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Ethnobotanical study of some selected plants of Bagh Dushkhel dir lower Khyber Pakhtunkhwa, Pakistan

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The field work was initiated from 2017 to 2019 to get data about the usual uses of plants resources of Bagh dushkhel. Total of 110 plants species belonging to 57 families were utilized by native folks for different local uses were collected. Out of 110 plants, 97 were used as medicinal, 31 as fodder plants species, 9 species as vegetable and pot herb, 5 species used for brooms making, 5 species used for construction, 10 species as timber, 30 as fuel wood species, 4 species for fencing and hedging, 5 is honey bees species, 17 as edible fruit, 3 species is ornamental, 6 species used for thatching and sheltering, 3 species were reported poisonous, while 5 as Basket making species. The major families of these plants are Poaceae (10 spp), Astaraceae (9 spp), Rosaceae (8 spp), Lamiaceae (7 spp), Fabaceae (6 spp), Moraceae (4 spp), Liliaceae (4 spp), Solanaceae (3 spp), Polygoniaceae (3 spp), Bracaceae (3 spp), Chenopodiaceae (3 spp), Apocycaceae (2 spp), Euphorbiaceae (2 spp), Malvaceae (2 spp), Plantagnaceae (2 spp), while the remaining families were comprised only on one spp each. Out of these 110 plants 65 plants are herbs, 22 are shrubs while 23 are trees. Out of 110 plants 68 spp Leaves are used, 53 spp shoots are used, 33 spp fruits are used, 30 spp used as a whole plant, roots used plants are 25, bark used plants are 20, wood and grains used plants are 18, 18 each, gum and latex plants are 4,4, rhizome and bulb used plants are 2,2, while fronds, stem, resin, cones and legume used plants are comprised by only 1,1,1,1,1. Data analysis indicated that the remedies were used to treat different diseases. Field study indicated that agricultural expansion, over grazing and unscientific collection, processing, deforestation and maintenance of accepted vegetation are the main pressures in the studied range. Processes for the protection of plant resources of Bagh dushkhel are immediately necessary.

Keywords: Ethnobotany, Bagh dushkhel, Dir Lower

INTRODUCTION

Pakistan has a very gorgeous flora due to the assortment of climatic sectors, sites and various ecological units (Haq et al., 2010). Indigenously different plant species have been used to remedy

a disease or numerous diseases at a time (Arshad and Rao, 2001). It has been expected that about 10% of the total described vascular plant species in Pakistan are medicinally used (Shinwari, 2010) and described as endangered due to poverty,

population density and extreme use of the natural reserve-base (Shinwari et al., 2002 and Shinwari, 2010). In some cultures, plants have a formal character and are used for of their intoxicating character. Several plants are used in veterinary therapeutics in various portion of the world (Ishtiaq et al., 2006b). Local usages of plants are numerous and diverse, playing an vital part in the territory of human healthiness (Nair et al., 2004; Kufer et al., 2005) and creating the financial base of peoples of inaccessible parts (Barkatullah et al., 2009). Plants have been used ever subsequently the dawn of sophistication by human beings for readymade nutrition, fodder for cattle, flower for celebration, burning, medicines for numerous diseases, facilities to get, honey assortment, manufacture agricultural utensils, wood for manufacture and several additional valuable stuffs (Ahmad et al., 2006; Ilyas et al., 2006). In ethno medicinal investigation, not only information about plants and their use in life societies but also ethnological topographies of contest or status is also collected and recognized. Ethno medicinal information also helps taxonomists, pharmacologists, ecologists, wild life administrators and watershed in their labours for refining the commercial position of the residents in the isolated region (Ibrar et al., 2007). There are diverse procedures and methods used to achieve ethno medicinal study of an area or about definite plant. An ethno botanist could use qualitative or quantitative technique dependent on the tenacity of learning (Hamilton et al., 2003; Ishtiaq et al., 2006a). A significant ethno botanical and ethno medicinal investigation has been lead on diverse regions of Pakistan (Haq and Rehman, 1990; Qureshi and Khan, 2001; Ahmed and Siraj, 1996; Rizwanana et al., 2007; Shinwari and Khan, 1996; Ihssan, 2008; Ishtiaq et al., 2001, 2006a, b, 2007a). As specified earlier that several ethnobotanists have described the ethno medicinal uses of plants from different measures of Pakistan Bagh dushkhel is still ethno medicinally unexplored.

The main objectives of the research work are:

To search and manuscript the ethno medicinal plants resources of the study part.

To collect information about the uses of plants.

To check vital diseases, their origion and the idea for eradication.

To make awareness among the native people about the safety of the native medicinal flora.

MATERIALS AND METHODS

Trips were arranged to different sites of Bagh dushkhel Dir (L), KP, for exploration and collection of the important flora of the area during 2017 to 2019. Ethno medicinal Information was recorded by using semi-structured questionnaire. Ethno medicinal information was collected from both men and women of different ages through interview. Plant specimens were collected by implementing the suggested technique used by (M. Ahmad and Ali, 1998). For each plant, scientific name, local name, family, part used and uses of plants were recorded. Scientific name and family of every single plant were reconfirmed with the help of herbaria association, taxonomic works, instructions and Flora of Pakistan (Steward, 1982; Ali and Nasir 1970-2002). The facts was deliberated realistic and was only described when at least 08 applicants stated the name and traditional uses of the plants.

RESULTS AND DISCUSSION

The current study compacts with the study of medicinal plants used by the folks of village Bagh dushkhel. Pakistan has reality of environment and its soil is annoying with medicinal plants and herbs which are emergent obviously in diverse period of the year in the state. District Dir (L) of Pakistan is gorgeous with plants populations, total of medicinal plants are originating here. The ethno medicinal information on 110 plants species related to 57 families was collected are given in table No 1. Farming, gathering and appropriate storing of these plants in intentional method is necessary as there is no appropriate manner to monitor these plants.

Plants diversity

Total of 110 plants species, belonging to 57 families were serene and recognized which are used by the residents of Bagh dushkhel for several native uses. Among them Gymnosperms (pinaceae) were characterized by one family while Angiosperm had 56families. Out of the 56 Angiosperm families are (Liliaceae and Poaceae) were monocotyledonous and the rest of 54 families were dicotyledonous. The family Poaceae were the most characterized by (10 species), charted by Astaraceae (9 species), Rosaceae had (8 species), Lamiaceae (7 species), Fabaceae (6 species), Moraceae and Liliaceae comprised of (4 species each), Solanaceae, Polygoniaceae, Braceaceae and Chenopodiaceae comprised of (3 species each), Apocyceae, Euphorbiaceae, Malvaceae, Plantagnaceae comprised of (2

species each), while the continuing families were comprised only on one species each in (Table -1).

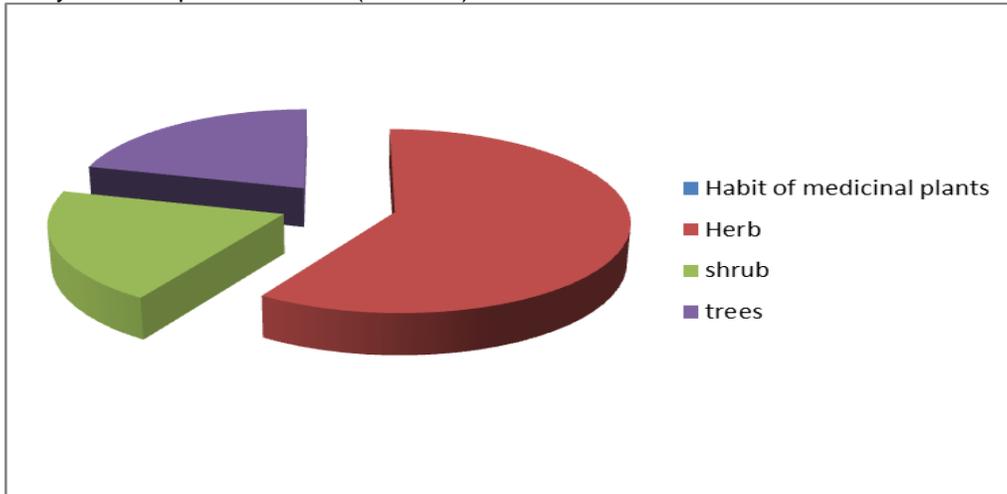


Figure 1:Habit of medicinal plants

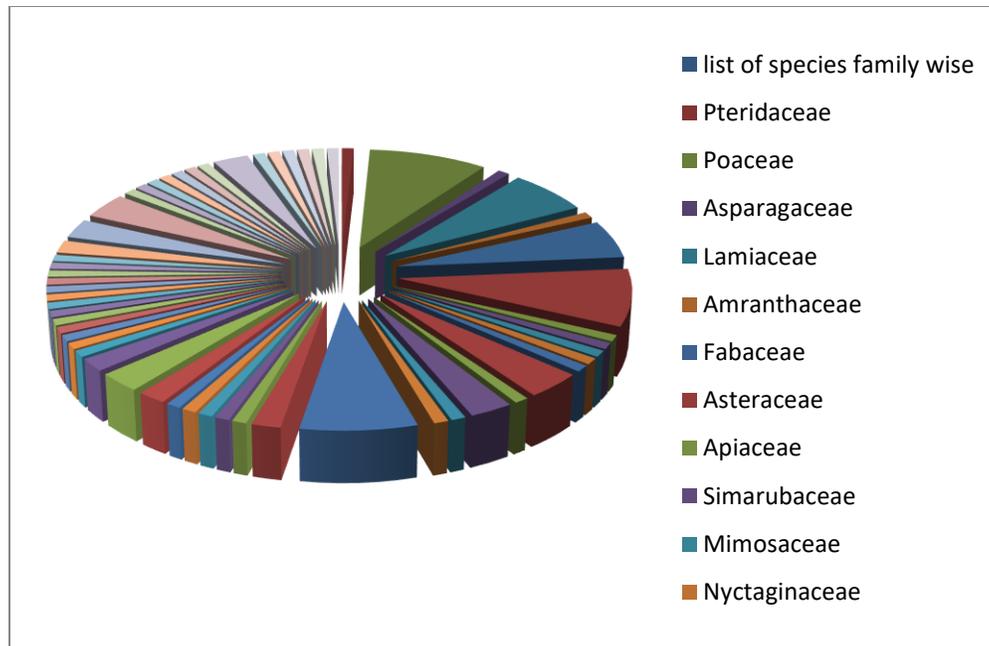


Figure 2. List of species family wise

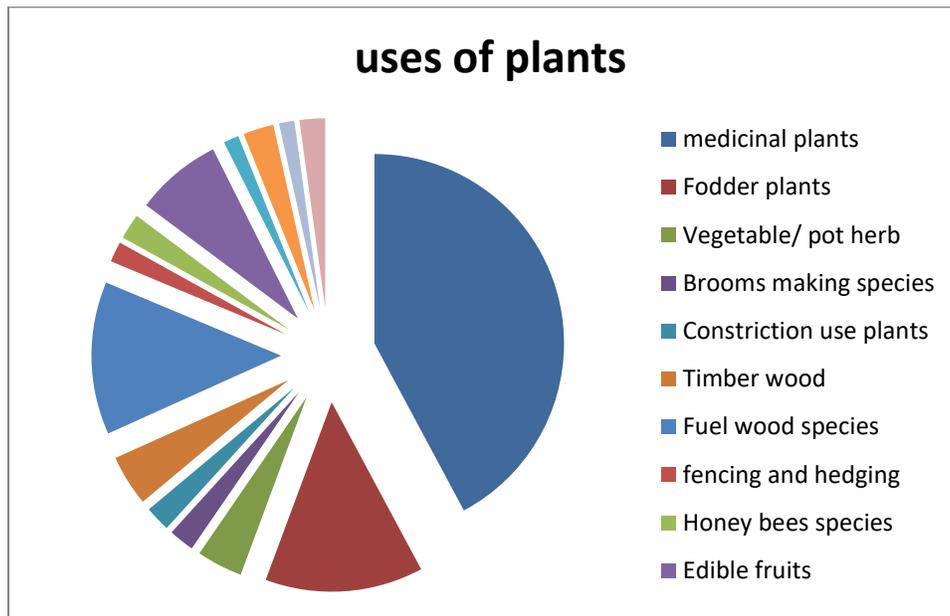


Figure 3. Uses of plants

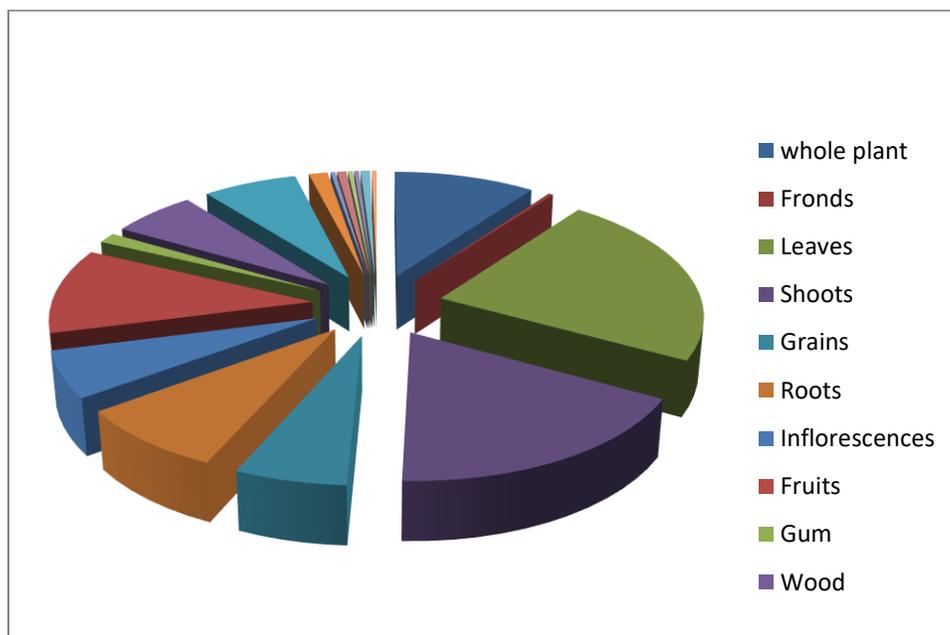


Figure 4: parts used of the plants

Ethnobotanical figure shows that about 97 plants are managed as medicinal plants. The second most important use of these plants is as fodder species (31). 30 plant as fuel wood species, 17 as edible fruit, 10 as timber wood species, 9 as Vegetable or pot herb, 6 species are used for thatching and sheltering, 5 species are used for Basket making, 5 species are used for

Constriction, 5 species are used for Brooms making, 5 are Honey bees species, 4 species are used for fencing and hedging, 3 Ornamental plants, 3 Poisonous plants (Table-1).

Medicinal plants

97 plant species were recognized to be medicinally significant. Practically all parts of the

plant such as whole plant, fronds, leaves, shoots, grains, roots, flowers, fruits, gum, wood, bark, latex, stem, rhizome, resin, cones, bulb and legume are used by native people for different purposes. Though, it depends on the requirement of the manipulator and type of the plant. Herbs are frequently used as whole but the use of shrubs and trees is inadequate to a certain part.

Fodder plants

The cattle nourish on 31 plant species. These plant species contain on *Avena sativa*, *Astragalus graveolens*, *Apluda mutica*, *Boerhavia diffusa*, *Cynodon dactylon*, *Conyza canadensis*, *Cenchrus ciliaris*, *Heteropogon contortus*, *Malva neglecta*, *Rumex hastatus*. The leaves of *Ailanthus altissima*, *Acacia modesta*, *Monothea buxifolia*, *Morus alba*, *Morus nigra*, *Grewia optiva*, *Robinia pseudo-acacia*, *Melia azedarach* and *Celtis caucasica* are used as forage for sheep and goats. The use of maximum of these plants species are fodder also defined by (Zabihullah et al. 2006), (Jabeen et al. 2009) and (Haq et al. 2010). The indigenous folks produce herbaceous plants frequently grasses, cut and secured them into small rolls. These rolls are dry up and overloaded and used in wintertime and raining season.

Vegetable and pot herb species

Native folks cultivate various plants as vegetable. However, little wild plants such as *Amaranthus caudatus*, *Chenopodium album*, *Nasturtium officinale*, *Malva neglecta*, *Rumex dentatus* and *Solanum nigrum* are used as vegetable and pot herb. Our results approve with those of (Ibrar et al., 2007) and (Barkatullah et al., 2009).

Brooms making species

Indigenous people used some plants as a broom. Such as *Artemisia scoparia*, *Dodonaea viscosa*, *Isodon rugosus*, *Saccharum spontaneum* and *Themeda anathera*.

Constriction use plants

Some pants were used by the local communities for constriction such as, *Ailanthus altissima*, *Morus nigra*, *Melia azedarach*, *Olea ferruginea* and *Pinus roxburghii*.

Timber wood

10 plants are used as a timber wood. The most significant timber yielding plants were *Ailanthus altissima*, *Celtis caucasica*, *Diospyros*

lotus, *Juglans regia*, *Morus nigra*, *Morus alba*, *Platanus orientalis*, *Melia azedarach*, *Olea ferruginea* and *Pinus roxburghii*.

Fuel wood species

The people of the region mostly depend on the plants for fuel wood due to the deficiency of basic facilities such as coal and gas. The plants used as a fuel are, *Acacia modesta*, *Ailanthus altissima*, *Berberis lyceum*, *Broussonetia papyrifera*, *Cotoneaster nummularia*, *Celtis caucasica*, *Debregeasia salicifolia*, *Dodonaea viscosa*, *Diospyros lotus*, *Juglans regia*, *Morus nigra*, *Morus alba*, *Melia azedarach*, *Olea ferruginea*, *Pinus roxburghii* and *Platanus orientalis*. Our consequences are related with the records of (Ibrar et al. 2007) and (Barkatullah et al., 2009) who stated practically the same plants as fuel wood species.

Fencing and hedging plant species

Native folks are using some plants for fencing and hedging such as *Acacia modesta*, *Otostegia limbata*, *Rubus fruiticocus* and *Ziziphus numularia*. Usually these plants are bushy, spiny and thorny to stopover stray animals not enter to cultivated fields or crowd sheds.

Honey bee species

Out of the total studied plants 5 species are comprised on honey bee flora. The flowers have enormous petals with scents, for the attraction of honey bees. The leading honey bee species were *Acacia modesta*, *Indigofera heterantha*, *Isodon rugosus* and *Rosa brunonii*.

Fruit yielding species

Out of the total plants, 17 plants species were yield edible fruits. The most important fruit yielding plants are *Berberis lyceum*, *Cotoneaster nummularia*, *Celtis caucasica*, *Duchesnea indica*, *Debregeasia salicifolia*, *Diospyros lotus*, *Daphne mucronata*, *Ficus palmate*, *Juglans regia*, *Myrtus communis*, *Morus nigra*, *Morus alba* and *Olea ferruginea*. Our exploration is reliable with the archives presented by (Zabihullah et al. 2006) and (Jabeen et al. 2009).

Sheltering and thatching plants

The twigs and leaves of *Broussonetia papyrifera*, *Dodonaea viscosa*, *Daphne mucronata*, *Isodon rugosus*, *Olea ferruginea* and *Saccharum spontaneum* are used locally for shelter.

Ornamental plants

The ornamental plants were *Dodonaea viscosa*, *Nerium oleander* and *Tulipa stellate*.

Poisonous plants

3 species such as *Nerium oleander*, *Euphorbia peplus* and *Moraea sisyrinchium* were measured poisonous both for man and livestock.

Basket making species

Indigofera heterantha, *Morus nigra*, *Morus alba*, *Saccharum spontaneum* and *Themeda anathera* are used in basket making.

The research area is sacred with an affluence of plants which are used for ethnomedicinal drives. The residents of the region are poor which have deficiency of basic conveniences such as health care units, coal, gas, and electricity. They depend on neighboring forest to achieve their needs such as timber, fuel wood, fodder, food, medicine and shelter. Most of the species testified from the study area are start in the adjacent forest. However, it is noted during the research studies that the native folks have to bring together these plants that had previously been simply accessible nearby to their residents. They have no knowledge or poor knowledge about the time and method of plants collection, their proper storage and protection. The plants are serene without any precaution. The herbs are dig up; they cut the shrubs and trees devoid of any scientific methods. Protection is done by the customary homeopaths in very rough form. The organism like bacteria, fungi and insects may toxic the plants due to the deficiency of suitable place for storing and protection which indicate the demolition of the plants prosperity. Moreover, extreme deforestation, overgrazing, fuel wood, agricultural expansion and soil erosion are the primary dangers to harm of medicinal resources. It has been detected through research study that the population of these plants is falling at distressing level. Many plants such as *Isodon rugosus*, *Olea ferruginea*, *Dodonaea viscosa*, and *Pinus roxburghii* are the edging of loss due to these plants are usually distorted for commercial resolutions. These plants would probable to be down in wild, if there is no preservation policy improved for the part. Instant procedures for preservation are required to guard the flora of the research site from becoming nonexistent. It is greatly suggested that the native municipal should be educated and skilled about the pre and post-harvest techniques, as well accurate use and farming of accessible plant possessions.

CONCLUSION

The people of the area prepare plant tonics mostly through decoction, infusion and mixture and manage them done by oral way or to skin. The ethno-botanical plant tonics are used to give respiratory infections, skeletomuscular complications, cutaneous protests, gastro intestinal complaints and blood circulatory ailments etc. Deforestation, agricultural expansion, over grazing and unscientific assortment, processing and protection of natural flora are the main dangers to the medicinal flora of the area. It is really important to take solid measures for the protection of plant possessions of the Pakistan.

CONFLICT OF INTEREST

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

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AUTHOR CONTRIBUTIONS

SB, AH, SA, N, TN designed and performed the experiments and also wrote the manuscript. GR, ZS, SU, NK and TJ performed identification of plant specimens and data analysis. HS, AR, II and WK designed experiments and reviewed the manuscript. All authors read and approved the final version.

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