies suffering from cholera. L: Stomachic
25. *Lactuca serriola* L. GC.Herb.Bot.2347	Asteraceae	Spena Tarhizha	L: Edible, eaten as salad. Wp: Used as fodder to increase milk production in cows, mildly pain-relieving, antispasmodic, digestive, urination-inducing, hypnotic, narcotic and sedative.
26. *Lathyrus aphaca* L. GC.Herb.Bot.2348	Fabaceae	Wraghano Khpay	Wp: Fodder for cattle, goat and sheep.
27. *Malva parviflora* L. GC.Herb.Bot.2349	Malvaceae	Tikalay	L: Edible having mild pleasant flavour, used as an acceptable alternative to lettuce in salads, decoction used to remove dandruff and to soften the hair. S: Edible having pleasant nutty flavour, used to make creamed vegetable soup that resembles pea soup, demulcent, used in treatment of coughs and ulcers in bladder. Wp: Emollient, pectoral, used as poultice on swellings, running sores and boils.
28. *Marrubium vulgare* L. GC.Herb.Bot.2350	Lamiaceae	Darshool	L: Eaten with bread to remove pimples, considered as blood purifier. Wp: Noted for its efficacy in lung troubles and coughs, useful as an expectorant, mild laxative and gastric tonic.

29. *Marsilea minuta* L. GC.Herb.Bot.2351	Marsileaceae	Jaboshawtalae	L: Edible, eaten as potherb, juice used to stop nose bleeding, eaten with rice to treat indigestion, reduce swelling of gums. Wp: Ornamental, used more commonly as garden plant for pond decoration, also used to remove rust by rubbing on rusty surfaces.
30. *Matricaria chamomilla* L. GC.Herb.Bot.2355	Asteraceae	Lukhrach	Fl: Cooked in rice and given to babies in dysentary. Also taken as herbal tea, two teaspoons of dried flower per cup of tea, steeped for 10 to 15 minutes while covered to avoid evaporation of volatile oils. Wp: Used for a sore stomach, irritable bowel syndrome, as gentle sleep aid, mild laxative, anti-inflammatory, bactericidal, used as mouthwash against oral mucositis.
31. *Mentha arvensis* L. GC.Herb.Bot.2352	Lamiaceae	Pudina	L: Edible, having quite strong minty flavor with slight bitterness, used as flavoring in salads or cooked foods, used to make tea or beverages, yield essential oil. Wp: Used as anaesthetic, antispasmodic, stimulant, antiseptic, counteract inflammation, induce sweating, promote or assist the flow of menstrual fluid, promote secretion of milk, relieve fever and thirst, give strength and tone stomach. Also used as an insect repellent.
32. *Mentha longifolia* (L.) L. GC.Herb.Bot.2353	Lamiaceae	Wailani	L: Cloth pads are made and fresh leaves are sewed in them and then these pads are wrapped around chest of babies to cure chest problems and flu. Also drunk as tea for coughs, colds, stomach cramps, asthma, flatulence, indigestion and headaches.
33. *Mentha royleana* Wall. ex Benth. GC.Herb.Bot.2354	Lamiaceae	Nari Wailani	Same as above.
34. *Oenothera affinis* Cambess. GC.Herb.Bot.2357	Onagraceae	Zar Gul	Wp: Used for ornamental purpose.
35. *Oenothera rosea* L'Hér. ex Aiton. GC.Herb.Bot.2358	Onagraceae	Soorgul Saag	L & Fl: Cooked as vegetable Wp: Ornamental.

36. *Onosma setosa* var. *dichroantha* (Boiss.) Boiss. GC.Herb.Bot.2356	Boragniaceae	Pishokhwanaye	Wp: Used for fuel purpose.
37. *Oxalis corniculata* L. GC.Herb.Bot.2359	Oxalidaceae	Bibimalga	Fl: Edible, acid flavour and a pleasant addition to salad bowl. L: Edible, added to salads, cooked as a potherb with other milder flavoured greens or used to give a sour flavour to other foods. Also serve as antidote to poisoning by seeds of *Datura* spp, arsenic and mercury. Wp: Rubbed on rusty iron surface to remove rust. Also anthelmintic, antiphlogistic, astringent, diuretic, depurative, emmenagogue, febrifuge, lithontripic, stomachic, used in treatment of influenza, fever, urinary tract infections, enteritis, diarrhoea, traumatic injuries, sprains and poisonous snake bites. Good source of vitamin C and is used as anti-scorbutic in treatment of scurvy.
38. *Peganum harmala* L. GC.Herb.Bot.2360	Zygophyllaceae	Spenalai	R: Applied to kill lice. S: 5-6 seeds after breakfast protect against piles. Wp: Fumigation is devil repellent and antiseptic, treat pain, skin inflammations including skin cancers.
39. *Persicarira barbata (*L.) Hara GC.Herb.Bot.2361	Polygonaceae	Marchaki	L: Used in ulcers. R: Astringent and cooling. S: Possess tonic, purgative and emetic properties, used to relieve the gripping pains of colic. Sh: Decoction used to wash ulcers.
40. *Phlomidoschema parviflorum* (Benth.) Vved. GC.Herb.Bot.2373	Lamiaceae	Sahra Wailani	L: Kept in wheat to get rid from insects and fungus.
41. *Plantago lanceolata* L. GC.Herb.Bot.2362	Plantaginaceae	Ghwajabi	L: Cooked in mustard oil and applied on joints to cure joint pain.
42. *Plantago major* L. GC.Herb.Bot.2363	Plantaginaceae	Bartang	S: Crushed in sugar and water after boiling and is given to babies as tonic.
43. *Portulaca oleracea* L. GC.Herb.Bot.2364	Portulacaceae	Warkhori	Wp: Potherb, helpful against loose motion and iron deficiency.

44. *Ranunculus distans* Royle GC.Herb.Bot.2365	Ranunculaceae	Zairguli	Fl & Sh: Cooked in vegetable oil and applied on wounds for speedy healing.
45. *Sagittaria trifolia* L. GC.Herb.Bot.2366	Alismataceae	Jazoponri	R: Edible, taste somewhat like potatoes. Wp: Used as fodder for cattle.
46. *Scabiosa olivieri* Coult. GC.Herb.Bot.2367	Dipsacaceae	Nari Sahra Buti	Wp: Used as fodder for goat and sheep.
47. *Scandix pecten-veneris* L. GC.Herb.Bot.2368	Apiaceae	Zangli Gajara	L: Paste made in oil is applied on joints against pain.
48. *Setaria viridis* (L.) P. Beauv. GC.Herb.Bot.2369	Poaceae	Peshay Wakha	S: Diuretic, emollient, febrifuge, refrigerant and tonic. Wp: Crushed in water and applied externally in treatment of bruises, also used as fodder for cattle.
49. *Silene conoidea* L. GC.Herb.Bot.2370	Caryophyllaceae	Kuzo Saba	L & Fl: Edible. Wp: Emollient, used in baths or as fumigant, juice used in treatment of ophthalmia.
50. *Silybum marianum* (L.) Gaertn. GC.Herb.Bot.2371	Asteraceae	Dum	R: Decoction made with pinch of fennel seeds are and used two times a day to treat internal pains.
51. *Sisymbrium irio* L. GC.Herb.Bot.2372	Brassicaceae	Khob e Kalan	L: Edible, eaten as salad. S: Expectorant, restorative, stimulant, used in treatment of asthma, infusion used for treating infections of throat and chest
52. *Solanum virginianum* L. GC.Herb.Bot.2374	Solanaceae	Pandu	F: Taken one teaspoon in dried powdered form early morning with water for controlling diabetes, also used in sore throat, rheumatism. L: Paste applied on painful joints to relieve pains. R: Diuretic and expectorant, employed in cough, asthma, chest pain and catarrhal fever. S: Expectorant in asthma & cough. Sh & Fl: Carminative. Wp: Used in treatment of epilepsy, pain relieving, headache, migraine, hair fall, skin problems.

53. *Sonchus oleraceus* (L.) L. GC.Herb.Bot.2375	Asteraceae	Tarhizha	L: Edible, eaten as salad greens or cooked like spinach, feed to peasants to gain weight. Wp: Given to cattle for increasing milk production.
54. *Taraxacum officinale* Webb GC.Herb.Bot.2377	Asteraceae	Zairgulae	L: Edible, used as salad, often accompanied with hard boiled eggs.
55. *Teucrium stocksianum* Boiss. GC.Herb.Bot.2376	Lamiaceae	Khar Boti	L: One tablespoon of its decoction mixed with sugar is effective against typhoid, malaria and fever.
56. *Thymus linearis* Benth. GC.Herb.Bot.2378	Lamiaceae	Mawray	Wp: Used as flavoring agent in food, contain essential oil which is strong antiseptic, expectorant, antispasmodic and carminative (relieves digestive gas).
57. *Trifolium resupinatum* L. GC.Herb.Bot.2379	Fabaceae	Shna Bibimalga	Wp: Used as fodder.
58. *Tulipa clusiana* DC. GC.Herb.Bot.2380	Liliaceae	Sparghay	Fl: Ornamental.
59. *Verbascum thapsus* L. GC.Herb.Bot.2381	Scrophulariaceae	Spairay Ponri	L: Wrapped around external tumors for 2- 3 days. Wp: Possess anti-inflammatory, anti-tumour, antiviral, antifungal, antibacterial, expectorant and analgesic properties.
60. *Vicia sativa* L. GC.Herb.Bot.2384	Fabaceae	Zangali Matar	Wp: Used as fodder for cattle.
61. *Vinca major* L. GC.Herb.Bot.2383	Apocynaceae	Chum gul	Sh: Used in basket making. Wp: Grown to control soil erosion of lands.
62. *Viola odorata* L. GC.Herb.Bot.2385	Violaceae	Banafsha	Fl: Distillation is effective against flue and common cold, also used to flavour breath fresheners. Wp: Ornamental.
63. *Viola pilosa* Blume GC.Herb.Bot.2386	Violaceae	Banafsha	Same as above.
64. *Xanthium strumarium* L. GC.Herb.Bot.2387	Asteraceae	Khara Datura	F: Antibacterial, antifungal, antispasmodic, cytotxic, hypoglycaemic and stomachic. Also used internally in treatment of sinusitis, catarrh, rheumatism, rheumatoid arthritis, constipation, diarrhoea, leprosy and

			pruritis. L: Used as antidote for wasp and bee, also used as antirheumatic, appetizer, diaphoretic, diuretic, emollient, laxative and sedative, also serve as the source of tannins. R: Bitter tonic and febrifuge, used in treatment of high fevers. S: Its decoction is used to treat bladder complaints. Wp: Considered to be useful in treating long-standing cases of malaria, also used as liniment on armpits to reduce perspiration.

F: Fruit, Fl: Flower, L: Leaf, R: Root, Rh: Rhizome, S: Seed, Sh: Shoot/Stem, T: Tuber, Wp: Whole plant.

REFERENCES

Ajaib, M., Z. Khan, N. Khan and M. Wahab (2010). Ethnobotanical Studies on Useful Shrubs of District Kotli, Azad Jammu & Kashmir, Pakistan. *Pak. J. Bot*., 42(3): 1407-1415.

Azaizeh H., S. Fulder, K. Khalil and O. Said (2003). Ethnomedicinal knowledge of local Arab practitioners in the Middle East Region. *Fitoterapia*, 74: 98-108.

Balick, M.J., E. Elisabetsky and S.A. Laird (1996). *Medicinal Resources of the Tropical Forest: Biodiversity and its Importance to Human Health.* Columbia University Press, New York.

Choudhry, K., M. Singh and U. Pillai (2008). Ethnobotanical survey of Rajhastan - An Update. *Am.-Eur. J. Bot*., 1(2): 38-45.

Rao, R.N. and A.N. Henry (1997). *The Ethnobotany of Eastern Ghats in Andhra Pradesh, India*. Botanical Survey of India, Calcutta, pp. 259.

Schultes, R.E. (1992). Ethnobotany and technology in Northwest Amazon: A partnership. *J. Env. Conser*., 18(63): 264-267.

(*Accepted for publication November 2013*)