

**MEDICINALLY IMPORTANT PLANTS FROM GANDERBAL, KASHMIR, INDIA- AN
ETHANOMEDICINAL SURVEY.****Mudasir A. Sheikh*, Shayista Chishti and Nahida Tun Nisa Chishti**

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ABSTRACT

The current re-emergence and the great emphasis being laid upon the medicinal plants, along with ever increasing loss of biodiversity in general and medicinal plants in particular, coupled with biopiracy and intellectual property right issues have necessitated a study on the ethno botanical research and their traditional uses. Medicinal plants have assumed more importance nowadays because of their ever increasing use in the ayurvedic and unani medicinal system but the information on their uses in medicine is lacking from many mountainous areas like Kashmir Himalayas. Thus the present study was carried out from hilly areas of Ganderbal district to document the information about plant resources which are used in the folklore medicine and advocates for thorough and rigorous phytochemical analysis to validate their authenticity and future prospects.

KEYWORDS: Ethno botany, folklore medicine, Ganderbal, Himalayas.**INTRODUCTION**

The ethno botanical research is assuming great significance and wide acceptability and the documentation of indigenous knowledge about medicinal plants is of utmost importance, keeping in view, their role in drug development and primary health care and also because of increasing biopiracy and patent controversies.

Ethno botany plays a great role in understanding the dynamic relationships between biological diversity, social and cultural systems (Hussain Z.S *et al.*, 2008). The precious indigenous knowledge, when supplemented and validated by latest scientific insights, can offer a new holistic models of sustainable development that are economically viable, environmentally benign and socially acceptable (Shinwari, S. K *et al.*, 2003).

India has huge diversity of plants, which are being used by local communities for medicinal purposes (Dutta B K *et al.*, 2005). According to world Health Organisation (WHO, 2003) estimates, nearly 70% of the population in developing countries rely on traditional medicines for meeting their basic healthcare needs. Kashmir Himalayas serves as a rich abode to diverse medicinally important plants. Primarily owing to its topographic variations from valley floor through the terraced table lands and dense forests, elevating upto snowcapped alpine peaks (Hussain M, 2001; Dar G H *et al.*, 2001). Since centuries, people through their wisdom and experimental

attitude have established and practiced the use of plants growing in their locality for curing various ailments. However very few studies have been carried out till now with regard to documentation of ethno medicinal uses of plants in Kashmir Himalayas, particularly in the difficult and remote terrains (Dar G H *et al.*, 1984; Khan Z S *et al.*, 2004). Thus the present study is an attempt to explore the kandi and inaccessible areas of Ganderbal district of Kashmir Himalayas and document the information about the medicinal plants used in traditional medicine.

Study Area: The study was carried out in the hilly areas of district Ganderbal, located at about 1550- 3400 mts amsl, lying across 34°14' N latitude and 74°47' E longitude. Ganderbal district is constituted of five tehsils viz. Wakura, Tulmulla, Lar, Kangan and Ganderbal. The focus of study was on the kandi and mountainous areas of Lar and Kangan tehsils, along the banks of river Sindh. Owing to its diverse eco-edaphic and climatic features, the area is abode to various medicinally important plants which have been in use from decades, albeit without any conscious knowledge about their importance in modern medicine. The study area is part of north western folds which was recently designated as global biodiversity hot spot of Himalayas (Mittermeir *et al.*, 2005). Kashmir valley is recognised as treasure house of medicinal plants (Dar *et al.*, 2002). The conventional use of herbs by locals for curing various ailments has been there from centuries.

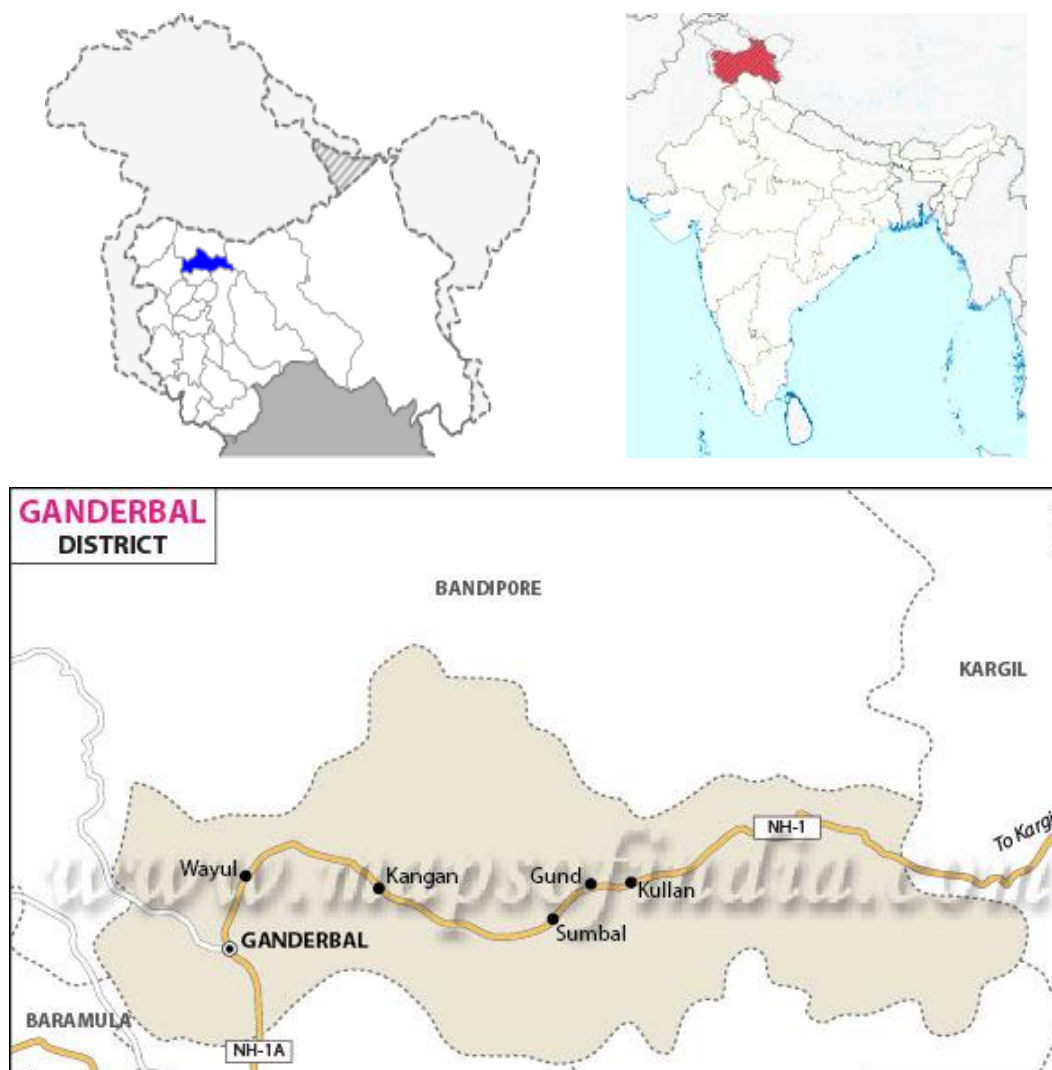


Fig: 1. Map showing the study area.

METHODOLOGY AND DATA COLLECTION

The methodology used was strictly designed with the aim of getting precious information on the ethno medicinal uses of plants used by locals for various purposes. As such regular field trips from April 2012 to 2014 December were conducted along with structured interviews with the elderly people, Hakims (local practitioners) and Gujjar Bakerwals residing in the areas to gather secret knowledge from them. Most often they were accompanied for onsite identification of various plant specimens for authentication purposes. To bring in the accuracy, the information gathered from one locality, was cross checked with that of others. More over crosschecks with regard to uses of different specimens were carried out between the Hakims of different localities. To prove the veracity of information, these specimens were later identified at Kashmir University Herbarium (KASH) and also few at Botanical survey of India (BSI) Dehradun. All the relevant information about specimens like collection processes, part used, flowering period, mode of administration, recommended dosage were recorded in detail keeping in mind the importance of specimens.

RESULTS

The current study describes the medicinal importance of some 56 plant species belonging to 35 families. Majority among them belong to angiosperms, mostly dicotyledonous, few are monocotyledonous and one each is a gymnosperm (*Taxus wallichiana*) fungus (*Morchella esculenta*) and pteridophyte (*Dryopteris* sp.) species. The highest number of medicinal plant species recorded were found to belong to Lamiaceae (5 species) followed by Asteraceae and Solanaceae (04 species each), Apiaceae, Malvaceae, Polygonaceae, Amaranthaceae (03 species each), Berberidaceae, Lilaceae (02 species each), while as rest of species recorded were represented by 01 species each (Table 1). Out of these 56 species studied, 17 species are reported as threatened species under various threat categories. The study reveals that almost all plant parts in one or the other specimen such as roots, rhizomes, leaves, seeds, inflorescence, fruits and stems are used for treatment purposes. These parts are generally used after shade drying rather than in their fresh form, however in few decoctions fresh leaves are also be used for medicinal preparation. Each specimen is provided with local name, botanical name, part used, mode of administration, flowering period and ailments cured.

DISCUSSION

The plant species grow in diverse range of habitats ranging from plains through kandi areas (montaneous areas) subalpines, meadows and alongside banks of rivers and lakes found in alpinies. They are distributed through wide altitudinal range between 1550-3400m (amsl). It is because of this habitat and altitudinal diversity that Kashmir Himalayas support a rich wealth of floristic diversity that is and has been used by the natives as a resource base from the very beginning. Dar et al (2007) revealed that about 17% of the flora in Kashmir Himalaya has known or potential medicinal value. The study reveals that by virtue of various preparations these specimens are used by the inhabitants of the studied area as antipyretic, analgesic, antiseptic, febrifuge, diuretic, diaphoretic, astringent, laxatives, stimulant, purgatives, coagulant, antihelmenthic, antimalarial besides some are orally taken to cure visceral ailments viz. digestive, respiratory and neural disorders, like asthma, diarrhoea, jaundice, hepatitis, and gynaecological problems. During the study, it was found that primary source of medicines is wild herbaceous plants but some are shrubs and a few are trees. Fungi and Ferns do account as well. In the studied area, (especially in hilly and kandi belts) since the winters are harsh and people mostly remain indoors, particularly elder ones suffer from bronchial infections, whooping cough, throat infections and cold, they totally rely upon the medicinal preparations made from these plants especially *Atropa acuminata*, *Prunella vulgaris*, *Voila odorata*, *Saussurea*

costus, *Viburnum grandiflorum* etc. It is pertinent to mention that a specific drug preparation (locally called as khambir) is made from the mixtures of these plant/ parts and is taken orally with boiled water during winters, to combat chilling diseases.

The actual essence of ethano medicinal knowledge reflects experience of many generations and problem solving capacity of local people. Thus proves to be an important tool in solving many mysteries. It also provides us a database for knowledge sharing between people involved in research, industry and physicians, phytochemists, botanists and alike interested in the development of alternative therapies. Gilani et al (2005), Mukhejee et al (2006). It also gives us valuable opportunity for further phytochemical investigations, which is gaining more and more relevance in modern day treatments, especially for those plants which are used for treating chronic diseases like; hepatitis and related Liver disorders (*Geranium wallichianum*), tumour (*Podophyllum hexandrum*), jaundice (*Solanum nigrum*), gall stones and cirrhosis (*Taraxacum officinale*). More importantly, in view of the increasing concern among the developing countries over the growing biopiracy threats, the documentation of these herbal bioresources will help us in curbing these threats thus there is an immediate need for more and more ethnobotanic studies of plant species growing in the far flung areas. It will also help us in creating biodiversity repository for achieving conservation goals.

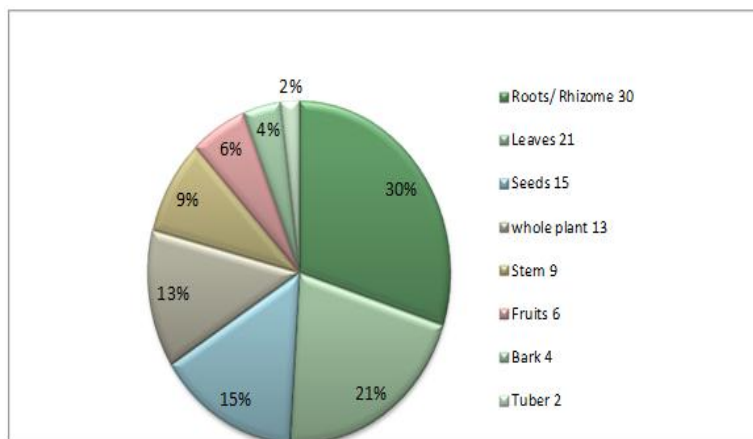


FIG2: Showing percentage frequency of different plant parts used in the medicinal preparations.

Table1. Medicinal plant species and parts used to cure various ailments based on information gathered from studied area.

S.No	Botanical name Family Local name	Part used	Flowering peroid	Mode of administration / Uses.
01	<i>Achillea millefolium</i> L. Asteraceae Berguer	Leaves/ Flowers	July-Sep	Tea made from leaves is used to cure stomach disorders, Paste of extract mixed with flour is used as antihemorrhage, antipyretic by increasing perspiration and pollutice for treating rashes and snakebite bruises
02	<i>Aconitum heterophyllum</i> Wall. ex Royle Ranunculaceae	Roots	July-Aug	Lotion made from root powder with few drops of mustard oil, is massaged on joints, forehead and chest. Extract of root is used as purgative,

	Pewakh			antiseptic.
03	Acorus calamus Acoraceae Nagruss	Whole plant	June-Sep	Its paste is used in remittent fever and acute bronchitis. Also used as antispasmodic & diaphoretic.
04	Amaranthus caudatus Amaranthaceae Leesa	Whole plant	June- Aug	Expectorant made of leaves & inflorescence is taken orally as febrifuge and diuretic
05	Amaranthus viridis Amaranthaceae Gunhar	Whole plant	July-Oct	Its essential oil is used as antihelminthic, astringent, galactagogue.
06	Arnebia benthami I.M.jhonston Boraginaceae Kahzaban	Whole plant	July-Sep	Decoction of rhizome in sugary water is used to alleviate cold, cough and fever, blood purifier. mixture of leaf & flower extract is given to treat Urinary tract infections, Liver enlargement and cirrhosis.
07	Artemisia absinthium L. Asteraceae Teethwan	Leaves and flowers	May- July	Paste made from leaves and flowers, when taken with milk or water is used to cure stomach pain and worm infections, diabetes. Decoction of leaf is used as antihelminthic and antibacterial infections
08	Arisaema jacquemontii Blume Araceae Hapat makei	Rhizome	June- Sep.	Rhizome powder with edible oil is used for massage purposes to regain muscular strength and cure skin infections
09	Atropa acuminata Solanaceae Brand	Rootstock, leaves	June- Sep	Root powder is mixed with ghee and applied externally on affected portions to treat rheumatic pain, asthma, cough.
10	Althea rosa Malvaceae Sozeposh	Flower	June-Sep	Decoction of flower prevents skin irritation in pregnant women.
11	Berberis lyceum Royle Berberidaceae Kawdach	Root and fruit	April-July	Root peilings boiled in sugary water is used to relieve indigestion, constipation, irregular bowel movements. Fruit paste is applied on wounds.
12	Berberis aristata Berberidaceae Danelider	Root/ bark	July-Sep	Dried root powder along with water is taken orally to treat back pain, jaundice.
13	Cannabis sativa L. Cannabaceae Bang/ Charas	Leaves, stem	June-Sep	Powder made from leaves and stem is mixed with ghee and applied externally to treat cholera and skin diseases. Leaves are smoked as sedatives
14	Chenopodium album L. Amaranthaceae Buthwa	Whole plant	June-Oct	Shoot tips are used as laxative for constipation, roots are crushed to powder and used against jaundice. Leaves are boiled and syrup obtained is taken for treating gastritis. Seed powder is used as diuretic.
15	Corydalis govaniana wall. Fumariaceae Sangi- harb.	Shoot	May-June	Decoction of shoots is used to treat respiratory disorders, chest infection, whooping cough and asthma.
1116	Coriandrum sativum L. Apiaceae Dhaniwal	Whole plant	June- Sep	Extract mixed with honey is used to cure loss of hairfall, headache, fatty liver, piles. Fresh leaves are used as condiment.
17	Colchicum luteum Baker. Liliaceae Virkim posh	Seeds and Corms	Feb - April	Extract of corms is used in delivery bath to cure body pains. Corm powder along with butter is used to cure back pain, weakness of bones and fever. seed powder is used as laxative and sedative.
18	Dioscorea deltoidea Wall. Dioscoreaceae Kreath/ krees	Tubers, leaves	May - July	Leaf decoction is used for treating ophthalmic infections. Tuber powder is used as detergent and to kill lice by gujar women..
19	Datura stramonium Solanaceae	Seeds	June- Sep.	Seed powder along with mustard oil is used to cure rheumatism, seed smoke cures toothache.

	Datur			Paste of seed powder along with edible oil is given to hoses to keep them during warm and tidy during winters.	
20	Dryopteris spp. Pteridaceae Gaewtheer	Whole plant	Pteridophyte	Leaves are boiled for delivery bath, leaf decoction is used to cure kidney and gall stones.	
21	Euphorbia heliscopia L. Euphorbiaceae Gueur sochal	Leaves, stem	July – Sep.	Latex obtained from leaves is used to cure skin rashes and warts. Extract of leaves and stems is used as antihelmenthic and antibacterial.	
22	Foeniculum vulgare Mill. Apiaceae Badiyan	Seeds	May - Aug	Seeds or their powde is r used as spice. Seed powder mixed with water or seeds as such is taken orally for treating stomach acidity, gastric ulcers. Also used as blood purifier.	
23	Geranium wallichianum Geraniaceae Rattenjooth	Roots	June –Oct.	Roots are crushed and powder is used to cure hepatitis, toothache. Tea made from crushed roots is used to cure weakness. Paste of root powder is taken to prevent premature delivery.	
24	Gentiana kurroa Gentianaceae Nilkanth	Root/ rhizome	June-Sep.	Root powder is taken with water or milk for treating kidney and urinary tract infections	
25	Iris nepalensis Iridaceae Mazermund	Root stock	May- Sep.	Roots are crushed and powder is taken orally with water to treat bronchial spasm, colic problems, bach flower disease. Roots are also used as biorepellant against rodents.	
26	Hyocymus niger Solanaceae Bazer Bung	Seeds/ leaf	June- July	Seed powder is applied on gums to treat gum infections. Dried leaf powder is smoked with tobacco as sedative, paste of seed powder with mustard oil is applied on arthritic joints, eyelid abscessess to reduce pain. Gum problem, arthritic joint pain.	
27	Lavatera kashmiriana Camb. Malvaceae Soze posh	Aerial parts	June- Aug.	Paste of dried flower in milk is used for treatment of mumps . decoction of aerial part is given to pregnant ladies to cure skin irritation.	
28	Malva sylvestris Malvaceae Sochal	Seeds, leaves	July- Sep	Seeds boiled in sugary water is taken to stomach ache cure cough and fever.	
29	Mentha arvensis L. Lamiaceae Pudina	Aerial portion	May- July	Powder mixed with diluted curd is given to cure cough, soar throat, constipation, indigestion. It is used as carminative, stimulant, antiseptic and antispasmodic	
30	Morchella esculanta Morchellaceae Guchi	Fruiting body	March- April	Powder of fruiting body is poured on wounds and causes rapid healing	Wound healing, cough.
31	Nasturtium officinale L. Brassicaceae Kulhak	Leaves	March- April	Juice of leaves is used to cure stomach ulcers and intestinal infection. Used as depuritive, expectorant, puragative. Also used as cleansing herb and hair tonic.	
32	Origanum vulgare Lamiaceae Babur	Seeds	June - Sep	Juice is obtained from seeds is used to regulate menstruation, anti fungal , antibacterial tretments	
33	Phytolacca acinosa Roxb Phytolaccaceae . Kafal	Roots, seeds		Root powder in hot water is used against stomach cramps, dysentary and wounds. Root powder mixed with edible oil is applied on ailing joints.	
34	Plantago lanceolata Plantaginaceae Guuleh	Whole plant	May – July	Seeds are used as laxatives for prevention of constipation, piles, etc. Leaves are used as astringent, demulscnt, haemostatic and as vegetable.	
35	Prunella vulgaris Lamiaceae	Flowers and leaves	June -August	Hot water bath of flowers and leaves cures general body pain, hair fall and is taken	

	Kulwauth			particular after delivery. Paste made from flowers is used against chest problems. Leaf powder is used as hypotensive, antispasmodic and vermifuge.
36	Picorrhiza kurroa Royle. Scrophulariaceae Kound/ kutki	Rhizome	May- August	Rhizome powder along with water is taken orally against ring worms, stomach disorders, intestinal infections. Fermented powder (Khambier) with flour and sugar is given in case of weakness, joint pains.
37	Podophyllum hexandrum Royle. Podophyllaceae Banwangun	Rhizome and fruit	May – July	Fruit juice is taken against stomach ulcers, dyspepsia root powder water is used against tumors and heart burns.
38	Portulaca oleraceae Portulacaceae Nunner	Leaves/ shoots	June – Aug.	Juice extracted from leaves is taken orally along with boiled water to treat gastric ulcers, fatty liver, rheumatic arthritis.
39	Rheum emodi Wall ex Meissn Polygonaceae Pamb chalan	Rhizome/ leaves	June- Sep	Paste of rhizome powder is used to cure wounds, boils and winter frost of body parts, leaves as vegetables
40	Rheum webbanium Royle. Polygonaceae Pambchalan	Roots/ leaves	June-Sep	Root powder is made into a fine paste and is used to treat joint pains, rheumatic arthritis. Leaves are used as laxatives, febrifuge, purgative and antispasmodic.
41	Rumex acetosa D.Don Polygonaceae Abijie	Whole plant	July- Sep.	Rhizome powder is mixed with oil or butter and used to treat joint pains, back pains. Leaf extracts are used as antipyretic, antiseptic, vermifuge. Fresh leaves are used as vegetable.
42	Saussurea bracteata Decne. Asteraceae Suwort	Rhizome/Roots	July-Sep	Paste of rhizome with oil is applied for skin infections, burns, wounds.
43	Saussurea costus Lipstch Asteraceae Kouth	Rhizome	June-Aug.	Rhizome used as spasmodic in asthma, cough. Root powder mixed with mustard oil is massaged on skin to cure arthritis and paralysis of body parts under open sun. root powder mixed with sugar is taken orally to cure , stomach ulcers and kidney stones. Rhizome powder mixed with raw sugar is given to cattle as tonic.
44	Solanum nigrum Solanaceae Kambai	Fruit	June-Oct	Juice from fruits is used to treat jaundice. It is also used as antiperiodic, diaphoretic and blood purifier.
45	Stellaria media linn Caryophyllaceae Nick Haak	Seeds	May -Aug	Seed powder with milk is used against skin infections, allergy. Leaf paste is used to cure burns.
46	Sorghum helepense Poaceae Drahme	Roots	June-Sep	Root powder with mustard oil is mixed to make a paste, which is applied externally to cure skin infections, also used as cyanogenetic, demulcent, diuretic and tonic. Its leaves are highly poisonous for cattle if eaten fresh.
47	Taraxacum officinale Weber Lamiaceae Haend	Leaves	May –Sep.	Decoction of leaf is used as tonic, diuretic & blood purifier. Leaf extract is used to treat Gall stones, liver cirrhosis, Gout and Eczema. Paste of leaves with turmeric is used for treating bone fractures.
48	Trachyspermum ammi L. Apiaceae Jaiwend	Leaves/ fruits	May- Aug.	Fruits are boiled and taken orally to cure stomach pain, digestion problems. Herb is used for preapring prickles.
49	Thymus serphyllum Lamiaceae Jaadu patej	Aerial portion.		Leaves are used as culinary herbs, flowers as ornamentals. Aerial portion is used as repellant.
50	Taxus wallichiana Zucc.	Bark	April- July	Bark is boiled in water to prepare a special tea

	Taxaceae Brammi			which is given to treat asthma, giddiness, arthritis and tumour growths.
51	Trillium govanium Wall Lilliaceae Surmaganda	Rhizome	June- aaaaaaaug	Rhizome powder is mixed with mustard oil and made into balls which are used for antihelmenthic and antimalarial infections in cattle & is also used to cure burns externally.
52	Urtica dioica L. Urticaceae Soie	Roots	May- july	Paste made from roots is used for curing cysts and joint pains. Extract of herb is used to cure dandruff.
53	Viburnum grandiflorum wall ex. DC Caprifoliaceae Kulmach	Seeds	Feb.- March	Juice obtained from seeds is given to treat typhoid and whooping cough.
54.	Viola odorata L. Voilaceae Bunafsha	Flowers	May- July	Flowers are mixed with water and fermented for some time to make khambir, is used to treat cough, soar throat and fever during winter.
55.	Valeria jatasmani Jones . Valerianaceae Budjeeth	Roots	May- Aug	Roots grinded into powder is taken with water or milk for abdominal pain, urine infections. It is used as antidysentric, antihelmenthic.
56.	Zizyphus mauritiana Lamb. Rhamnaceae Brai kund	Leaves	April- May	Water bath of leaf extract is used to cure skin infections, allergies and rashes.

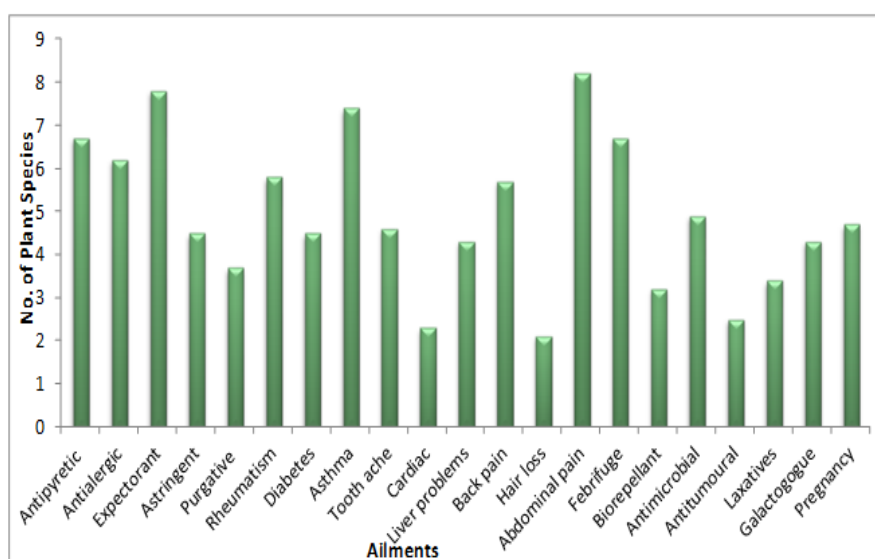


Fig 3: No. of plant species used against various ailments in studied area.

CONCLUSION

The importance of plants is increasing day by day, thus opening up a huge market for plant based drugs at national and international level. Medicinal and aromatic plants face genetic erosion because of habitat destruction and over exploitation, thus need to be conserved. Present studies concludes that the agro- climatic conditions of Kashmir valley are ideal for growing medicinal plants of international standards and can be exploited by giving proper opportunities to the inhabitants of this region.

Further studies is needed to isolate, structurally characterize the pure compounds and evaluate their potential in drug development and antimicrobial activity against multidrug resistant microbial strains, thus composition differentiation requires a detailed analysis.

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