



E-ISSN: 2278-4136  
P-ISSN: 2349-8234  
JPP 2018; 7(6): 278-284  
Received: 13-09-2018  
Accepted: 17-10-2018

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## Ethnomedicinal practices of Kashmir Valley: A Review

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### Abstract

**Introduction:** Ethnomedicinal practices reflect the corrum of knowledge, beliefs, traditions and practices of the inhabitants of different communities of a particular geographical region having a certain geographical demarcation and a unique biodiversity. A global perspective of the herbal medicine in the present technologically progressive results has changed tremendously. Research and development of physio-pharmaceuticals is nowadays paralleled by an intensified evaluation of active principles of poly-herbal formulations. Documentation and validation of the ethnomedicinal practices is the need of the hour as the ever-escalating biopiracy controversies has posed a new challenge. As per the W.H.O the traditional medicine has widespread acceptance throughout world and 70% of the world population depend on traditional health care system for management of various ailments (W.H.O 2002). Low cost, easy access and minimal side effects are some key factors for its widespread acceptance. India is amongst the most important sources of medicinal herbs and 27% of the total known medicinal plant species are found here [1-3].

**Methods:** during the review of the ethnomedicine practices of Kashmir valley, the methods employed were designed with the main aim of eliciting the indigenous wealth of information on the ethnomedicinal practices of people indigenous to Kashmir valley and the information was collected from scientific journals, books, and reports via electronic search tools (PUBMED, SCOPUS, Google scholar, web of science) and floras of different region of Kashmir

**Results:** This review summarizes the ethnopharmacology and pharmacological activities of 87 plant used in the different parts of Kashmir valley and an inquest to study the diversity, distribution and utilization pattern of the medicinal plants, document folklore uses, identify nativity and endemism and suggest suitable conservation and management strategies of these herbs.

**Keywords:** Biodiversity, Decoction, Flora, Folk Lore, Remedies, Traditional Medicine.

### 1. Introduction

The different traditional system of medicine practiced in various regions of the world is gaining wide currency and acceptability. The documentation of the indigenous knowledge and its methods including the various medicinal herbs has taken a priority status in the present era due to illegal biopiracy. Various wild and cultivated plants play an important role in the culture, customs, traditional health care practices, rituals etc. and their vital interrelationship has evolved over generations of experience and practices. The scientific analysis validated the various aspects of indigenous traditional knowledge and research is going on. The new scientific approach can offer new holistic models of viable development that are economical, environment friendly and paves way for the social acceptability. Medicinal plants and its trade is also a source of income for millions of people worldwide traditional use of medicinal plants [1-3]. Due to its easy access, low cost and minimum adverse/side effects, developing countries, like Bangladesh (90%), Myanmar (80%), India (80%), Nepal (75%), Pakistan (75%), Sri lanka (65%) and Indonesia (60%), rely on traditional system of medicine for various ailments and health related issues. The demand for the ethnomedicinal plant is growing day by day and its trade has reached approximately US \$14 billion per year and growing at the rate of 15 to 25% annually. Kashmir region often referred as heaven on earth, harbors a rich diversity of medicinal plants spawning from valley floor through treasured table lands (karewas) and diverse forests up to the alpine peaks [4, 5].

Indian Himalayan region (IHR) occupies a major Chunk of the Kashmir region and records reveal that 1,748 medicinal plant species are found in this region [5-8].

Historical facts and geographical observation has shown that, Jammu and Kashmir is populated with several ethnic groups [9-10], having distinct cultural and social identity and practice their own knowledge of traditional herbal medicine from ages together [11]. This traditional knowledge and its principles has been discriminated from one generation to another through the word of mouth and hence needed to be documented immediately. A limited number of studies have been carried out to document ethnomedicinal use of different plant

species in Kashmir region.

Human behaviour has a direct impact on the plant communities with which they interact and these interactions are the objectives and targets of ethno botany and ethno medicine [9]. All these facts return to consideration indicate that ethnic population are a reposition of knowledge of traditional medicine.

Due to the rapid urbanization and industrial growth which directly affects the biodiversity of this region. The concern regarding the loss of native traditional knowledge and the possible extinction of medicinal plant resources of Kashmir, a

need has been felt to review and document the studies carried on various traditional practices of use of native plants and herbs for various ailments/diseases in Kashmir.

The present review was envisaged to give an insight on the biodiversity particularly medicinal plant diversity, their procurement and uses in different geographical areas and by different indigenous communities of Kashmir.

Above all this review paper will try to identify the gaps in the current available knowledge of ethnomedicine practiced in Kashmir valley and a baseline for future research activities.



## 2. Methodology

The methods employed during the review of the ethnomedicine practices of Kashmir valley were designed with the main aim of eliciting the indigenous wealth of information on the ethnomedicinal practices of people indigenous to Kashmir valley. Various published papers were retrieved from the online bibliographical database: PUBMED, SCOPUS, Google scholar, web of science and floras of different region of Kashmir. 52 publications regarding the ethnomedicinal practices of this part of hemisphere were reviewed, that provided the information about use of different medicinal plant species for management of various diseases. Articles selected for this review include plants that were:

- traditionally used in Kashmir valley with some wide distribution;
- only those plants were used which have ethno pharmacological evidence for local use;
- Having reported in-vitro and in-vivo medicinal activity.

### Taxonomic Problems

Taxonomic problems were the challenge for the development of this manuscripts as there were synonyms issue as per current botanical nomenclature. After thorough analysis, accepted names of these species have been mentioned in **Table 1**, along with their synonyms mentioned in their original paper.

### Study Area

Kashmir region lies in the laps of Himalaya surrounded by snow clad, silver headed mountains, magical halcyon lakes and green meadows and pastures. Kashmir region climate is Mediterranean type with four critical seasons, viz, spring (March-May), summer (June-August), autumn (September-

November), and winter (December-February). The climate changes have a prominent effect on the flora and fauna of the Kashmir region. Usually temperature ranges from -0.03 °C in harsh winter to 33 °C in summer.

### Ethnomedicinal plants of Kashmir

The Kashmir region holds rich diversity of medicinal plants because of its varied climatic, geological, geographical, physiographical and topographical conditions [11-14]. In the present review 87 medicinal plants from the different areas of Kashmir valley being ethno medicinally used for treating different types of diseases/ailments were reported. Majority of the medicinal plants used were obtained from Himalayan region and adjacent areas of the valley having strong traditional system of medicine and related scientific literature. A major chunk of these plants are also found in different parts of the world like Africa, America, Australia, Central Asia, Europe, Japan, and Southeast Asia [15].

A large no of plants from Kashmir region were biologically active against different types of diseases. These plants have to face a battery of seasonal environmental stresses like high dose of mutagenic UV-Radiation, physiological draught, desiccation and strong winds. As a result these stresses lead to various physiological adaptation and alteration in the biochemical profile of the plant tissue leads to the production of secondary metabolites such as alkaloids, polyphenols, terpenes and glycosides having varied pharmacological effects [14].

The people of Kashmir region residing in different parts of the valley hold an enriched legacy of traditional knowledge on medicinal plants that are used for curing various diseases. Verbal communication is the main mode of transmission of this knowledge from one generation to another. In this review

we have documented 81 medicinal plant species (-genera - family) used traditionally for management of various disease. The reviewed medicinal plants belonged to 15 families of spermatophytes. Table 1, depicting family name, local name, parts used and medicinal use. Major portion of plants were from angiosperms families with highest number of plants from Asteraceae [10], Ranunculaceae [5] and Lamiaceae [4]. Pinaceae family from gymnosperms has most plants (4) used as traditional medicine, Table 2. The ethnomedicinal knowledge about the biodiversity reflects many generations of experience and problem solving by the indigenous communities. A valuable database already generated by these indigenous communities can be used as baseline information for the commercial exploration of bio resource and development of alternative therapies [15-16]. Such a treasure trove of knowledge could be utilized for the phytopharmacological research of lesser known species for the discovery of new therapeutic drugs (Table 1) [17-18]

*Artemisia absinthium*, *Bergenia ciliata*, *Rheum emodi*, *Taraxacum officinale*, *Malva sylvestris*, *Vitis vinifera* and *Cedrus deodara* were the most commonly (89%) plants used followed by gymnosperms (7%) and monocots (4%). The present data has shown that 50 plants among them were endangered, 37 scattered and 13 were doubtful. Major chunk of these medicinal herbs (75%) are herbs which are commonly used, subsequently tress (15%), followed by shrubs (8%) and climbers (2%). The frequent use of any medicinal plant is related with its easy availability (Table 2). [10, 14, 15, 19-22]

#### Diseases/ailments treated

Taking into consideration about the diseases treated by these medicinal herbs, the common ones include cough and cold, skeletomuscular, genitourinary, Fever, headache, circulatory dermatological, gastrointestinal, respiratory, dental, wounds, and ophthalmological (Figure 1). Reviewing the data, it has been observed that several human ailments can be treated by a single plant species and sometimes remedies were prepared by combining different plants. A compound formulation of more than one plant is thought to be more potent than those prepared with single species which may be attributed to synergistic effects of the plants. The different medicines were prepared by various primary pharmacy techniques like boiling to make pounding to paste, soaking in water to make infusions, decoctions, squeezing, burning to ash, grinding, to powder, chewing, and baking under hot ashes [1-3, 10, 14, 20, 22].

#### Plant parts used

Leaves, fruit, roots, rhizomes, whole plants, Seeds, flowers and bark are the most frequently used plant parts in the preparation of herbal remedies (Figure 2). A particular part of a plant used as a medicine indicates its strong medicinal properties comparing with other parts of the same plant and exhaustive phytochemical screening is required to validate the ethnomedicinal claims scientifically. During the preparation of the remedies, different liquids such as water, juices, sugar, tea, honey, edible oil, and milk are mixed with plants or plant parts. Oral administration of these remedies is the commonest

route (70%), followed by dermally (19%) or both orally and dermally (15%) and 3% through ears or eyes. [1-3, 20, 42, 23]

#### Conservation and management of medicinal plants in Kashmir valley

The unique diversity of medicinal plants in the region is manifested by the presence of a number of native (31%), endemic (15.5%) and many threatened/sensitive elements. Further, it is estimated that 70 - 80% of the people worldwide relies chiefly on indigenous herbal medicines for their primary health care. The overexploitation of medicinal herbs due to ever-escalating demand for the medicinal plants in pharmaceutical industries and in traditional system has resulted in reduction of their natural populations.<sup>[53]</sup> Simultaneously, increasing demand of plants and their products in global markets have become a potential source of employment generation and sustainable development of the rural societies. Therefore, it is compulsory to study the diversity, distribution and utilization pattern of the medicinal plants, document folklore uses, identify nativity and endemism and suggest suitable conservation and management strategies involving various stakeholders i.e., scientists, government organizations, NGOs and farmers. Development of Conservation technologies for these plants will not only help in stimulating mass cultivation in fields but also, aid in reducing pressure on wild stock.

#### 3. Conclusion

The information presented in this review provides therapeutic evidence for some of the traditionally used medicinal plants by Kashmiri People from a long history and here we reported on 87 medicinal plant species used in the traditional health care systems of Kashmir. This review paper is an attempt to comprehensively provide a base for further endeavor knowledge related to medicinal plants of Kashmir. Still very limited number of ethnomedicinal, phytochemical and pharmacological studies have been documented and published on this topic. Evidently, it is the time to increase scientific studies in the validation of traditional medicinal practices for the development of new therapeutic agents from medicinal plants of Kashmir.

#### 4. Acknowledgement

We thank Dr Seema Akbar, Assistant Director, RRIUM, Srinagar, J&K and Prof Naquibul Islam, RRIUM, Srinagar, J&K for their valuable support and guidance during the reviewing of this manuscript.

**Conflict of Interest:** None

#### Abbreviations used:

IHR : Indian Himalayan Region  
 J&K : Jammu and Kashmir  
 NGO : Non-Governmental Organisation  
 RRIUM : Regional Research Institute of Unani Medicine  
 US : United States  
 WHO : World Health Organisation

**Table 1:** List of plant species and their ethnomedicinal uses.

S. No	Taxon Name	Local Name	Family	Altitude Range; Flowering Phenology	Part(s) Used	Ethnomedicinal Uses
1	<i>Abies pindrow</i> <sup>[1-3,20-21]</sup>	Sal	Pinaceae	2100-3600 m. Flowering: April-May.	Bark	Rheumatism
2	<i>Acorus calamus</i> <sup>[1, 5, 13, 20, 21]</sup>	Via-gander	Acoraceae	1600-2800. Flowering: July-September	Rhizome	Stomachic, Diarrhoea, Cough, Swellings, Joint Pain
3	<i>Arnebia benthamii</i> <sup>[1-3, 5, 14, 20-24]</sup>	Kah Zaban	Boraginaceae	1300-4500 m Flowering: May-July.	Rhizome	Common Cold, Cough, Fever, Blood Purifier
4	<i>Achillea millefolium</i> <i>Berger</i> <sup>[1-3, 15, 20-24,25]</sup>	Pahal gassesh	Asteraceae	1050-3600 m. Flowering: Sept-Oct	Rhizome,	Leaves Headache, Cough, Tooth Ache
5	<i>Aconitum heterophyllum</i> <sup>[1-3, 14, 18, 21, 22, 25]</sup>	Paewakh	Ranunculaceae,	2,400-4,500 m Flowering: April-May	Root	Antidote For Snake Bites, To Treat Headache And Cough.
6	<i>Artemisia absinthium</i> <sup>[1-3, 16-19, 21]</sup>	Tethwan	Asteraceae	1,500-2,100 m. Flowering: June onwards	Leaves	Obesity, Diabetes, Liver Infection
7	<i>Arisaema jacquemontiana</i> <sup>[14, 20, 21, 22]</sup>	Hapat makei	Araceae	582 m. - 3819 m Flowering: November -February	Rhizome	Muscular Strength And Skin Infections
8	<i>Atropa acuminata</i> <sup>[1, 14, 21, 26]</sup>	Chella lubbar	Solanaceae	1800-3040 m. Flowering: June-July.	Roots and leaves	Cough and Antispasmodic
9	<i>Aconitum violaceum</i> <sup>[1, 21, 22]</sup>	Tilla	Ranunculaceae	3600-4800 m. Flowering: July-September.	Root	Antidote for Snake Bites
10	<i>Androsace rotundifolia</i> <sup>[1, 25]</sup>	Uzmposh	Primulaceae	1500-3600 m. Flowering: June-July.	Rhizome	Cataract
11	<i>Anemone obtusiloba</i> <sup>[21, 22, 26-28]</sup>	Srub	Ranunculaceae	2100-4300 m. Flowering: May-July.	Seeds	Rheumatism
12	<i>Aquilegia fragrans</i> <sup>[14, 22, 26, 28-29, 37]</sup>	Daduejaid	Ranunculaceae	2400-3600 m. Flowering: June-August.	Flowers	Indigestion
13	<i>Arctium lappa</i> <sup>[14, 26, 28, 30]</sup>	Phughood	Asteraceae	2100-3700 m, Flowering: July-September.	Leaves, root	Skin Disease, Boils, Body Pain
14	<i>Asparagus officinalis</i> <sup>[14, 26, 31, 32]</sup>	Parglas	Liliaceae	1,500-3,200 m Flowering: April -July	whole plant, roots	Toothache, Rheumatism, Female Infertility
15	<i>Angelica glauca</i> <sup>[13, 32,33, 34]</sup>	Choor	Apiaceae	1800-3700 m. Flowering: June-August	Root	Vomiting
16	<i>Ajuga bracteosa</i> <sup>[19, 20, 35, 36]</sup>	Kauri booti	Lamiaceae	1000-1500m. Flowering: March-December	Stem, leaves	Ulcer, Colic and Jaundice
17	<i>Berberis lyceum</i> <sup>[1-3, 20, 21, 22]</sup>	Kawdach	Berberidaceae	900-2900 m Flowering: March-June	Roots	Indigestion, Constipation
18	<i>Berginia ligulata</i> <sup>[1, 20, 24,37, 38]</sup>	Zakhmi hayat	Saxifragaceae	1800-4300m. Flowering: March-July.	Leaves and roots	Intestine Complaints and Stomach Ulcers
19	<i>Betula utilis</i> <sup>[5, 20, 39, 40]</sup>	Bhuz	Betulaceae	4000-4,500m Flowering: April-May.	bark	Antiseptic
20	<i>Coriandrum sativum</i> <sup>[1-3, 5, 14, 41]</sup>	Danival	Apiaceae	500-800 m Flowering: April-May.	Seeds	Hair Fall
21	<i>Cannabis sativa</i> <sup>[1-3, 14, 22,28, 30, 42]</sup>	Bhang	Cannabaceae	2000-2500m Flowering: May-July	Leaves, seeds and stem	Ear-Ache, Blood Purifier, Scabies and Piles
22	<i>Cuscuta</i> <sup>[1-3, 14, 40, 41, 43]</sup>	Kukliporte	Cuscutaceae	1400 m Flowering: Dec - Feb	Whole Plant	Joint Pains, Wound Healing and Falling Of Hairs
23	<i>Cynodon dactylon</i> <sup>[1, 19, 20, 28, 44]</sup>	Daraunm	Poaceae	2600m Flowering: Aug -Oct.	Whole plant	Common Cold
24	<i>Corydalis govaniana</i> <sup>[1, 13, 26, 45]</sup>	Sangi-harb	Fumariaceae	2400-4800m. Flowering: May-August.	leaves	Respiratory Disorders, Chest Infections, Asthma
25	<i>Cardamine impatiens</i> <sup>[1, 28,32, 46]</sup>	Pahal-laish	Brassicaceae	1500-4000 m. Flowering: May-July.	Whole plant	Asthma, Hay Fever
26	<i>Cichorium intybus</i> <sup>[1, 20, 34, 45,46]</sup>	Kazal-Handh	Asteraceae	4000-5000 metres. Flowering: June- Sept.	Root	Rheumatism Sore Throat, Jaundice,
27	<i>Cedrus deodara</i> <sup>[1-3, 20-21, 26, 29]</sup>	Divdar	Pinaceae	1,500-3,200 m Flowering: May-July.	Stem, Bark	Skin Rashes and External Ulcers
28	<i>Dioscorea deltoidea</i> <sup>[15, 20, 40, 46]</sup>	Kraeth	Discoreaceae	450-3100 m. Flowering: May-July.	Leaf	ophthalmic Infections, Urinary Infections
29	<i>Datura stramonium</i> <sup>[17, 21, 22, 36, 47]</sup>	Datur	Solanaceae	50-2200m Flowering: July-Sept.	Seeds	Rheumatism, Frost Bite, Toothache, Tonic
30	<i>Dryopteris sp</i> <sup>[13, 18, 20, 28]</sup>	Gautheer	Pteridaceae	1600-2000	Aerial portion	Cure Kidney and Gall Stones.
31	<i>Euphorbia helioscopia</i> <sup>[1, 20, 27, 46]</sup>	Gurisocho, Gandi booti	Euphorbiaceae	300-1800 m. Flowering: April-June.	Seeds, roots and latex	Abdominal Cramps, Cholera And Eruptions
32	<i>Euphorbia wallichii</i> <sup>[1, 20, 21, 24, 48]</sup>	Guri-dud/ Harbi	Euphorbiaceae	2200-4100 m. Flowering: May-August.	Stem, leaves, latex	Skin Diseases
33	<i>Ficus carica</i> <sup>[1, 21, 36, 43]</sup>	Anjeer	Moraceae	5,420 m Flowering: May-August.	Stem, milky	Insect Bite and Warts. Birth Rate Control, Latex, Fruit Pulp
34	<i>Fumaria indica</i> <sup>[1, 17, 22, 36]</sup>	Pugsley, Shahtaur	Fumariaceae	2400 m. Flowering: April-May.	Whole plan	Dyspepsia, Rheumatism
35	<i>Gentiana kurroo</i> <sup>[1, 20, 22, 25, 27]</sup>	Desibangara	Gentianaceae	1800-2700 m. Flowering: August-October	Root	Stomach-ache and Urinary Infections
36	<i>Caltha alba</i> <sup>[1, 22, 25, 36]</sup>		Ranunculaceae	2400-4000 m. Flowering: May-August.	Leaves	Pain And Cramps, For Menstrual Disorders
37	<i>Galium aparine</i> <sup>[1, 24, 27]</sup>	Loothar	Rubiaceae	3500 m. Flowering: March-July.	Leaves	Jaundice, Antiseptic
38	<i>Geum elatum</i> <sup>[1, 27, 48-50]</sup>	Shoonkar	Rosaceae	3500-5400 m. Flowering:	Root	Astringent, Dysentery And Diarrhoea

				June-August.		
39	<i>Gnaphalium affine</i> [22, 33, 36, 38]	Jangli dodal	Asteraceae	1200-3000 m. Flowering : Feb-Oct.	Leaves	Antiperiodic, Antitussive, Expectorant and Febrifuge
40	<i>Hyoscyamus niger</i> [1-3, 20, 22, 25, 36]	Bazarbang	Solanaceae	2100-3300 m. Flowering: May-September	Seed	Tooth Ache
41	<i>Hackelia uncinatum</i> [40, 47, 50]	Neelaan	Boraginaceae	2700-4200 m. Flowering: June-August.	Flowers	Expectorant, Healing Wounds, Treating Tumours
42	<i>Iris kashmiriana</i> [1-3, 21-22, 51]	Mazarmund	Iridaceae	1500-1800 m. Flowering: April-June	Whole plant	Joint Pains
43	<i>Impatiens glandulifera</i> [1, 15, 43, 44]	Trul	Balsaminaceae	July to August 1800-3200 meters	Leaves	Skin Burn, Joint Pain
44	<i>Indigofera heterantha</i> [2-3, 30, 38]	Jandi	Leguminosae	1500-3000 m. Flowering: May-June.	Leaves	Internal Body Disorders
45	<i>Juniperus communis</i> [1, 2, 20, 42]	Bithur	Curpessaceae	1800-3600 m. Flowering: April-May.	Leaves	Rheumatism
46	<i>Juniperus recurva</i> [2, 3, 30, 38]		Curpessaceae	3,000-4,000 m Flowering: May-June.	Leaves	Rheumatism Insecticide
47	<i>Juglans regia</i> [1-5, 28, 51, 37]	Doan kul	Juglandaceae	3,000-4,000 m Flowering: March -April	Leaf, Bark	Tooth Infection, Scrofula, Rickets And Leucorrhoea
48	<i>Lamium album</i> [1, 40, 50, 55]	Poshkar	Lamiaceae	1500-3700 m Flowering: April-July.	Whole plant, leaves, flowers	Cough, Metrorrhagia
49	<i>Lavatera kashmiriana</i> [1-3, 2122, 37]	Sozposh	Malvaceae	1500-3200m Flowering: July – Sept.	Flower	Mumps, Skin Irritation In Pregnant Women
50	<i>Malva sylvestris</i> [1-3, 18, 21, 46]	Sotal	Malvaceae	2500-3500 m Flowering: April-June	seeds	Cough, Fever, Eye Sight
51	<i>Morina longifolia</i> [1-3, 21, 46]	Kim	Dipsacaceae	3000-4000 m. Flowering: June-September	Roots	Insecticide
52	<i>Nasturtium officinale</i> [1-3, 34, 50]	Kulhak	Brassicaceae	1500-4000m. Flowering: April-June.	Leaf	Stomachic
53	<i>Nepeta raphanorhiza</i> [1, 2, 39, 47]	Vangogil	Lamiaceae	1300-1500m Flowering: Jun-Sept.	Whole plant, leaves	Dysentery, Toothache
54	<i>Oxalis corniculata</i> [1, 2, 10, 18]	Tsok-tsen	Oxalidaceae ion, Diarrhoea	500-800m Flowering: April-June.	Whole plant, leaves.	Toothache, Convulsions, Blood Purification
55	<i>Papaver somniferum</i> [1, 12, 13, 37, 45]	Kashkhas	Papaveraceae	585- 2056m Flowering: April-June	Fruit Dry	Cough, Diarrhoea
56	<i>Phytolacca acinosa</i> [3, 5, 20, 39, 42]	Brand	Phytolaccaceae	1500-3000m. Flowering: June-Sept.	Root	Narcotic Effect, Sedative
57	<i>Picrorhiza kurrooa</i> [1, 3, 30, 47]	Kour	Scrophulariaceae	3300-4300 m. Flowering: June-August	Roots, Rhizome	Fever, Appetizer
58	<i>Pinus roxburghii</i> [1, 26, 46]	Chad	Pinaceae	600-2300 m Flowering: March-June	Seeds and gums	General Weakness After Child Birth
59	<i>Prunella vulgaris</i> [20, 28, 39, 46]	kulwauth	Lamiaceae	1600-1900m Flowering: June-July	flower	Headache, Fever, Muscular Pain
60	<i>Podophyllum hexandrum</i> [1, 20, 22, 27 37]	Banwangun	Berberidaceae	2400-4500 m. Flowering: May-August.	leaves and roots	Skin Diseases, Gastric Problem
61	<i>Portulaca oleracea</i> [3, 5, 30, 48]	Nuner	Portulacaceae	2000-2800 m. Flowering: March-June	leaves	For Liver Inflammation, Cough, Extract Of Whole Plant Is Taken. For Burns Crushed Plant Is Applied On Affected Area
62	<i>Punica granatum</i> [1-3,30, 34, 48]	Daan kul	Punicaceae	2000 m-2500m Flowering: January-February	Seed	Jaundice and Anaemia
63	<i>Rosa webbiana</i> [1, 2, 24, 30, 43]	Gulab	Rosaceae	1500 m - 4000 m. Flowering: May-July	Flowers	Cough and Colds.
64	<i>Rheum emodi</i> [2, 8, 17,33, 50]	Pambechalan	Polygonaceae	2500-3500; June-August	Leaves	Rheumatic Pain, Wounds, Dislocated Joints, Boils
65	<i>Rubia cordifolia</i> [1-3, 34]	Rubes	Rubiaceae	300-2800 m.. Flowering: June-August.	Roots	Stomach-ache, Jaundice
66	<i>Rumex acetosa</i> [1, 2,22,30]	Obej	Fabaceae	2100-4100 m Flowering: April-June		For Stomach Problems, Whole Plant Is Eaten As Vegetable. For sting of nettles, leaves are rubbed on affected part to get relief.
67	<i>Rhodiola himalensis</i> [1, 22, 33, 39]	Dand jari	Crassulaceae	3300-4800 m. Flowering: June-August.	bark	Infection Of Teeth
68	<i>Salix wallichiana</i> [21, 22, 37, 50]	Danthiveer	Salicaceae	1900-2400; Flowering: April-June	Leaves	Fever, Head Ache, General Body Pain
69	<i>Saussurea costus</i> [1-3, 22,26, 46]	kuth	Asteraceae	2000-3300 m. Flowering: July-August.	Rhizome	Joint Pain, Back Pain, Sole Ulcers, Dysentery, Fever, Urinary Problems
70	<i>Solanumtuberosum</i> [1, 2, 22]	Alua	Solanaceae	1600-2500; March-April	tuber	Burns On The External Body Parts And Tightly Fastened With A Woollen Cloth.
71	<i>Stellaria media</i> [1-3, 26, 22, 46]	Losdhi	Caryophyllaceae	1500-2500; Flowering: April-Sept.	Seed	Skin Infection, Allergy
72	<i>Sambucus wightiana</i> [1, 2, 22, 30, 57]	Hapatfal	Caprifoliaceae	1500-3600m. Flowering: June-July.	Root	Leaves Chest Congestion, Boils
73	<i>Senecio grandiflorus</i> [2, 3, 22, 51]	Mongol	Asteraceae	1200 -4100 m Flowering: March-Sept.	Leaves, flowers	Dermatitis, Stomach-ache
74	<i>Sambucus wightiana</i> [1, 22, 26, 30]	Kown	Sambucaceae	1300-4500 m : Flowering: May –Nov.	roots, leaves and berries	Diuretic, Purgative
75	<i>Taraxacum officinale</i>	Hand	Asteraceae	1600-2400;	Roots	Back Pain, Common Cold, Chest Infection



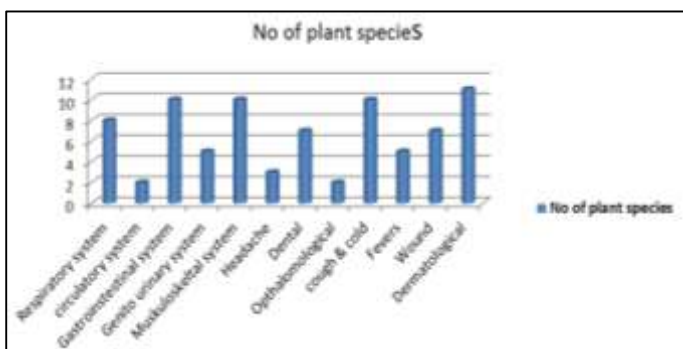
	[1-3, 22, 34]			Flowering: May-July		
76	<i>Trigonella foenum-graecum</i> [1-3, 48]	Meth	Fabaceae	1300-1400m. Flowering: Jan-Apr.	Seeds	Back Pain
77	<i>Tussilago farfara</i> [1, 22, 26, 30]	Bann Hulla	Asteraceae	2800-3800 m. Flowering: January-April.	Leaves	Astringent, Emollient, Expectorant, Stimulant And Tonic
78	<i>Thymus serpyllum</i> [1-3, 22, 30 37]	Jawand	Lamiaceae	1800-2300; Flowering: May-July	Leaves, Seeds	Skin Eruptions; (Alopecia). Seed Powder Is Given To Children Against Worm Infection.
79	<i>Triticum aestivum L.</i> [2, 4, 21, 22]	Kaenak	Poaceae	1600-1900; Flowering: March-April	Seeds	For The Treatment Of Worms
80	<i>Urtica dioica</i> [1-3, 22, 48]	Soi	Urticaceae	1000-2500 m. Flowering: August-September.	Leaves and Roots	Rheumatism
81	<i>Viscum album</i> [2, 19, 22, 32]	Aal	Loranthaceae	1000-700m. Flowering: Sept- Dec.	Whole plant	Laxative And Fractures
82	<i>Viburnum grandiflorum</i> [2, 3, 12, 32]	kulmanch	Caprifoliaceae	2700-3600 m. Flowering: April-May.	Seed	Typhoid, Whooping Cough
83	<i>Viola odorata</i> [2, 4, 7, 33, 52]	Bunufsha	Violaceae	1800-2600; Flowering: May-July	Leaves,	Seeds And Flowers Respiratory Problems
84	<i>Vitis vinifera</i> [1, 2, 30]	Daech	Vitaceae	1700-2100; Flowering: April-May	Leaves	Skin Rashes, Sores, Eruptions
85	<i>Verbascum Thapsus</i> [21, 22, 25, 34]	Wantamook	Scrophulariaceae	2500-4500 m. Flowering: June-Aug.	Flowers	Cough, Pneumonia
86	<i>Ziziphus mauritiana</i> [21, 22, 37]	Brag Kund	Rhamnaceae	1300-1800; Flowering: April-May	Leaves	Skin rashes

**Table 2:** Family wise distribution of medicinal plants [more than 2 species] in Kashmir valley, India.

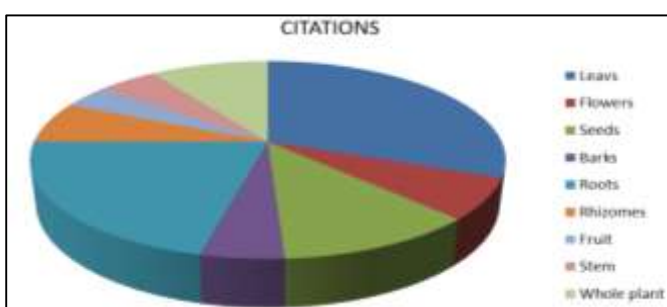
S. No	Family	No. of species
1	Asteraceae	9
2	Ranunculaceae	5
3	Lamiaceae	4
4	Pinaceae	4
5	Solanaceae	3
6	Rosaceae	3
7	Brassicaceae	2
8	Curpessaceae	2
9	Apiaceae	2
10	Brassicaceae	2
11	Fumariaceae	2
12	Rubiaceae	2
13	Boraginaceae	2
14	Euphorbiaceae	2
15	Caprifoliaceae	2

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**Fig. 1:** Frequency of use of plant species on the basis of disease categories.



**Fig. 2:** Ethenomedicinal status of plant parts used.

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