

## ETHNOBOTANICAL STUDY OF SOME PLANTS OF DARGUTI, TEHSIL KHUIRATTA, AZAD JAMMU AND KASHMIR

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### ABSTRACT

The ethnobotanical survey on the medicinal plants of Darguti, Tehsil Khuiratta, Azad Jammu and Kashmir was documented during 2014-2015 by interviewing the local inhabitants through a questionnaire. A total of 100 plants species belonging to 47 families were recorded. It was noticed that people uses plants as vegetables and fodder, fuel as well as medicinal purposes. Local people use to cure different diseases like tetanus, diabetes, dysentery, asthma, kidney infection, constipation, gastric ulcer, bronchial diseases, gonorrhoea, scabies, throat irritation and many types of skin diseases by using local plants. The most dominant family of this area was Asteraceae. Among 100 plants, 64 have multiple usages, 12 have single usage and 24 have dual usage.

**KEYWORDS:** Ethnobotany; Medicinal plants; Darguti, Tehsil Khuiratta, AJK, Usage by local people.

### INTRODUCTION

Plants play variety of roles in our daily life such as food, fodder, medicines, shelter, etc., they have a great role in environmental function, as stabilizing soils, recycling of nutrients, photosynthesis, protecting water catchment areas and help to control rainfall through the process of transpiration. Plants are also involved in the manufacturing of different phytochemicals also called secondary metabolites (Cotton, 1996; Buckingham, 1999).

Ethnobotany is the relationship between indigenous people and plants (Berlin *et al.*, 1973). In ethnobotanical researches not only study the association of people with plants but also study particularly plants which are used in medicine and foodstuff (Jain, 1965; Martin, 1965; Rao, 1981; Bye, 1981). Plants have been used as medicines throughout the world (Smitherma *et al.*, 2005). The knowledge as a result of ethnobotanical survey can be used to cure the diseases and in industry where this work is a utilized and produced different commercial product (Hussain *et al.*, 2008). Plants are used in a manageable way in the society with the help of ethnobotanical knowledge. Plants are not only necessary for food, shelter and clothes but also for different activities like; religion, beauty and basic health care (Zareen *et al.*, 2013). The ethnobotanical knowledge flows from parents to their off springs and then from one generation to other (Ajaib *et al.*, 2014).

Keeping in view the implication of medicinal plants the present study was undertaken to recognized the ethnobotanical knowledge of the local people of Darguti which is sub-division of Tehsil Khuiratta, Azad Jammu and Kashmir. The total area of Khuiratta is 46559 canals and 3 Marla, and the total population is 12579 whereas total area of Darguti is 17820 canals and 17 Marla and the total population is 3870 (Anonymous, 2015). Darguti is the hilly area and less populated while wheat and corn are the major crops of the area. Bajra (*Pennisetum glaucum*), bhindi (*Abelmoschus esculentus*), dhanian (*Coriandrum sativum*), tomato (*Lycopersicon esculentum*), and chilles (*Capsicum annuum*) are also cultured.

### MATERIALS AND METHODS

The current research work was conducted during 2014-2015. Before starting the research on medicinal plants of Darguti, the basic information was collected about the study area from concerned headquarters and then visited on weekly basis. There are different villages of this area which are present at different heights. A total 11 villages were visited and all these villages are rich with medicinal plants. Medicinal plants are present in great diversity. The information was collected with people of different age groups. Old people were most familiar with medicinal plants because they prefer to use medicinal plants to cure their ailments.

The information about plants was collected from people belonging to different professions. It includes shopkeepers, pansaries, herbal practitioners, wood sellers and farmers, etc. through interviews and filling a questionnaire. The ethnobotanical information includes the vernacular name, part used and recipe. The area which was visited includes, Salyoot, Sain Hazuri Bagh, Kund, Gagri, Cheera, Numb, Basyali, Gala, Bruia, Dhaki and Kathyavan. The adjoining areas were also visited for the study which includes, Seri, Choki, Kras and Tain. The plants collected from the study area were pressed properly before wilting 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.

**RESULTS AND DISCUSSION**

The area under study was visited throughout the whole year. Local people were interviewed through a questionnaire. All plants were collected from the field and identified by the Flora of Pakistan. The plants are then submitted to Herbarium of Botany Department of MUST University, Bhimber Campus.

In the investigated area 100 plants species belonging to 47 families were recorded. Among them pteridophytes and gymnosperms were represented by two families, i.e., Pteridaceae and Pinaceae having both with single species each. Rest of the plants species were belonging to dicot and monocot angiosperm families. Monocot contains 4 species and represented by four families, i.e., Potamogetonaceae, Cyperaceae, Commelinaceae and Asphodelaceae. Dicot contains 95 plant species and represented by 42 families, i.e., Rutaceae, Geraniaceae, Ranunculaceae, Cactaceae, Simaroubaceae, Polygonaceae, Zygophyllaceae, Scrophulariaceae, Violaceae, Lythraceae, Lauraceae, Araliaceae, Nyctaginaceae, Cuscutaceae, Urticaceae, Pinaceae, Lythraceae, Berberidaceae, Linaceae, Meliaceae, Oleaceae, Salicaceae, Asclepiadaceae and Plantaginaceae having 1 species while Sapindaceae, Boraginaceae, Apocynaceae, Cannabaceae and Convolvulaceae occupied 2 species. Acanthaceae, Solanaceae, Alliaceae, Malvaceae and Rhamnaceae having 3 species, Euphorbiaceae, Lamiaceae and Amaranthaceae have 4 species, Moraceae and Rosaceae (5), Fabaceae (6), Poaceae (8) and Asteraceae occupied 9 species. The most dominant family of study area is Asteraceae (Fig. 1); (Table 1).

In the study area total 100 plants species were collected. Mainly the species in the study area were belonging to dicot families but monocot and Pteridophytes families also contributed in local Flora. All these plants have numerous local uses including single usage, dual usage and multiple usages. There is another category of plants which have no local uses. There were 12 species which have single usage, 24 plants have dual usage and 64 plants have multiple usages (Fig. 2).

The plants which are used for single purpose is called single usage plants. For example *Dodonaea viscosa* of family Sapindaceae is used as medicinal purpose only. Its seed oil is used to cure tetanus. On the other hand *Pteris vittata* is only use for blood purification. In the same way *Geranium rotundifolium* is only used as fodder. In the investigated total 100 plants were recorded. In these plants 12 species have single use i.e., *Solanum melongena*, *Achyranthes aspera*, *Geranium rotundifolium*, *Caryopteris odorata*, *Dodonaea viscosa*, *Debregeasia saeneb*, *Desmostachya bipinnata*, *Euphorbia helioscopia*, *Euphorbia royleana*, *Litsea glutinosa*, *Opuntia monacantha*, and *Pteris vittata* Some species have medicinal usage some are used as fodder and some have other local uses. There are 5 species which are used as medicines, 2 species used as fodder, 1 is used as vegetable, 1 is used as fuel wood, 1 is used as condiment, 1 is used as fruit and 1 is used as fencing purpose (Fig. 3).

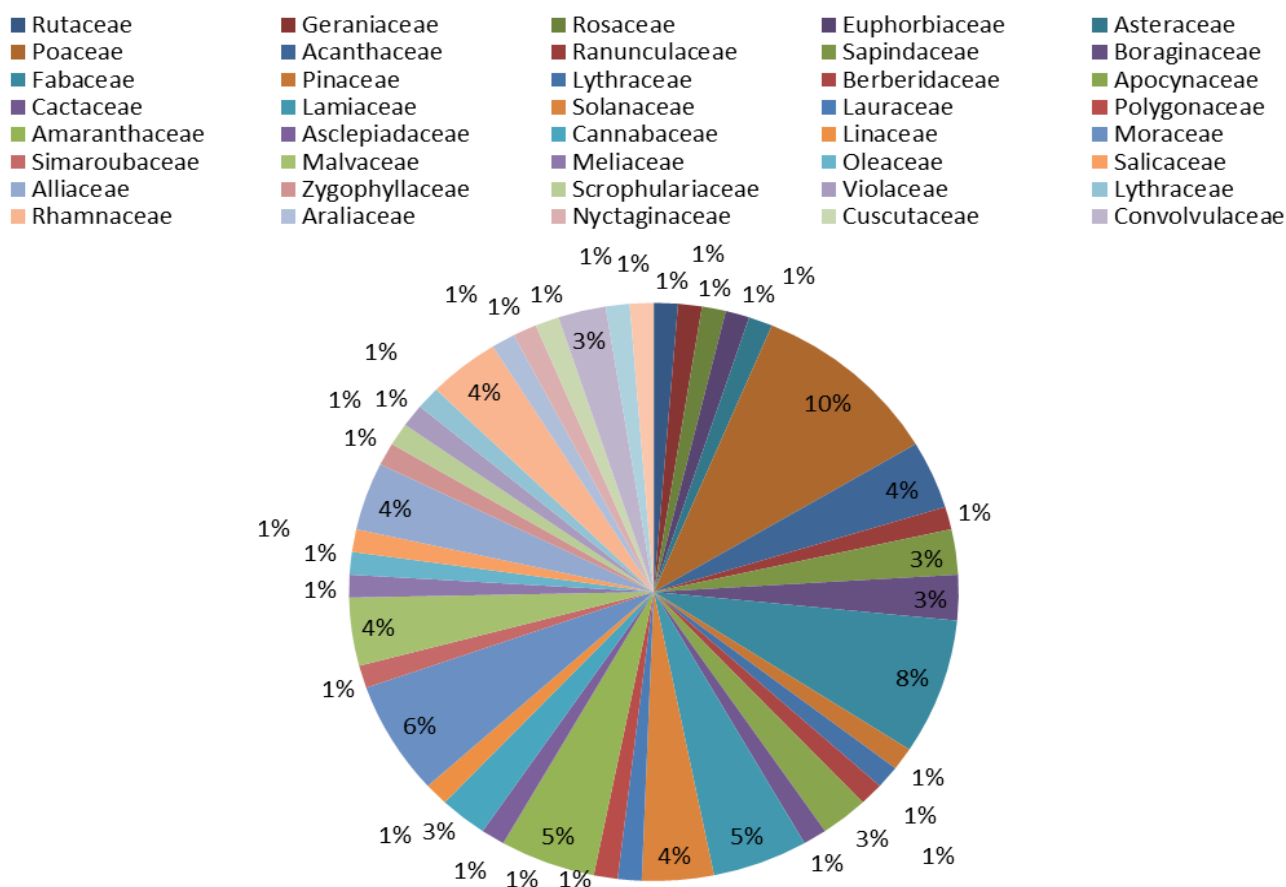


Fig. 1. The pie chart showing percentages of dicots families of plant species of Darguti usage of plants.

**Table 1. Species wise inventory with Ethnobotanical importance of some Plant of Darguti, Tehsil Khairatta, AJK.**

| Botanical name  | Family         | Local name      | Ethnobotanical use  |
|---|----------------|-----------------|---|
| 1. <i>Acacia modesta</i> Wall.                          | Fabaceae       | Plai            | Gum is used as tonic and stimulant. Leaves are used as fodder. Flowers are used for honeybee collection   |
| 2. <i>Acacia nilotica</i> (L.) Delile.                  | Fabaceae       | Kikar           | It is used as fodder. Legume is used against dysentery and diabetes. It is used as fuelwood   |
| 3. <i>Albizia lebbek</i> (L.) Benth.                    | Fabaceae       | Saree           | Seeds are used to cure kidney infection. Leaves are used to increase weight of cattle's   |
| 4. <i>Ailanthus altissima</i> (Mill.) Swingle.          | Simaroubaceae  | Toon            | Bark is used to cure dysentery and diarrhea. Wood is used for making furniture  |
| 5. <i>Allium griffithianum</i> Boiss                    | Alliaceae      | Jangli pyaz     | Bulbs are used to cure wounds pain. It is effective pain killer   |
| 6. <i>Amaranthus viridis</i> L.                         | Amaranthaceae  | Ganar           | Leaves are used on snake and scorpion bite. Root is used to control menstruation. It is used as vegetable.  |
| 7. <i>Androsace umbellata</i> (Lour.) Merrill           | Geraniaceae    | -               | This plant is used as tonic. It is also used as fodder  |
| 8. <i>Artemisia annua</i> L.                            | Asteraceae     | Chahoo          | Leaves are used ad anthelmintic and tonic.  |
| 9. <i>Allium cepa</i> L.                                | Alliaceae      | Pyaz            | It is irritant to eyes. It is used as condiments.   |
| 10. <i>Achyranthes aspera</i> L.                        | Amaranthaceae  | Puth kanda      | It is used to prepare special medicines called Kshara used extensively in surgical procedures to treat obesity.                                   |
| 11. <i>Alternanthera pungens</i> Kunth                  | Amaranthaceae  | Leedra          | Ash of this plant is rich in soda and use to make soda. Root is used to treat inflammation during urination. It is also used treat constipation.  |
| 12. <i>Allium sativum</i> L.                            | Alliaceae      | Thom            | It is used for cardiac, asthma and whooping cough. It is also used as antiseptic.   |
| 13. <i>Aloe vera</i> (L.) Burm.f.                       | Asphodelaceae  | Kanwar gandal   | Leaves are used as bandage on pus wounds. It is also used for blood purifier and diabetes.  |
| 14. <i>Astragalus psilocentros</i> Fisch.               | Fabaceae       | Tindni          | Leaves are used as fodder. It increases the weight of animal. It is used as fuel. Leaves are used to cure stomach ulcer.                          |
| 15. <i>Berberis lycium</i> Royal                        | Berberidaceae  | Sumble          | Fruit is edible. Leaves help in digestion. It makes muscles strong.   |
| 16. <i>Brachiaria reptans</i> (L.) Gardner and Hubbard  | Poaceae        | Sair            | It is used as fodder for cattle's. Leaves are laxative and diuretic.  |
| 17. <i>Barleria cristata</i> L.                         | Acanthaceae    | Sweet saireyaka | Root and leaves are used to reduce swelling. Seeds used as antidote for snake bite.   |
| 18. <i>Bidens bipinnata</i> L.                          | Asteraceae     | Siryaly         | Leaves are used to cure sore throat. Roots and seeds are popularly used as emmenagogues and in the treatment of laryngeal and bronchial diseases. |
| 19. <i>Bombax ceiba</i> L.                              | Bombacaceae    | Simble          | Bark is used to soften the tumors. Wood is used for making goods. Fruit is used for making pillows.   |
| 20. <i>Broussonetia papyrifera</i> (L.) L'Hér. ex Vent. | Moraceae       | Jangli toot     | Plant is exotic. It is exotoxin and causes allergy.   |
| 21. <i>Bauhinia variegata</i> L.                        | Fabaceae       | Katchnar        | Leaves are used as fodder. It is also used for skin diseases.   |
| 22. <i>Boerhavia procumbens</i> Banks ex Roxb.          | Nyctaginaceae  | Snati           | Flower and leaves are used as tonic. It removes iron deficiency.  |
| 23. <i>Cordia myxa</i> L.                               | Boraginaceae   | Lasori          | It is used to prepare cough and asthma syrup.   |
| 24. <i>Caryopteris odorata</i> (D.Don) B.L. Roxb.       | Lamiaceae      | Puthjari        | It is used to cure motion. It is mostly used by animals to reduce motion.   |
| 25. <i>Calotropis procera</i> (Aiton) Dryand.           | Asclepiadaceae | Aak             | Extract of plants is applied on dog bite. Latex is used for skin diseases and milk is toxic.  |
| 26. <i>Cannabis sativa</i> L.                           | Cannabaceae    | Bhang           | Roots and leaves are used for liver disorder. It also stops menses and whooping cough.  |
| 27. <i>Carissa spinarum</i> L.                          | Apocynaceae    | Grunda          | Stem and root is used as fuel. Leaves are used to increase cattle weight. Fruit is blood is purifier.   |
| 28. <i>Celtis australis</i> L.                          | Cannabaceae    | Khirck          | Seeds and leaves are used as fodder. Bark is used against skin diseases. Seeds are used for dysentery.  |
| 29. <i>Chrysopogon aucheri</i> (Boiss.) Stapf           | Poaceae        | Ghass           | It is used as fodder.   |
| 30. <i>Cynodon dactylon</i> (L.) Pers.                  | Poaceae        | Khabal          | Plant extract is used for bandage on bone fracture.   |
| 31. <i>Cirsium wallichii</i> DC.                        | Asteraceae     | Ount katara     | Seeds are used as tinder. Its seeds yield oil which is very useful medicinally.   |
| 32. <i>Chenopodium album</i> L.                         | Amaranthaceae  | Bathwa          | Leaves are used as fodder. Its leaves are used as laxative It is used as vegetable.   |
| 33. <i>Commelina benghalensis</i> L.                    | Commelinaceae  | Chura           | Plant is used as fodder. Leaves are used as laxative.   |
| 34. <i>Convolvulus arvensis</i> L.                      | Convolvulaceae | Lahli           | It is used as fodder. Root is diuretic.   |
| 35. <i>Cuscuta reflexa</i> Roxb.                        | Cuscutaceae    | Neela dhari     | It is used to cure skin diseases such as anemia and other weakness of children  |

Table 1. (Cont'd.).

| Botanical name   | Family           | Local name      | Ethnobotanical use   |
|--|------------------|-----------------|--|
| 36. <i>Dodonaea viscosa</i> (L.) Jacq.                       | Sapindaceae      | Snatha          | Seed oil is used to cure the tetanus disease.  |
| 37. <i>Debregeasia saeneb</i> (Forssk.) Hepper & J.R.I. Wood | Urticaceae       | Sindhari        | It reduces weakness and give health to weak person   |
| 38. <i>Dryopteris stewartii</i> Fraser Jenk                  | Dryopteridaceae  | Jangli morpankh | Leaves are used to heal the wounds. Rhizome is used to increase butter.  |
| 39. <i>Dicliptera bupleuroides</i> Nees                      | Acanthaceae      | Pipri           | Leaves juice is used by children suffering from fever. It is used to heal wound of snake bite.   |
| 40. <i>Desmostachya bipinnata</i> (L.) Stapf                 | Poaceae          | Dhib            | Dry plants are used as fodder.   |
| 41. <i>Eriophorum comosum</i> (Wall.) Nees                   | Cyperaceae       | Babya           | The plant dried, fired and ash is used for abdominal and kidney pain.  |
| 42. <i>Euphorbia helioscopia</i> L.                          | Euphorbiaceae    | Doodal          | It is toxic plants.  |
| 43. <i>Euphorbia royleana</i> Boiss                          | Euphorbiaceae    | Thor            | It is used for fencing the field.  |
| 44. <i>Ficus carica</i> L.                                   | Moraceae         | Tussa           | Leaves are used as fodder. Fruit is edible and laxative. It soothes bee sting by simple rubbing on the skin.                                 |
| 45. <i>Fumaria indica</i> (Hausskn.) Pugsley                 | Papaveraceae     | Papra           | It is used as fodder. It is used as blood purifier, diaphoretic and antipyretic.   |
| 46. <i>Ficus religiosa</i> L.                                | Moraceae         | Pipal           | Bark is used to cure gonorrhoea and scabies. Fruit is used as laxative. It is used as fodder. It is also used as fuel wood.                  |
| 47. <i>Geranium rotundifolium</i> L.                         | Geraniaceae      | Jandorunu       | It is used as fodder.  |
| 48. <i>Grewia villosa</i> Willd                              | Malvaceae        | Dhaman          | Leaves are very pleasant to goats. It is used to make tablets which are used aphrodisiac. It is used as fuel wood.                           |
| 49. <i>Heliotropium strigosum</i> Willd.                     | Boraginaceae     | Gorakhpan       | It is used to cure diabetes, leukoria and asthma   |
| 50. <i>Hedera nepalensis</i> K.Koch                          | Araliaceae       | Banjli          | Leaves are used for the treatment of diabetes. It is also used for skin diseases.  |
| 51. <i>Ipomoea carnea</i> Jacq.                              | Convolvulaceae   | Jangli bheikar  | It is used as medicinal plants. It is also use to stop soil erosion.   |
| 52. <i>Justicia adhatoda</i> L.                              | Acanthaceae      | Bekar           | It is used to treat cough, cold, asthma, skin infection, fevers and inflammation.  |
| 53. <i>Lamium amplexicaule</i> L.                            | Lamiaceae        | Motcapra        | Leaves are used as vegetable. Whole plants used as fodder.   |
| 54. <i>Litsea glutinosa</i> (Lour.) C.B.Rob.                 | Lauraceae        | Meda sack       | It is used to kill pain of back. It is also used to heal up the breakage of bones.   |
| 55. <i>Mallotus philipensis</i> (Lam.) Muell. Arg.           | Euphorbiaceae    | Kameela         | Fruit is used to kill the abdominal worms. It is used to cure constipation.  |
| 56. <i>Malva parviflora</i> L.                               | Malvaceae        | Sonchul         | Leaves extract is anthelmintic in human, children anal animal worms  |
| 57. <i>Melia azedarach</i> (L.) Pers.                        | Meliaceae        | Draik           | Leaves and fruit are used as blood purifier, fever and diabetes. Leaves are pleasant for goat. Wood is used as fuel.                         |
| 58. <i>Mentha longifolia</i> (L.) L.                         | Lamiaceae        | Jangli podena   | Leaves are used as antispasmodic. Leaves are stimulant, aromatic, stomach and carminatives.  |
| 59. <i>Morus alba</i> L.                                     | Moraceae         | Shehtoot        | Leaves are used as fodder. Fruit is used as tonic and throat irritation. Wood is the used as fuel.   |
| 60. <i>Micromeria biflora</i> (Buch.-Ham. ex D.Don) Benth.   | Lamiaceae        | Boine           | Plants is used to cure vomiting, constipation and diuretic   |
| 61. <i>Morus nigra</i> L.                                    | Moraceae         | Kala toot       | Leaves are used as fodder. Fruit is used as tonic and for cough and throat irritation. Wood is used for fuel.                                |
| 62. <i>Nerium oleander</i> L.                                | Apocynaceae      | Gandeera        | It kills all types of germs. It heals wounds. It kills abdominal worms.  |
| 63. <i>Opuntia monacantha</i> (Willd.) Haw.                  | Cactaceae        | Chithar thor    | It heals broken bones and makes bones strong   |
| 64. <i>Olea ferruginea</i> Wall. ex Aitch.                   | Oleaceae         | Kao             | Leaves are used as fodder. Leaves are used for toothache and gonorrhoea. Bark is used to cure mouth infection. Branches are used for miswak. |
| 65. <i>Prinsepia utilis</i> Royle                            | Rosaceae         | Kakran          | Fruit is used in the cough syrup. Scales of this plant cause constipation.   |
| 66. <i>Potamogeton nodosus</i> Poir.                         | Potamogetonaceae | Jajuli          | Leaves are used to cure constipation. Leaf extract is used on irritant skin.   |
| 67. <i>Pinus roxburghii</i> Sarg.                            | Pinaceae         | Cheer           | Resin is used to cure wounds. Oil is pain killer. Wood is used to make furniture.  |
| 68. <i>Pueraria tuberosa</i> (Willd.) DC.                    | Fabaceae         | Bandhari        | Its leaves are used as fodder. It is used in genetics.   |

Table 1. (Cont'd.).

| Botanical name  | Family           | Local name          | Ethnobotanical use   |
|---|------------------|---------------------|--|
| 69. <i>Populus alba</i> L.                            | Salicaceae       | Safeeda             | Wood is used for constructional purpose. It is used to prepare agriculture tools. It is used as fodder. It is used to cure flue.             |
| 70. <i>Pteris vittata</i> L.                          | Pteridaceae      | Panj patra          | Its only use is to purify blood.   |
| 71. <i>Plantago lanceolata</i> L.                     | Plantaginaceae   | Isbaghol            | Leaves are used to cure wounds. Seeds are used to treat diarrhea and dysentery.  |
| 72. <i>Pyrus veriolosa</i> Wall. ex G.A Camus.        | Rosaceae         | Dandaley            | Leaves are used as fodder. Wood is used as fuel wood. Fruit is edible.   |
| 73. <i>Ranunculus sceleratus</i> L.                   | Ranunculaceae    | Kore kandoli        | Fruit of this plant is edible.   |
| 74. <i>Rubus ellipticus</i> Smith.                    | Rosaceae         | Peela akhra         | Fruit is edible. Its extract is used as tonic It is also used as fencing the field.  |
| 75. <i>Ricinus communis</i> L.                        | Euphorbiaceae    | Hernoli             | Leaves are poisonous. It is used to reduce swelling. It is also used to cure constipation.   |
| 76. <i>Rosa indica</i> L.                             | Rosaceae         | Gulab               | Gulkand of flower is used to cure constipation, liver disorder and powerful tonic.   |
| 77. <i>Rubus fruticosus</i> L.                        | Rosaceae         | Akhra               | Fruit is edible. It is used as a hedge plant to protect the fields.  |
| 78. <i>Rumex dentatus</i> L.                          | Polygonaceae     | Harfali             | Leaves are used as carminative, diuretic and stomachic.  |
| 79. <i>Reinwardtia indica</i> Dumort.                 | Linaceae         | Bsant bhar          | It is only function to cure diabetes.  |
| 80. <i>Saccharum spontaneum</i> L.                    | Poaceae          | Kai                 | It is used as fodder. It is used for making ropes and for roof thatching.  |
| 81. <i>Solanum nigrum</i> L.                          | Solanaceae       | Katch match         | Shoot is used for curing dropsy and jaundice. Leaf juice is used in kidney diseases. Leaves are useful for wounds.                           |
| 82. <i>Sorghum halepense</i> (L.) Pers.               | Poaceae          | Baru                | It is used as fodder. It is used for abdominal pain, snake bite and scorpion bite.   |
| 83. <i>Sonchus asper</i> (L.) Hill                    | Asteraceae       | Prickly sow thistal | Stem is edible. Leaves have agreeable flavor. It helps in wound healings.  |
| 84. <i>Sonchus oleraceus</i> (L.) L.                  | Asteraceae       | Bhrum dandi         | Its parts are used to treat diarrhea, menstrual problems, fever, inflammation and warts.   |
| 85. <i>Solanum melongena</i> L.                       | Solanaceae       | Began               | Fruit is used as vegetable.  |
| 86. <i>Sapindus mukorossi</i> Gaertn.                 | Sapindaceae      | Raitha              | Fruit is used as hair tonic. Fruit is also used for pile   |
| 87. <i>Silybum marianum</i> (L.) Gaertn               | Asteraceae       | Kandyara            | Seeds are used as antioxidant and appetite.  |
| 88. <i>Taraxacum officinale</i> Weber.                | Asteraceae       | Hund                | It is used as fodder. It is used to cure jaundice and constipation. It is tonic and diuretic.  |
| 89. <i>Tagetes minuta</i> L.                          | Asteraceae       | Marigold            | It is used as condiments in a Chile and Argentina  |
| 90. <i>Tribulus terrestris</i> L.                     | Zygophyllaceae   | Pakhra              | Roots and fruits are used for urinary disorder. Its root is used to cure impotence.  |
| 91. <i>Triticum aestivum</i> L.                       | Poaceae          | Gandum              | It is used as fodder. Straw is used for diabetes. It reduces insulin level.  |
| 92. <i>Verbascum Thapsus</i> L.                       | Scrophulariaceae | Gidar tobacco       | Leaves and flowers are used in cough and pulmonary diseases  |
| 93. <i>Viola canescens</i> Wall.                      | Violaceae        | Banafsha            | Flowers are used to cure epilepsy and nervous disorder. Roots are used as laxative and diuretic. Its syrup is very useful for body coldness. |
| 94. <i>Withania somnifera</i> (L.) Dunal              | Solanaceae       | Asgand              | The scales of its roots are used against pain in joints. It reduces swelling of joints.  |
| 95. <i>Woodfordia fruticosa</i> (L.) Kurz             | Lythraceae       | Dhavi               | Flowers are used in those medicines which reduces weakness of organisms.   |
| 96. <i>Ziziphus jujuba</i> Mill.                      | Rhamnaceae       | Jand beery          | Wood is used as fuel. Fruit is edible and blood purifier. Bark is used to cure dysentery and diarrhea. It is also used as fodder.            |
| 97. <i>Ziziphus nummularia</i> (Burm.f.) Wight & Arn. | Rhamnaceae       | Bair                | It is used as fodder. Fruit is edible and laxative.  |
| 98. <i>Zanthoxylum armatum</i> DC.                    | Rutaceae         | Timber              | Wood is used as fuel. Fruit is used for the treatment of pile. It is also cure gum diseases. It is used ac condiments.                       |
| 99. <i>Zea maize</i> L.                               | Poaceae          | Makai               | Corn silk is used for the treatment of kidney and abdominal pain. It is used as forage and fodder.   |
| 100. <i>Ziziphus oxyphylla</i> Edgew                  | Rhamnaceae       | Mamyanu             | Leaves are used to cure diabetes. Roots are used in Jaundice. Fruits are edible. Wood is used as fuel.                                       |

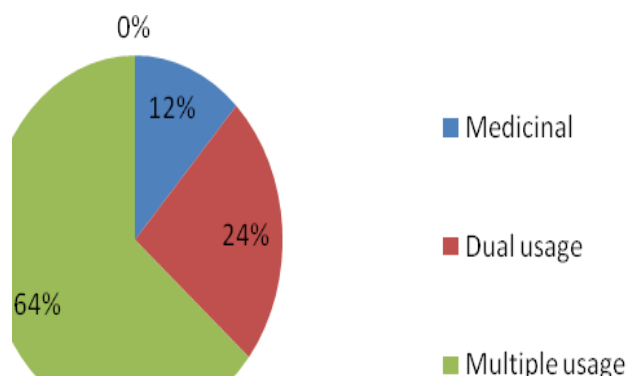


Fig. 2. Proportion of usages plants of Darguti, Tehsil Khuiratta.

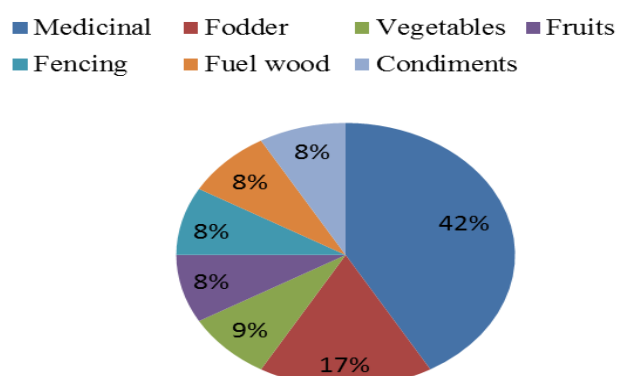


Fig. 3. The pie chart showing percentages of Single-usage species of Darguti.

**Double usage plants:** The plants which have two local usages are called double usage plants. In the study area 24 plants i.e., *Sapindus mukorossi*, *Silybum marianum*, *Bauhinia variegata*, *Pueraria tuberosa*, *Albizia lebbeck*, *Ailanthus altissima*, *Allium griffithianum*, *Allium cepa*, *Androsace umbellata*, *Artemisia annua*, *Cirsium wallichii*, *Silybum marianum*, *Tagetes minuta*, *Barleria cristata*, *Dicliptera bupleuroides*, *Boerhavia procumbens*, *Cordia myxa*, *Lamium amplexicaule*, *Commelina benghalensis*, *Convolvulus arvensis*, *Sapindus mukorossi*, *Dryopteris stewartii*, *Dicliptera bupleuroides* and *Eriophorum comosum* species have dual local uses out of 100 plants. For example *Cordia myxa* belongs to family Boraginaceae is used for making cough and asthma syrup. In the same way *Artemisia annua* which belongs to Asteraceae family is used as tonic and Anthelmintic. The plants which have dual usage some are medicinally use some used as fodder and some have other uses. Among 24 plant species 11 are medicinal, 7 are used as fodder, 1 is uses as vegetable., 1 is uses for making furniture, 2 species are used as edible fruit, 1 is used as condiment and 1 is used to fencing the field (Fig. 4).

Multistage plants are those plants which have more than two uses. Among 100 plants of study area there are a lot of plants which have more than two uses. Among 100 plants species 64 i.e., *Taraxacum officinale*, *Morus alba*, *Broussonetia papyrifera*, *Morus nigra*, *Ficus carica*, *Ficus religiosa*, *Olea ferruginea*, *Acacia modesta*, *Acacia nilotica*, *Astragalus psilocentros*, *Allium sativum*, *Amaranthus viridis*, *Alternanthera pungens*, *Chenopodium album*, *Bidens bipinnata*, *Sonchus asper*, *Sonchus oleraceus*, *Aloe vera*, *Berberis lycium*, *Triticum aestivum*, *Zea maize*, *Brachiaria reptans*, *Justicia adhatoda*, *Bombax ceiba*, *Heliotropium strigosum*, *Mentha longifolia*, *Micromeria biflora*, *Prinsepia utilis*, *Potamogeton nodosus*, *Calotropis procera*, *Cannabis sativa*, *Celtis australis*, *Carissa spinarum*, *Nerium oleander*, *Ipomoea carnea*, *Cuscuta reflexa*, *Justicia adhatoda*, *Fumaria indica*, *Grewia villosa*, *Heliotropium strigosum*, *Hedera nepalensis*, *Lamium amplexicaule*, *Mallotus phillipensis*, *Malva parviflora*, *Melia azedarach*, *Pinus roxburghii*, *Populus alba*, *Plantago lanceolata*, *Pyrus veriolosa*, *Rubus ellipticus*, *Ricinus communis*, *Rosa indica*, *Rubus fruticosus*, *Rumex dentatus*, *Saccharum spontaneum*, *Solanum nigrum*, *Sorghum halepense*, *Tribulus terrestris*, *Triticum aestivum*, *Verbascum Thapsus*, *Viola canescens*, *Withania somnifera*, *Ziziphus jujuba*, *Zanthoxylum armatum* and *Ziziphus oxyphylla* have multiple uses. Some plants species have medicinal uses some are used as fodder some are used as fuel wood some are edible specie and some have used for constructional purposes. For example *Morus nigra* is plant species which have multiple usages. It belongs to family Moraceae. It is used as fodder. Wood is used as fuel. Fruit is used for cough and throat irritation. In the same way *Olea ferruginea* of family Oleaceae is a plant species which have multiple usages. It is used as fodder, to cure mouth and throat irritation and branches used as tooth brush (miswak). Among 64 multiuse plants, 21 are medicinal, 17 used as fodder, 14 are used as fuelwood, 7 are used as fruit, 1 is used as stuffing material, 1 is used as fencing, 2 is used as condiment and 1 is used as detergents (Fig. 5).

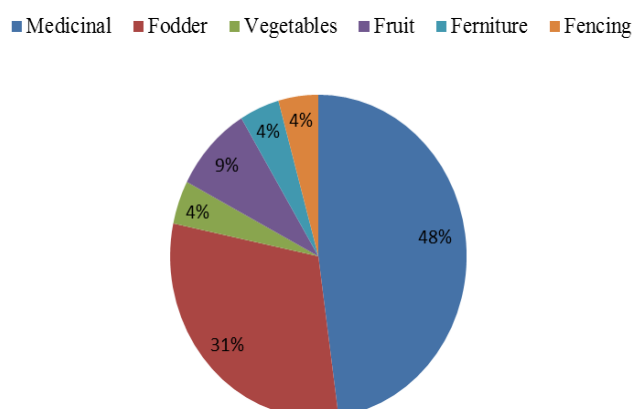


Fig. 4. The pie chart showing percentages of dual-usage plant species of Darguti Multiple usage plants.

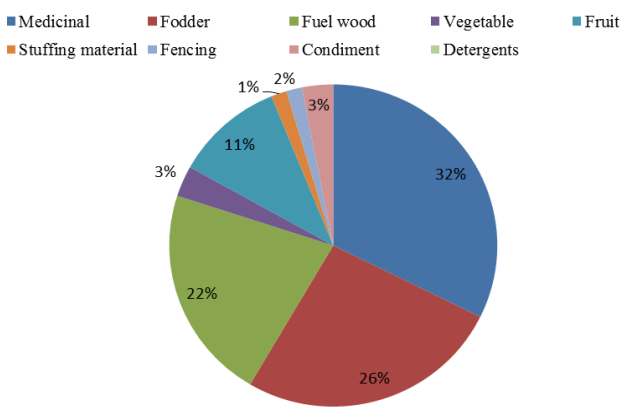


Fig. 5. The pie chart showing percentages of multi-usage plant species of Darguti.

Darguti is a hilly area of Tehsil Khuiratta, Azad Kashmir. People living in this area depend upon local vegetation. The study area is rich in floral diversity and local inhabitants of this area used plants for their daily needs. They cut trees and used as fuel, fodder and timber. Due to rapid urbanization demands of plants is much more increased and hence, as a result many plants species are rapidly disappearing in the study area. The rate of deforestation is increasing day by day. The local vegetation of Darguti is under very high biotic and abiotic pressure. Mostly medicinal plants were decreases because local people mostly depend on medicinal plants to cure their ailments. People collected plants from field and used according to their information about specific plants. For example roots of *Justicia adhatoda* is used to cure pneumonia and cough and their leaves are use as antiseptic similar situations were also studied by Ajaib *et al.* (2015) during survey of Shrubs & Trees of Tehsil Ahmad Pur East, District Bahawalpur, Pakistan.

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