Ethno botanical Wisdom of Inhabitant of Devi Galli Azad Kashmir

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Abstract

Plants play vital role in our existence and are major substance of nutrition and medicament throughout the world. Plants are being used from early times to treat various human as well as animal’s diseases. A series of survey were conducted to notice the highly remedial plants of Devi Galli Sudhnoti, Azad Jammu and Kashmir, Pakistan. Data was collected by direct comments during field studies, interviews and questionnaires from the local people. The locality, botanical, vernacular names, their family names and uses were elected. During study a total of 98 plants species related to 88 genera and 51 families were recorded. Most abundantly recorded families were Asteraceae, Poaceae, Moraceae, Convolvolaceae, Rosaceae, Fabaceae and Lamiaceae. Ethnobotanical uses classifications showed that major proportion was of medicinal plants species (85 spp, 90.4%) then fodder and forage species were (43 spp, 45.7%) It is followed by other uses such as vegetables (13 spp, 13.8%), fruit (19 spp, 20.2%), Fuel (16 spp, 17%) and timber species (5 spp, 5.3%). Present survey has disclosed the ethno botanical importance of the plants and also suggested that there is dire need of conservation of these medicinally important plants for sustainable utilization as they are threatened by the loss of habitat and over exploitation.

Keywords: Devi Galli; Inhabitants; Flora; Ethnobotany

Abbreviations: FC: Frequency Citation; RFC: Relative Frequency Citation; UV: Use Value; FIV: Family importance value.

Introduction

Ethnobotany deals with study of the relationship between people of a specific culture and native plants and plays a significant role in understanding the active relations between social, traditional systems and biological diversity Husain et al. [1]; Mahmood et al.[2]. From many centuries and even today medicinal plants are used for dealing and prevention of various disorders and for the advancement of good health for people Alpuerto et al.[3]; Khatun et al. [4]. In Pakistan medicinal plants have been used as remedies for human diseases as well as for animal diseases for many centuries Haq [5]. Freshly collected ingredients from plants in small and massive quantities are used for ailments and also provided to the herbal industries through traded in the market place Uniyal et al. [6]. Hilly regions offer properties and services such as forests, agriculture foodstuffs, and water and biodiversity resources not only useable for local hilly area’s people but also to a large part of the population living in plain areas Awan and Ahmad [7].

Azad Jammu and Kashmir (AJ&K) is full of medicinal plants diversity. Many studies have been conducted on the uses of therapeutic plants by the indigenous populations of Azad Jammu and Kashmir Ishfaq et al. [8]. District Sudhnoti is adjacent to Poonch division and situated at the height of 5400 ft. Most of areas of district Sudhnoti are out of the snow zone but some are in snow zone Khan et al. [9]. The flora of this district is also different from other districts. Vegetation of this district is patchy and dense with high alpine trees, whereas shrubs and small bushes are in large number. The World Health Organization (WHO) estimated that 80% of the population of developing countries relies on traditional medicines, mostly plant drugs, for their primary healthcare needs (WHO, 2017). Demand for medicinal plant is increasing in both developing and developed countries due to growing recognition of natural products, being non-narcotic, having no side-effects, easily available at affordable prices and sometime the only source of health care available to the poor Basha. The area is selected due to pronounced variety of medicinal plants but the region is still unexplored. The main objective was to document the knowledge of the local people of Devi Galli about the medicinal uses of local plants.

Materials and Methods

**a) Study Area:** The study area, District Sudhnoti is part of Division Poonch. Ethnobotanical study was limited to Devi Galli district (Sudhnoti) and some allied areas of district Sudhnoti...
Azad Kashmir. District Sudhnoti is spread over 569 sq. km and Devi Galli is a part of Sudhnoti Rafi et al. [10].

b) Field Trips: Field survey was consisting of plant collection, photography and data records. Semi-structured and open-ended interviews (questionnaire) were planned to gather ethnobotanical data. Interviews were taken general from native people of different age groups, shepherds and herbalists (Hakims) in their local language.

c) Plants Collection and Preservation: During various field surveys medicinally important plants were collected by keeping in view their utilization, flowering period and their products. These fully dehydrated samples were mounted on herbarium sheets and then noted their local name, botanical name, family, flower colour and locality. The plant species were recognized by plant taxonomists of UAAR and also used the Flora of Pakistan.

d) Quantitative Ethnobotanical Data Analysis: Indigenous knowledge was quantitatively calculated using various methods like Relative Frequency Citation (RFC), Use Value (UV) and Family Importance Value (FIV).

e) Relative Frequency Citation (RFC): Quantitative analysis of the collected ethno medicinal information was done by using a catalog of relative frequency citation (RFC) as; RFC = FC/N (0 < RFC < 1) This formula is given by the frequency of citation; FC that is the number of informants who mention the use of the species) while N is the total number of informants participating in the survey Vitalini et al.[11].

f) Use Value (UV): The Use Value (UV) is a good measure to all the possible uses of a plant species. UV gives us the virtual significance of a species that are cited by an informant for a specific species of medicinal plant. It will be intended by using the following given formula Savikin et al. [12].

\[
UV = \sum U_i / N
\]

Where \( U_i \) is the number of uses revealed by each informer for a given species and \( N \) is the total number of informants.

g) Family importance value (FIV): Family importance value (FIV) was calculated by captivating the percentage of informants who mention the family Savikin.

\[
FIV = FC (\text{family}) / N \times 100
\]

Where \( FC \) is the number of informants who mention the family while \( N \) is the total number of informants contributing in the study.

Table 1: List of plants species with uses.

| S.N. | plant Name                  | Common name | Family         | Part used | Growth form | Ethnobotanical uses                                                                 |
|------|----------------------------|-------------|----------------|-----------|-------------|--------------------------------------------------------------------------------------|
| 1    | Achyranthus aspera Wall.   | Puthkanda   | Amaranthaceae  | Whole plant | Herb       | The juiced of herb is given in diarrhoea and skin diseases. Decoction is specified for gastric problems. Foliage fixative is used against insect bite. |
| 2    | Adiantum venustum D. Don   | Kakii       | Adiantaceae    | Leaves    | Herb       | Leaves decoction is used to relief cold and cough. Whole plant is also used as fodder. |
| 3    | Acellia millefolium Linn.  | Kangi       | Asteraceae     | Whole plant | Herb       | It is used to treat gum problem and mouth soured. Liquid extract is used to remove kidney stone. |
| 4    | Ailanthus altissima (P. Mill) Swingle | Drave | Simaroubaceae  | S, L      | Tree       | Plants stem (logs) and branches are used for fuel and timber. |
| 5    | Amaranthus spinosus L.     | Ganar       | Amaranthaceae  | W         | Herb       | Leaves are cooked as vegetable, effective against constipation and obesity. Fodder for cattle and goats. |
| 6    | Anagallis arvensis L.      | motkopa/bili booti | Primulaceae    | W         | Herb       | Leaves and stem is cooked as vegetable that have cooling effect on stomach. Entire plant is used as food for animals. |
| 7    | Arundo donax L.            | Naal        | Poaceae        | Whole plant | semi-shrub | Decoction of leaves is given in cold and cough. Plant is also used as food for animals. |
| 8    | Artemisia vulgaris L.      | Chaouou     | Asteraceae     | L         | Herb       | Fleshy leaves are cooked as vegetable. Decoction is used for snake bite. |
| 9    | Berrberis lycium RoyJe     | Sumbal      | Berrberidaceae | W         | Shrub      | Root bark residue is used for wound healing and its paste is used for join of fractured bones. Roots extract has cooling effect and is used to cure diabetes, boils and pimples etc. Fruit is edible. Leaves are used as fodder. Dry stem and branches are used as fuel and also used to make fence. |
| 10   | Bergenia ciliata Haw.      | Bhatpahay   | Saxifragaceae  | W         | Herb       | Plant leaves are used as fodder. Roots powder is used for wound healing, diabetes and skin diseases. |
| 11   | Broussonatia papyrifera L  | Jangli toot | Moraceae       | L, S      | Tree       | Plant stem is used as fuel and leaves as fodder. |
| No. | Plant Name                                      | Common Name       | Family             | Genus | Species | Uses                                                                                                                                                                                                 |
|-----|------------------------------------------------|-------------------|--------------------|-------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 12  | *Cannabis sativa* Linn.                         | Bhang/Phang       | Cannabinaceae      | L, I  | Shrub   | A leaf of cannabis and onion paste in the form of poultice is applied on boils and wounds. Crushed leaves and inflorescence are used as drink to relieve pain and having sedative properties.                        |
| 13  | *Capsella bursa pastoris* (L) Medik.            |                   | Brassicaceae       | W     | Herb    | Most of the plant parts are used as fodder for animals.                                                                                                                                             |
| 14  | *Commelina benghalensis* L.                     | Churra            | Commelinaceae      | W     | Herb    | Plant is used as fodder, laxative and anti-inflammatory use to treat animal diseases.                                                                                                                  |
| 15  | *Conyza canadensis* L.                          | Paleet            | Asteraceae         | W     | Herb    | Whole plant is used as fodder and forage.                                                                                                                                                             |
| 16  | *Convolvulus arvensis* L.                       | Saanthe           | Convolvolaceae     | W     | Herb    | Leaves are cocked as vegetable that are effective against constipation. Whole plant is used as fodder and forage.                                                                                     |
| 17  | *Chinopodium album* L.                          | Karhan saag       | Chenopodiaceae     | W     | Herb    | Plant leaves and stem is consumed as fodder.                                                                                                                                                           |
| 18  | *Chichorium intybus* L.                         | Kasni/Chichory/Hand | Asteraceae         | W     | Herb    | Cocked as vegetable effective against constipation also used as fodder.                                                                                                                               |
| 19  | *Cascata reflexa* Roxb.                         | Neela tari        | Cucurbitaceae      | W     | Climber | Anti-lice, anti-anemia, antidandruff and antipyretic.                                                                                                                                                  |
| 20  | *Cuperssus sempervirens* L.                     | Sarroo            | Cyperaceae         | W     | Shrub   | It is an ornamental plant.                                                                                                                                                                             |
| 21  | *Cynodon dactylon* L. Pers.                     | Khabal            | Poaceae            | L     | Grass   | Paste of leaves is used to heal fractured bones. Whole grass is used as fodder.                                                                                                                        |
| 22  | *Cyperus rotundus* L.                           | Mutheer           | Cyperaceae         | W     | Perennial herb | Leaves are cooked as vegetable that is very delicious and also curative for constipation and ulcer.                                                                                                    |
| 23  | *Dalbergia sissoo* Roxb.                        | Tali              | Fabaceae           | L, S, B|         | Plant is used for fuel and fodder purposes. Stem is used to make furniture.                                                                                                                           |
| 24  | *Debergeasia longifolia* D. Don.                | Sandari           | Urticaceae         | F, L, S| Shrub   | Leaves used as fodder, branches and stem for fuel, fruit is grind and used for bloody diarrhea.                                                                                                        |
| 25  | *Digitaria sanguinalis* L. Scop.                | Gaha              | Poaceae            | L     | Grass   | Plant is used as fodder and forage.                                                                                                                                                                   |
| 26  | *Dileiptera roxburgiana* Nees.                  |                   | Achnanthaceae      | W     | Herb    | Plant is used as fodder to avoid sun stroke in buffaloes.                                                                                                                                            |
| 27  | *Diospyros lotus* L.                            | Amlook            | Ebenaceae          | S, L, F| Tree    | Fruit is edible that is effective for stomach troubles, leaves used as fodder for cattle and dry wood is used for burning purpose.                                                                   |
| 28  | *Dryopteris ramosa* (C. Hope) C. Chr.           | Langeri           | Dryopteridaceae    | L     | Herb    | Leaves are cooked as vegetable that is very delicious and also curative for constipation and ulcer.                                                                                                    |
| 29  | *Duczenia indica* (Andr.) Focke.                | Sapa na amulbudha | Rosaceae           | F, L  | Herb    | Fruit is edible that is helpful to remove kidney stone. Plant is also used as fodder.                                                                                                                                 |
| 30  | *Elaeagnus umbellata* (Wall.ex Royle)           | Gayani            | Elaeagnaceae       | L, S, F| Shrub   | Fruit is edible and used for cough and chest pain, leaves used for fodder and stem and twigs are used as fuel and to make fence.                                                                    |
| 31  | *Euphorbia helisipia* L.                        | Doodal            | Euphorbiaceae      | Sd, R, S| Herb    | Small quantity is used to treat constipation and cholera.                                                                                                                                              |
| 32  | *Ficus palmata* Forrsk                         | Phagwara          | Moraceae           | L, S, F, W| Tree    | Fruit is edible, laxative and good for stomach. Leaves are cooked as vegetable and also used as fodder for cattle and goats. Wood of the plant is used as fuel. Ash of leaves is consumed in Naswar (snuff preparation). |
| 33  | *Fragaria vesca* L.                             | Ammal-budha       | Rosaceae           | W     | Herb    | Fruit is edible used to treat stomach ulcer with leaves of Berberis lyccum. Leaves are used to treat diarrhea in children. Whole plant is used as fodder for goats.                                              |
| 34  | *Gerenium wallichanum* L.                       | Rati-boti/Ratan-jot| Gereniaceae        | W     | Herb    | Roots have cooling effects and used against problems of urination. Leaves paste is used for joints pain.                                                                                               |
|   | Scientific Name                        | Common Name          | Family       | Type      | Description                                                                 |
|---|----------------------------------------|----------------------|--------------|-----------|-----------------------------------------------------------------------------|
| 35 | *Geranium napalense*                   | Jaree                | Gerniaceae   | W, Herb   | Leaves boil in water and used for cough and throat problems.                |
| 36 | *Gentiana olivieri*                    | Nil-kanth            | Gerniaceae   | W         | Leaves are used as food for animals and are operative for delivery in cattle. Fruit is edible. Baskets are made from branches and twinges after soaking in water and separated bark is also used to make ropes. |
| 37 | *Grewia optiva*                        | Thaman               | Tiliaceae    | L, S, Shrub | Leaves are used as fodder and forage and powder of dry bark is used against diabetes. |
| 38 | *Hedera helix*                         | Batkal               | Araliaceae   | L, S, Climber | Leaves are used as fodder and forage and powder of dry branches is used against diabetes. |
| 39 | *Ipomea purpurea*                      | Aeh                  | Convolvolaceae | W, climber herb | Plant is used as vegetable and leaves used as fresh food for animals. |
| 40 | *Indigofera heterantha*                | Manja/ Jand          | Fabaceae     | S, L, Herb | Twigs and bark is used to make ropes and baskets. Leaves are used as fodder. |
| 41 | *Jasminum humile*                      | Chamba zard          | Oleaceae     | S, R, Shrub | Leaves decoction is used for curing ringworms. It is cultivated as ornamental plant. |
| 42 | *Juglans regia*                        | Akhor/ Akhrot        | Juglandaceae | S, B, F, Tree | Fruit is edible that is effective for heart and brain. Stem bark is used as Miswak (Toothbrush). Stem is used to make furniture and also used as fuel. |
| 43 | *Lathyrus ophaca*                      | Jingli phalli        | Fabaceae     | W         | Whole plant is used as fodder. Fruit is edible. |
| 44 | *Melia azedrach*                       | Dhark                | Meliaceae    | L, S, Shrub | Leaves extract is used to cure r skin diseases. Stem and branches are used as fuel. |
| 45 | *Mentha longifolia*                    | Chata podina         | Lamiaceae    | L, Herb   | This plant has cooling effects. Dried leaves are orally taken that are carminative. Mentha leaves, seeds of punica and green chilies are used to make chatni |
| 46 | *Mentha arvensis*                      | Kala podina          | Lamiaceae    | L, Herb   | Leaves are used to make chatni that is carminative and cooling effects for digestive system |
| 47 | *Melilotus indica*                     | Senevy               | Fabaceae     | L, Herb   | Leaves are cooked as vegetable (sag). Plant is used as fodder. |
| 48 | *Medicago polymorpha*                  | Maina                | Fabaceae     | W, Herb   | Plant is used as fodder.                                                   |
| 49 | *Morus nigra*                          | Kala toot            | Moraceae     | E, L, S, Herb | Fresh leaves are used as fodder. Fruit is edible, effective for constipation. Wood is used for fuel and also used to make furniture. |
| 50 | *Nasturtium officinale*                | Chao                  | Brassicaceae | W, Herb   | Leaves are cooked as vegetable that is carminative. |
| 51 | *Oenothera rosea*                      | Jangli nashtar       | Onagaraceae  | W, Herb   | Plant is used as fodder.                                                   |
| 52 | *Oxalis corniculata*                   | Khatola/ Khatimethi  | Oxalidaceae  | W, Herb   | Leaves extract is used for juindance also cooked as vegetable that is antipyretic. Whole plant is used as fodder. |
| 53 | *Pennisetum orientale*                 | Silik gaha           | Poaceae      | W, Grass  | Plant is used as fodder.                                                   |
| 54 | *Pinus roxburghii*                     | Chir                  | Pinaceae     | L, S, Sd, Tree | Tuberculosis patient are advised to sit under the shade of the chir (tree) for recovery. Wood is used as timber and also for fuel. Seed are edible and nutritional. Stem logs and dried leaves are used for roof thatching. Heart wood used for ignition purposes. |
| 55 | *Pinus wallichiana*                    | Rarar                | Pinaceae     | S, L, Tree | Stem is used for constrict purposes. Branches are used for fuel and roof thatching. Leaves are used for ignition purpose. |
| No | Species                      | Common Name | Family        | Type     | Description                                                                 |
|----|------------------------------|-------------|---------------|----------|-----------------------------------------------------------------------------|
| 56 | Plantago lanceolata L.       | Salathee    | Plantaginaceae | W, Herb  | Leaves are used as fodder. Leaves have wound healing characters and seed or inflorescence is used against constipation. |
| 57 | Plantago major L.            | Salathee/ iqqhol | Plantaginaceae | W, Herb  | Leaves decoction is used for cough, cholesterol level and constipation. Whole Plant is used as fodder. |
| 58 | Populus deletoideus Bart. Ex Marsh | Safada    | Salicinaceae   | S, L, Tree | Plant stem and branches are used for sheltering and as a fuel. Branches with leaves for shade. |
| 59 | Poa annua L.                 | Malla       | Poaceae       | L, Grass  | Plant is used as fodder.                                                   |
| 60 | Prunus persica (L.) Bastch.  | Arwari      | Rosaceae      | F, S, L, Tree | Plant leaves are used as fodder. Fruit is laxative and good for stomach, antipyretic and germs killing. Stem and branches are used as fuel. |
| 61 | Prunus bokharenensis (Royle) | Alobkhary   | Rosaceae      | F, S, L, Tree | Paste of leaves in water is prepared that is placed in cloth and applied on wound for quick healing. |
| 62 | Pteris cretica L.            | Koochan     | Petridaceae   | L, Tree   | Leaves are used as fodder.                                                  |
| 63 | Punica granatum L.           | Daroni/ Darona | Puniceae      | F, S, Sd Shrub | Dried fruit (Anardana) used as condiment. Chutni is prepared by seeds of punica, mentha leaves and green chilies that is carminative and has cooling effects. |
| 64 | Pyrus pashia Buch.           | Tangi/ Batangi | Rosaceae    | F, S, L, Tree | Fruit is edible that is good for stomach. Leaves are used as food for animals. Dry stem and twigs wood is used as fuel. |
| 65 | Quercus incana Roxb.         | Rein/ Erroo | Fagaceae      | L, S, B Semi-Tree | Stem and branches used as fuel. Decoction of bark is effective against joints pain. |
| 66 | Rannunculus laetus L.        | Meleeth     | Ranunculaceae | W, Herb  | Plant is used as fodder for cattle.                                          |
| 67 | Rannunculus arvensis Linn.   | Chochomba   | Ranunculaceae | L, S Herba/Weed | Plant is used as fodder and cooked as vegetable.                             |
| 68 | Rosa brunonii (Lindl)        | Tarnal      | Rosaceae      | L, F, Shrub | Leaves used as fodder. Flower is used against scabies, heart and digestive problems. |
| 69 | Robinia pseudoacacaeia L.    | Keekar      | Fabaceae      | S, L, Shrub | Stem and twigs are available for fuel and fencing. Whole plant is used for shade. |
| 70 | Rubia manjith Roxb. Ex flaming | Rukhikhara | Rubiaceae     | R, Herb    | Extract of root is effective in discom fort.                               |
| 71 | Rubus elipticus Smith.       | Akharay     | Rosaceae      | F, S, L, Shrub | Only leaves of plants are used as fodder. Fruit remains edible and stem and branches are used for fencing. |
| 72 | Rubus fruticosus Wallich     | Pamnaar     | Rosaceae      | F, S, L, Shrub | Twigs are used for paling. Leaves as fodder and fruit are comestible and having chilling effect. |
| 73 | Rumex hastatus D. Don        | Chukhreey   | Polygonaceae  | L, R Perennial herb | Plant is a source of food for animals. Foliage paste is used to stop bleeding from wounds. Cooked as vegetable that is effective against jaundice and reaction of different medicines. |
| 74 | Rumex nepelensis D. Don      | Halfree/ Jangi palak | Polygonaceae | L, Herb | Effective against the irritation caused by urtica dioica. Leaves extract is used against wounds. |
| 75 | Saccharum spontaneum L.      | Kai         | Poaceae       | W, Grass  | Whole plant is used as fodder and forage.                                  |
| 76 | Sarcococca saligna (D. Don) Muel | Ndroon    | Buxaceae      | S, L, Shrub | Stem and branches are used for roof thatching. Leaves are antipyretic.       |
| 77 | Setaria viridis (L.) P. Beauv | Soonkh gaha/ jeshay | Poaceae | L, Grass | Plant provide source of food for animals.                                  |
Table 2: Use Value, Frequency Citation and Relative Frequency Citation of plants.

| S.N | plant Name | Common name | Family | FC | RFC | UV |
|-----|------------|-------------|--------|----|-----|----|
| 1   | Achyranthus aspera Wall. | Puthkanda | Amaranthaceae | 4  | 0.03 | 0.04 |
| 2   | Adiantum venustum D. Don | Kakii | Adiantaceae | 3  | 0.02 | 0.03 |
| 3   | Acellia millefolium Linn. | Kangi | Asteraceae | 5  | 0.04 | 0.02 |
| 4   | Ailanthus altissima (P. Mill) Swingle | Drave | Simaroubaceae | 7  | 0.05 | 0.03 |
| 5   | Amaranthus spinosus L. | Ganar | Amaranthaceae | 6  | 0.04 | 0.10 |
| 6   | Anagallis arvensis L. | motkopra/bili booti | Primulaceae | 73 | 0.54 | 0.93 |
| No. | Plant Name                        | Common Name | Family       | Code 1 | Code 2  |
|-----|-----------------------------------|-------------|--------------|--------|---------|
| 7   | Arundo donax L.                   | Naal        | Poaceae      | 2      | 0.01    |
| 8   | Artemisia vulgaris L.             | Chawo       | Asteraceae   | 4      | 0.03    |
| 9   | Berrberis lyium Royle             | Sumbal      | Berrberidaceae| 5      | 0.04    |
| 10  | Berberis chiatu How.              | Bhatthay    | Saxifragraceae| 1      | 0.01    |
| 11  | Broussonatia papyfera L.          | Jangi toot  | Moraceae     | 6      | 0.04    |
| 12  | Cannabis sativa Linn.             | Bhang/ Phang| Cannabinaceae| 4      | 0.02    |
| 13  | Capsella-bursa pastoris (L) Medik.| Jari        | Brassicaceae  | 2      | 0.01    |
| 14  | Commelina benghalensis L.         | Churra      | Commelinaceae| 28     | 0.21    |
| 15  | Conyza canadensis L.              | Paleet      | Asteraceae   | 5      | 0.04    |
| 16  | Convulvalus arvensis L.           | Sauthe      | Convolvolaceae| 4      | 0.02    |
| 17  | Chinopodium album L.              | Karhan saag | Chenopodiaceae| 2      | 0.01    |
| 18  | Chichorium intybus L.             | Kasni/Chichory/Hand | Asteraceae | 9   | 0.67    |
| 19  | Capsella bursa pastoris (L)       | Jari        | Brassicaceae  | 2      | 0.01    |
| 20  | Cupressus sempervirens L.         | Sarroo      | Cyperaceae   | 25     | 0.19    |
| 21  | Cymodon dactylon L. Pers.         | Khabal      | Poaceae      | 45     | 0.33    |
| 22  | Cyperus rotundus L.               | Mutheer     | Cyperaceae   | 4      | 0.03    |
| 23  | Dalbergia sissoo Roxb.            | Tali        | Fabaceae     | 15     | 0.11    |
| 24  | Debergeasia longifolia D. Don.    | Sandari     | Urticaceae   | 20     | 0.15    |
| 25  | Digitaria sanguinalis L. Scop.    | Gaha        | Poaceae      | 60     | 0.44    |
| 26  | Dicliptera roxburghiana Nees.     | Achanthaceae|             | 1      | 0.01    |
| 27  | Diospyros lotus L.                | Amlook      | Ebenaceae    | 16     | 0.12    |
| 28  | Dryopteris ramosa (C. Hope) C. Chr.| Langeri    | Dryopteridaceae| 2      | 0.01    |
| 29  | Ducesnia indica (Andr.) Focke.    | Sapa na amulbudha | Rosaceae | 3   | 0.02    |
| 30  | Elaeagnus umbellata (Wall.ex Royle)| Gayani     | Elaeagnaceae | 35     | 0.26    |
| 31  | Euphorbia heliosca L.             | Doodal      | Euphorbiaceae| 1      | 0.01    |
| 32  | Ficus palmata Forssk.             | Phagwara    | Moraceae     | 30     | 0.22    |
| 33  | Fragraja vesca L.                 | Ammal-budha | Rosaceae     | 13     | 0.10    |
| 34  | Geranium wallichanum L.           | Rati-boti/ Ratan-jot | Geraniaceae | 4    | 0.03    |
| 35  | Gentiana napelane Sweet.          | Gereniaceae | Geraniaceae  | 3      | 0.02    |
| 36  | Gentiana olivieri (Griseb.) Omer. | Nil-kanth   | Geraniaceae  | 10     | 0.07    |
| 37  | Grewia optica Drum. Ex. Burret    | Thaman     | Tiliaceae    | 6      | 0.04    |
| 38  | Hedera helix L.                   | Batkal      | Anilaceae    | 2      | 0.01    |
| 39  | Ipomea purpurea L.                | Aehr        | Convolvolaceae| 50     | 0.37    |
| 40  | Indegofera heterantha Wall        | Manj/ Jand  | Fabaceae     | 8      | 0.06    |
| 41  | Jasminum humile L.                | Chambazand  | Oleaceae     | 2      | 0.01    |
| 42  | Juglans regia L.                  | Akhor/ Akhrot | Juglanaceae | 18     | 0.13    |
| 43  | Lathyrus ophaca L.                | Jung phali  | Fabaceae     | 4      | 0.03    |
| 44  | Melia azedroch L.                 | Dhark       | Meliaceae    | 73     | 0.54    |
| 45  | Mentha longifolia L.              | Chata podina | Lamiaceae   | 95     | 0.70    |
| 46  | Mentha arvensis L.                | Kala podina | Lamiaceae    | 100    | 0.74    |
| 47  | Melilotus indica L. All.          | Sereey      | Fabaceae     | 63     | 0.46    |
| 48  | Medicago polymorpha L.            | Maina       | Fabaceae     | 14     | 0.10    |
| 49  | Morus nigra L.                    | Kalatoot    | Moraceae     | 36     | 0.26    |
| 50  | Nasturtium officinale R. Br.      | Chawo       | Brassicaceae | 28     | 0.20    |
| 51  | Oenothera rosea (L)               | Jangi nashtar | Onagraceae | 4   | 0.03    |
| 52  | Oxalis cornuculata (L.)           | Khatola/Khatimethi | Oxalidaceae| 80     | 0.59    |
| 53  | Pennisetum orientale Rich.        | Siliak gaha | Poaceae      | 38     | 0.28    |
| 54  | Pinus roxburghii (Sargent)        | Chir        | Pinaceae     | 45     | 0.33    |
Results and Discussion

Vegetation records and ethno-demography data

During Ethnobotanical study, a total of 98 plant species related to 88 genera and 51 different families are documented. Most of these species are used by native individuals for a multiplicity of purposes. (Table 1) contains botanical, local names, family name and folkloric uses, (Table 2) represent FC, RFC and UV of different plants. A total of 135 participants were interviewed out of which 46 were male and 89 were females of different age groups. Majority of
people were uneducated 97 were married and 31 unmarried only 6 were herbalist and 129 were local people.

Most abundantly recorded families were Asteraceae, Poaceae, Moraceae, Convolvolaceae, Rosaceae, Fabaceae and Lamiaceae. Ethnobotanical uses classifications showed that major proportion of medicinal plants species was (85 spp, 90.4%) then fodder and forage species were (43 spp, 45.7%) It is followed by other uses such as vegetables (13 spp, 13.8%), fruit (19 spp, 20.2%), Fuel (16 spp, 17%) and timber species (5 spp, 5.3%).

**Relative Frequency Citation (RFC)**

Relative frequency citation was considered to record maximum therapeutic flora of the area which is utilized for treatment of various ailments. It gives the number of informers who mention the uses of plants. Most cited plants were Mentha arvensis L. (0.74), Chichorium intybus L. (0.66), Anagallis arvensis L (0.54), Oxalis corniculata (L.) (0.59), Melia azedrach L (0.54), Digtaria senguinalis L Scop (0.44), Viola odorata Linn. (0.64).

**Use Value (UV)**

The use value (UV) is technique for measurable analysis of data it gives the important uses of species. Some of plants were recorded with high UV that are Anagallis arvensis L (0.92), Mentha longifolia L. (0.82), Mentha arvensis L (0.82), Prunus bokharesnis (Royle) (0.71), Morus nigra L (0.67), Sorghum halepense Pers (0.65), Melia azedrach L (0.6), Viola odorata Linn. (0.59), Zanthoxylum armatum DC. (0.51), Punica granatum L. (0.50), Pyrus pashia Buch. (0.34), Taraxicum officinale (Weber) (0.26), Rubus ellipticus Smith. (0.22) etc.

**Family Importance Value (FIV)**

Family importance value is calculated and described in the form of graph in Figures 1,2. Amaranthaceae, Asteraceae, Poaceae, Moraceae, Convolvolaceae, Rosaceae, Fabaceae and Lamiaceae were most abundantly reported families.

**Discussion**

In present survey, the ethno botanical importance of the plants inhabiting Devi Galli is explored. Almost all the plant species were found important in one way or the other. Ajaib et al. [13 ] mentioned the medicinal importance of Berrberis lycium Royle, Jasminum humile L and Rubus ellipticus Smith which were recorded in district Kotli, Azad Jammu and Kashmir. Ahmad et al. [13] also reported ethnobotanical uses of plants reported from district kotli including Achyranthus aspera and Adiantum venustum D. Don. Importance of these plants is also confirmed by Qureshi, Mehmood, Khan, Ishtiaq, Amjad. The need of the hour is to document and preserve the traditional knowledge about the medicinal uses of different plants as the new people are giving more importance to allelopathic medicines and the traditional knowledge is only confined to old people.

**Conclusion**

The current investigation discloses that indigenous knowledge is limited to native values, so this valuable treasure will be surely lost by any change in traditional culture. Ethno botanically important plants which are valuable global resources are threatened by the loss of habitats and over exploitation. The principle reason of over exploitation is lack of knowledge about the importance of plants and suitable harvest time and practice. The Devi Galli (Sodhnuti) contains diverse vegetation due to variation in climatic conditions and altitude. The people of the area to a large extent fulfill their common requirements such as food, medicine, fodder or forage
and timber from plants. People of the area are not much aware about the medicinal treasure present in there this is because of illiteracy. Ethnobotanically important area should be replenished by reforestation, establishment of home botanical gardens, conservation of natural resources, minimizing over grazing and harvesting for various purposes.

References

1. Husain ZS, Malik RN, Jawaid M, Bibi S (2008) Ethnobotanical properties and uses of medicinal plants of Morgha Biodiversity Park, Rawalpindi. Pakistan Journal of Botany 40(5): 1897-1911.

2. Mahmood A, Malik RN, Shinwari ZK, Mahmood A (2011) Ethnobotanical survey of plants from Neelum, Azad Jammu and Kashmir, Pakistan. Pakistan Journal of Botany 43: 105-110.

3. Alpuerto AF, Bangaysiso TA, Galang V, Maquiling L (2010) Taylor Level of awareness and extent of utilization of the ten medicinal plants approved by the department of health. Nursing Research Journal 2(1): 73-92.

4. Khatun A, Rashid H, Rahmatullah M (2011) Scientific validation of eight medicinal plants used in traditional medicinal systems of Malaysia: A Review. American-Eurasian Journal of Sustainable Agriculture 5(1): 67-75.

5. Haq I (1997) Antimicrobial agents in Islamic medicine. Hamdard Medicus 11(4): 496-499.

6. Uniyal SK, Singh KN, Jamwal P, Lal B (2006) Traditional use of medicinal plants among the tribal communities of Chhota Bhangal, Western Himalayas. Journal of Ethnobiology and Ethnomedicine 2(14): 1-14.

7. Awan MR, Ahmad S (1997) Ethnobotanical studies of Swat district (Pakistan). Biodiversity of Pakistan 4(3): 159-167.

8. Ishtiaq M, Mumtaz AS, Hussain T, Ghani A (2012) Medicinal plant diversity in the flora of Leepa Valley. African Journal of Biotechnology 11(13): 3087-3098.

9. Khan MR, Rafi MA, Nazir N, Khan MR, Khan IA et al. (2014) Biodiversity of butterflies from Poonch division of Azad Kashmir. Journal of Agricultural Technology 10(4): 885-898.

10. Khan MA, Khan MA, Hussain M, Mujtaba G (2014) Plant diversity and conservation status of Himalayan Region Poonch Valley Azad Kashmir (Pakistan). Pak J Pharm Sci 27(5): 1215-1239.

11. Vitalini S, Iriti M, Puricelli C, Ciuchi D, Segale A et al. (2013) Traditional knowledge on medicinal and food plants used in Val San Giacomo (Sondrio, Italy) an alpine ethnobotanical study. Journal of Ethnopharmacology 145(2): 517-529.

12. Savikin K, dunic ZG, Menkovic N, Zivkovic J, Cujic N et al. (2013) Ethnobotanical study on traditional use of medicinal plants in south western Serbia, Zlatibor district. Journal of Ethnopharmacology 146(3): 803-810.

13. Ajaib M, Khan Z, Khan N, Wahab (2010) Ethnobotanical studies on useful shrubs of district Kotli, azad jammu & kashmir pakistan. Pak J Bot 42(3): 1407-1415.

14. Ali SI, Qaiser M Flora (2011) Department of Botany, University of Karachi, Pakistan, pp. 194-218.