

A REVIEW: ETHNOBOTANICAL STUDY ON MEDICINAL PLANTS OF KARGIL DISTRICT, LADAKH, INDIA

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Abstract

An ethnomedicinal survey of plants in Ladakh region revealed that some less known medicinal plant have been used by the indigenous tribes. The valid scientific name, family, common name, local name, habitat of 28 species belonging to 24 genera and 18 families are enumerated in the present study. The medicinal use of these plants of ladakh region holds great importance to the ethnic peoples. Plants belong to 18 families, of which the Asteraceae are represented by six species. Papilionaceae, Ranunculaceae, Polygonaceae, Brassicaceae, Lamiaceae are represented by 2 plant species. Plant species have been recorded from Ladakh district of ethnobotanical importance. The plant uses can be divided into four main categories, fuel (10.7 %), fodder (42.8%), edible (25%), medicinal (92.85%) and other uses (32.1%). The plants collected from the area are also categorised in Rare, Endangered and Threatened medicinal plants of Ladakh compare with G.Phanikumar et al. 2011 and listed in table1. It is found that two species fall into the category of critically endangered, three found to be endangered. Thus the a proper database should be prepared to procure steps for conservation of these plants should be taken. The aim of this study was to document the medicinal uses of local plant and to develop an ethnobotanical inventory of the species diversity.

INTRODUCTION

Ethnobotany commonly refers to the study of traditional uses of plant. In other words it is a study of investigating plants, their uses through the primitive societies or people in various part of the world. The medicinal plant plays a very important role in the Himalayan region. The Himalayan regions are reservoir of a large variety of different plant species and many of which have medicinal properties. A large number of rural population in these areas depend totally on these medicinal plants which are locally made by some people like snow-rigpa [*Amchi*] to meet their health care requirements. It is unfortunate that the increase in demand has led to increase in the threat of these medicinal plant largely collected from wild. The Ladakh region is traditionally rich in cultural folklore and has also distinct cultures as yet undisturbed by any external influence. The system of making medicine is the “Amchi system”(Tibetan system).The system has sometimes in common with the “Unani”(Greek) and “Ayurvedic”(Indian)system of medicine. Unani is the ancestral system which started in the middle east and was developed in the Muslim world; whereas the Ayurvedic system is that followed by Hindus since Rig vedic times. Both are still practiced in India. All the three system make use of plant as(fresh and dry), minerals, animal product etc. Hence in mountain area there is great diversity of medicinal plant and hence it requires more quantification and documentation in relation to the abiotic environment. There are many areas which still uses ancestral method where the various plants are directly used is still intact with native people. These ancestral knowledge system have now become scare with passage of time due to deficiency or unavailability of the written documents and the low income. According to the recent estimate only 20% of high altitude medicinal plant are used in therapeutics for many disorders like memory loss, osteoporosis, immune and age related problems and today

they provide pathway for modern medicine used to offers satisfactory role in treating cancer and AIDS like diseases that are more prevalent nowadays.

MATERIAL AND METHOD

• Study area:-

Ladakh is one of the most sparsely populated region in Jammu and Kashmir. The region included the Indus valley, the Baltistan (Baltiyul) valley, Zanskar valley to the south. Aksai China and Nagari including the Rodak region in the east, and the Nubra valley to the north. The northern part include Baltistan comes under the occupation of Pakistan, whereas Aksai Chin comes under the occupation of China-Leh and Kargil including Zaskar and Drass comes under India.

Ladakh cover more than 70% of geographical area of the state. Administratively Ladakh is divided into two district namely Leh and Kargil which can be divided into different valleys Changthang, Zaskar and Suru valley.

• Method of study:- The study was carried in following steps

1:- **Field survey and collection of ethnobotanical data** from local people. it was done in different season from April 2017 periodically. The plant were carefully collected in all possible habitats and noted in a pocket diary regarding their habitat, local name, flower colour, data of collection. The Ethnobotanically uses of the plant was listed as result of communication with the local people as shown in fig 1.



Fig1. Interacting with local people during field survey and collection of plants.

2:- **Collection of the specimen from study area.** The whole plant was tried to collect for its proper identification.

3:- **Identification of specimen.** The specimen were first identified with the help of local people to identify their common name then the plants were identified with the help of different taxonomic literature and consulted herbarium of BSI, Dehradun.

4:- **Processing of specimens for herbarium-** The herbarium preparation was done of collected specimen and deposited in SGRRITS, Dehradun.

OBSERVATION

TAXANOMIC DESCRIPTION OF MEDICINAL PLANT

Acantholimon lycopodioides (Girard) Boiss

Common name: Sea-lavender

Local name: Longze

Family name: Plumbaginaceae

Plant morphology: Densely tufted shrub, branches short, densely leaf, leaves planolanceolate, flower pinkish-white, inflorescence terminal spike. (Fig.2.1)

Flowering: July-september

Ecology: Dry open slopes in Suru, Leh, and Changthang

Part used: whole plant

Utilization: Plant ash is used with milk for heart disorder.

***Achillea millefolium* L.**

Common name: yarrow/ Milfoil

Local name: chuang

Family name: Asteraceae

Plant morphology: A perennial herb, stem branched, leaves narrow oblong lanceolate, flower head terminal, corymbose white short pedicel.(Fig.2.2)

Flowering and fruiting: July-September

Ecology : along road side and dry places in Zanskar and Suru valley at an altitude of 3680m.

Parts used: whole plant

Utilization: Boiled to tea and used to treat cold and cough.

***Aconitum heterophyllum* Wall.exRoyle.**

Common name: Aconite, Atees

Local name: Bona karmo

Family name: Ranunculaceae

Plant morphology: An erect perennial herb, root tuberous, stems branched, flower greenish purple, seed small and black. (Fig.2.3)

Flowering and fruiting: June to mid-September

Ecology: Moist and damp places in Zanskar, Suru and Nubra valley at an altitude of 2865m.

Part used: Roots

Utilization: Used for diarrhea, high fever, cold and cough

***Aconitum violaceum* Jacq. ex Stapf.**

Common name : Aconite, atees

Local name: Bona nagpo

Family name: Ranunculaceae

Plant morphology: Perenni

al herb, stem 15-30 cm, leaves few, palmately cut to base in narrow segments, flower in dense spike flower dark blue.(Fig.2.4)

Flowering and fruiting: Mid June to August

Ecology: Along water stream and moist places in Nubra, zanskar,and Suru valley between altitudinal range of 2960-3600m

Part used : Roots

Utilization : Used for cough and fever.

***Arabidopsis himalaica* (Edgew.)**

Local name: Bi-la bhug

Family name: Brassicaceae

Plant morphology: Biennial or perennial, branched from the base, leaf often or more coarsely toothed, flower purplish-pink, bracteate upto apex and raceme inflorescence.(Fig.2.5)

Flowering: June- July

Ecology: found in dry and rocky slopes at an altitude of 2400-4600m.

Part use: Seeds

Utilization: Promotes digestion of food.

***Arnebia euchroma* (Royle) Hohn.**

Common name: Ratanjot

Local name: Demok/ Gremok

Family name: Boraginaceae

Plant morphology : A tufted very bristly haired perennial herb, stout rootstock, stem many arising from the root stock, leaves covered with bristly white hairs, flower purple, tubular borne in dense in florescence. Fig.(2.6)

Flowering and fruiting: June to September

Ecology : Found on dry rocky slopes in Leh, Nubra, Zanskar with altitude of 4650-4790m.

Parts used: Roots

Utilization: Roots used as hair tonic, anti-inflammatory, also used in Cold and cough.

***Artemisia gmelinii* Web.exStechm.**

Common name: Russian wormwood

Local name: Burse

Family name:Asteraceae

Plant morphology: A bushy aromatic shrub, flower yellow and small.(Fig.2.7)

Ecology: occur on dry and shaly places, altitude of 3400-3700m.

Part used: Flower

Utilization: Used in cold, cough, and stomach ache.

***Artemisia sieversiana* Ehrh.exWilld.**

Local name: Khamchu

Family name: Asteraceae

Plant morphology: Perennial herb. Leaves alternate, sessile, and ovate and segmented, inflorescence loose panicle.(Fig.2.8)

Flowering time: July to September

Ecology: Found in dry and sloppy areas.

Part used: Leaves

Utilization: control inflammation/pain of kidney and burning sensation of bladder/urine tract and have antimicrobial activity.

***Biden pilosa* L.**

Common name: Spanish needle

Local name: Gurgur-cha

Family name:Asteraceae

Plant morphology: Annual herb, leaves oppositely arranged leaflets ovate or lanceolate, flowers born in small heads, ray and disc floret present.(Fig.2.9)

Ecology: Grow in warmer areas and as weed in Croplands, Pastures, Roadsides.

Parts used: Leaves

Utilization: have chemicals that are used in antitumor, anti-bacterial, anti-fungal and also used in cold and cough.

***Capsella bursa-pastoris*(L.)Medik.**

Local name: Shamsa or Sog-ka

Family name:Brassicaceae

Plant Morphology: Small annual herb, plant grows from a rosette of leaves, leaves are pointed, flower white and small, in loose receme, pod heart shaped.(Fig.2.10)

Ecology: Mainly grow on disturbed areas, an invasive weed.

Part use: Leaves

Utilization: powdered leaves combined with other plant products to cure diuretic, and also remove kidney stones.

***Gentianella moorcroftiana* (Wall. ex Griseb.) Airy Shaw**

Local name: Spang gang karmo

Family name: Gentianaceae

Plant morphology: Annual 5- 20 cm tall, stem erect, branched from base, leaves sessile, linear, base and apex obtuse, flower blue with pale yellow toward base, inflorescence axillary and terminal cyme.(Fig.2.11)

Ecology: found in moist open slopes, with an altitude of 2700-4800m.

Part use: Whole plant

Utilization: plant used in cold, cough and fever.

Hippophae rhamnoides L.

Local name: Cherma, Sastalulu or Cherker

Common name: Sea buck thorn

Family name: Elaeagnaceae

Plant morphology: A spiny deciduous shrub, high developed root system, leaves alternate, narrow and lanceolate, dioecious with 4-6 male flowers small and without petals, female flowers are single, fruit small orange color.(Fig.2.12)

Ecology: Found near river basins in Suru, Changthang.

Part use: Fruits, Leaves

Utilization: used in treatment of sputum, cough, improves blood circulation and function of the digestive system.

Iris hookeriana Foster.

Common name: Hooker's iris

Local name: kresma

Family name: Iridaceae

Plant morphology: A perennial herb, leaves upto 40cm long, oblong, flower blue-purple, tubular, capsule elliptic, seeds pyriform.(Fig.2.13)

Flowering: Mid-May-July

Ecology: Found near riversides and cultivated fields in Suru, Leh at an altitude of 2400-3300m.

Part use: Rhizome

Utilization: Antihelminthic activity.

Juniperus macropoda Boiss.

Common name: Pashtani

Local name: Shukpa

Family name: Cupressaceae

Plant morphology: A tree upto 18m tall, open foliate with spreading, sharp pointed leaves on lower branches, scale leaves on upper branch, ripe fruit bluish black.(Fig.2.14)

Flowering: May –August/September

Ecology: Temperate and cold regions of northern hemisphere at altitude of 2400-4300m.

Part use: Fruit

Utilization: used against all kidney and urinary problems, ulcer.

Malva verticillata L.

Common name: Chinese mallow

Local name: Cam pa ma ning/ sochilik

Family name: Malvaceae

Plant morphology: Annual herb, leaves lobed or unlobed, alternate and one leaf per node, flower white or pink-red, occur in axis or branches.(Fig.2.15)

Flowering: July- August

Ecology: Man made or disturbed habitats, gardens, fields in Suru and Leh valleys.

Part use: Seeds and Leaves

Utilization: Used for whooping cough.

Medicago sativa L.

Common name: Alfalfa

Local name: yarkandi, Buksuk

Family name: Fabaceae

Plant morphology: A perennial plant, stem moderately strong, leaves ovate-lanceolate, flower small and purple in color.(Fig.2.16)

Flowering: June-July

Ecology: open places in cultivated fields at an altitude at 2000-4000m.

Part use: whole plant

Utilization: Stomach disorders.

***Mentha longifolia* L.**

Common name: Jungali Pudina, Horse mint

Local name: Phololing

Family name: Lamiaceae

Plant morphology: Herbaceous perennial plant, with peppermint scent, creeping rhizome with erect stem, Leaves oblong elliptical to lanceolate, thinly-densely tomentose, flower purplish or white, verticillaster (dense cluster).(Fig.2.17)

Ecology: waste places and damp soil in Suru, and Leh.

Part use: Leaves

Utilization: leaves paste are used in control of dysentery, diarrhea, stomachache, and vomiting.

***Melilotus officinalis*(L.)Lam.**

Common name: yellow sweet clover

Local name: Buksuk, Ole

Family name: Fabaceae

Plant morphology: A biennial plant, ridged stem, leaves alternate, petiolate, trifoliate, leaflet elongated and dentate, flower yellow, inflorescence long raceme.(Fig.2.18)

Flowering: June to August

Ecology: Found in fields, road side in cultivated areas of Suru and Leh valley.

Part use: whole plant

Utilization: used in digestive disorders, and in clearing eye sight.

***Physochlaena praealta* (G. Dons.)Miers.**

Common name: Tall physochliana

Local name: lantang

Family name: Solonaceae

Plant morphology: Herb 1-1.5m tall, branched, stem pubescent, leaves petiolate, ovate-oblong, glandular pubescent, wedge-shaped, heart shaped, margins entire, flower yellow with purple veins, inflorescence panicle type.(Fig.2.19)

Flowering: June-July

Ecology : Found on road sides and dry slopes in Leh and Kargil at an altitude of 3300-4650m.

Part use: Leaves, sometimes entire plant

Utilization: used in dilation of pupil, seeds use as vermifuge to repel round worms.

***Plantago depressa* Wild.**

Common name: Plantain

Local name: Tha-ram

Family name: Plantaginaceae

Plant morphology: Annual stemless herb, leaves few to many in rosette, elliptic-lanceolate, sparsely irregularly denticulate, flower white glabrous, inflorescence spike.(Fig.2.20)

Flowering: June – August

Ecology : Wet mountain slopes, wet places and road sides at an altitude of 4500m

Part use: Whole plant

Utilization: Used in cold, cough and fever, and use as antioxidant.

***Podophyllum hexandrum*Royle.**

Common name: Himalayan mayapple

Local name: demokushu

Family name: Berberidaceae

Plant morphology: A perennial scapigerous herb, stem modified into rhizome, leaves 10-25cm long, deeply cut into 3 ovate toothed lobes, flower solitary, terminal, white –pink, cup shaped, reddish berry.(Fig.2.21)

Flowering: May- August

Ecology : Wet slopes and cultivated fields in Zanskar and Suru at an altitude of 3755m.

Part use: Fruits

Utilization: Fever, constipation, septic wounds and in plague.

***Rheum spiciforme* Royle.**

Common name: Spiked cudweed

Local name: Reelachu

Family name: Polygonaceae

Plant morphology: Herb, short and stout, stem absent, petiole of basal leaf purplish-red, leaves ovate or broadly ovate-elliptic, papilliferous or abaxially glabrous, purple red abaxially and yellow green adaxially, tapel light green.(Fig.2.22)

Flowering: July-August

Ecology: Dry and sloppy mountain areas in Suru and Leh at 4000-5000m.

Part use : Roots

Utilization: Used in swelling, wounds, bronchitis, pile and purgative.

***Rheum webbiana* Royle.**

Common name: Himalayan rhubarb

Local name: Chu-Lachu, Chu-rtsa

Family name; Polygonaceae

Plant morphology: A perennial herb, radical leaves with long petiole, leaf blade leathery, entire, 5-7 nerved, papillose or glabrous, flower pale yellow and inflorescence diffusely branched and terminal.(Fig.2.23)

Flowering: July to September

Ecology : Grows in slopes at an altitude of 2000-4500m.

Part use : Roots and Leaves

Utilization: laxatives, used against indigestion and abdominal disorder.

***Rosa webbiana* Wall.exRoyle.**

Common name: wild rose

Local name: Sia-marpo

Family name: Rosaceae

Plant morphology: A leaf shedding, deciduous perennial shrub, slender branches and straight prickles, flower pink-red, solitary with five petals, fruit red egg shaped with persistent calyx.(Fig.2.24)

Flowering and fruiting: July- September

Ecology : Dry and rocky slopes in Nubra and Suru valley at an altitude of 3240m.

Part use : Flower and Fruit

Utilization: Used in fever due to food poisoning, inflammation of liver, jaundice and hepatitis.

***Senecio chrysanthemoides* DC.**

Common name: Cheerful Senecio

Local name: Trubelamandho or Rgu-rdus

Family name; Asteraceae

Plant morphology: perennial plant, stem erect, branched, leaves dissected, flower yellow, solitary and terminal. (Fig.2.25)

Flowering: July-September

Ecology: Found in grassy slopes, loam, rubble, above the canon, at an altitude of 3520m.

Part use: whole plant

Utilization: Dysentery, wounds and in intestinal Colics.

***Taraxacum officinale* Wigg.**

Common name: Dandelion

Local name: Han

Family name: Asteraceae

Plant morphology: Small erect perennial plant, sessile leaves arranged in rosette, flower head yellow, solitary on scapes, achene compressed, ribbed with pappus of white hairs. (Fig.2.26)

Flowering and fruiting: May- July

Ecology : Wetland, moist and shady places.

Part use : Whole plant

Utilization: Used as anti-fungal, diuretic, liver tonic and in fever.

***Tulipa stellata*(Hook.) Regel.**

Common name: Tulip

Local name: Kapichong

Family name: Liliaceae

Plant morphology: Perennial. Leaves long, linear, sessile, flower yellow, terminal solitary, bulbous.(fig.2.27)

Flowering: June- July

Ecology : Found dry and open areas at altitude of 1500-3300m

Part use: Bulb

Utilization: Eaten as raw food

***Thymus serpyllum* L.**

Common name: Breckland thymus

Local name: Tumburu

Family name: Lamiaceae

Plant morphology: A prostrate sub-shrub, creeping stem, leaves oval, 3-8mm long, opposite, flower pink-purple, lilac, magenta, and rarely white, strongly scented, and in cluster. (fig.2.28)

Flowering: July-August

Ecology: Found in dry and rocky slopes at an altitude of 4000-5000m.

Part use: Whole plant

Utilization: used for stomach and intestinal problem

Fig:2**2.1:***Acantholimonycopodioides***2.2:***Achillea millefolium*



2.3: *Acontum heterophyllum*



2.4: *Aconitum violaceum*



2.5: *Arabidopsis himalaica*



2.6: *Arnibia eucroma*



2.7: *Artemisia gmelini*



2.8: *Artemisia sieversiana*



2.9: *Bidens pilosa*



2.10: *Capsella bursa*



2.11: *Gentiana moorcroftiana*



2.12: *Hippophae rhamnoides*



2.13: *Iris hokeriana*



2.14: *Juniperus macropoda*



2.15: *Malva verticillata*



2.16: *Medicago sativa*



2.17: *Mentha longifolia*



2.18: *Melilotus officinalis*



2.19: *Physochlaena praeaila*



2.20: *Plantago depressa*



2.21: *Podophyllum hexandrum*



2.22: *Rheum spiciforme*



2.23: *R. webbiana*



2.24: *Rosa webbiana*



2.25: *Senecio chrysanthemoides*



2.26: *Taraxacum officinale*

2.27: *Tulipa stellata*2.28: *Thymus serpyllu*

RESULT AND DISCUSSION

The information provided by ethnobotanical study on plants and their different uses by native people is useful not only for the conservation of traditional knowledge and biodiversity, but also to promote community health care, and also help in drug development. This paper documented for the traditional uses of 28 plant species from 24 genera and 18 families along with their botanical name, local name, family, habit, plant part used, and local usage of application, from the remote, interior, and tribal area of Pangi Valley and its adjoining areas of district Kargil from cold desert region of Northwest Himalaya. Plants belong to 18 families, of which the Asteraceae are represented by six species. Papilionaceae, Ranunculaceae, Polygonaceae, Brassicaceae, Lamiaceae are represented by 2 plant species. Plant species have been recorded from Ladakh district of ethnobotanical importance. The plant uses can be divided into four main categories, fuel (10.7 %), fodder (42.8%), edible (25%), medicinal (92.85%) and other uses (32.1%) as mentioned in fig 3. The different plant parts which are used for medicinal purpose are represented as graph in fig 4. Aerial parts (42.8%) are the most frequently used than the underground parts (25%) while the whole part plant (10%). The parts of the plant are used in the treatment of diseases such as asthma, kidney problems, jaundice, diarrhoea, bronchitis, hepatitis, bowel diseases etc. Formulations of these plants are prescribed in paste form, powder form, juice form, decoction form, bandages and smoke form. Many of the traditional healing herb and plants shown to have medicinal value and can be used to prevent and alleviate or cure several human disease. Most of the popular species which are slow-growing and Slow-reproducing are especially vulnerable to excessive collection. It has become matter of concern that due to the rapid increase of informal trade in medicinal plants, responsible management of natural medicinal plant resources. The plants collected from the area are also categorised in Rare, Endangered and Threatened medicinal plants of Ladakh compare with G.Phanikumar et al. 2011 and listed in table 1. It is found that two species fall into the category of critically endangered, three found to be endangered. The critically endangered plants are *Aconitum heterophyllum* and *Aconitum violaceum*. The significant botanicals present in *Aconitum heterophyllum* are alkaloid atisine, hetisine, heteratisine, atisenol, heterophyllisine whereas *Podophyllum hexandrum* possesses compound called podophyllin and podophylotoxin which are active principle ingredients used in controlling some forms of cancer. (PawanKumarRana, 2014). Due to their great significance as medicinal herbs its need of time to conserve them and stop their excessive exploitation. Ehtnobotanical survey conducted to explore various plants of potent medicinal efficacy; their uses in herbal formulations are well documented in the present study for further use.

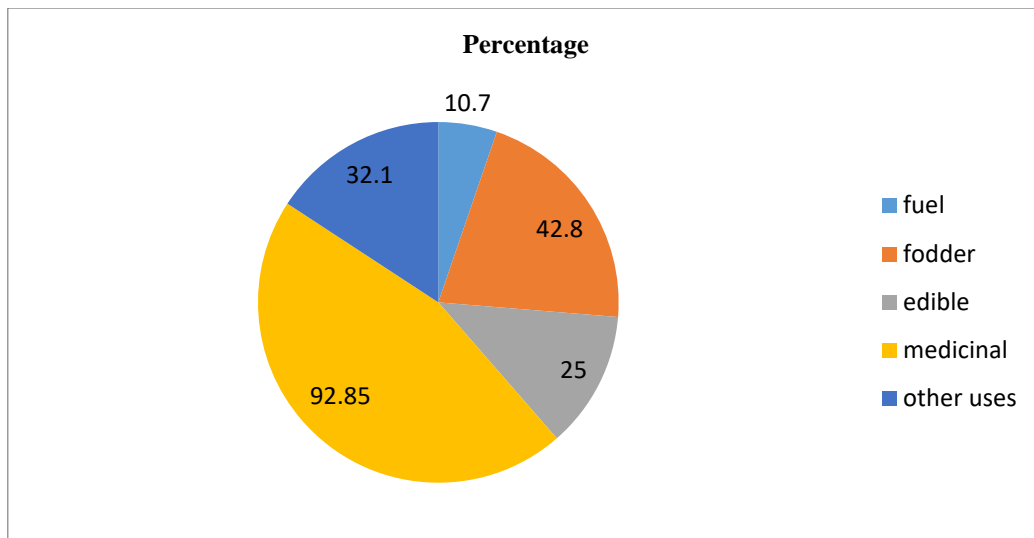


Fig.3. Ethnobotanical uses of plant

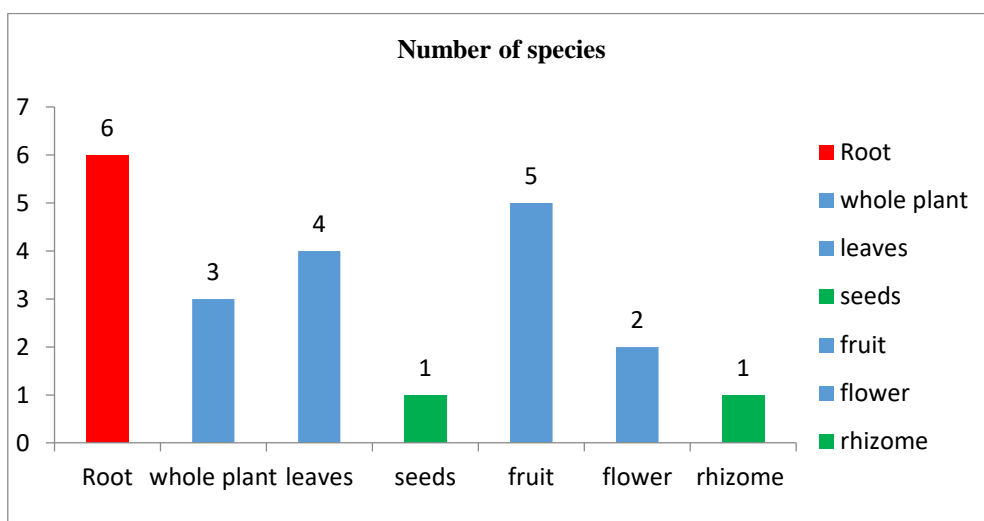


Fig.4. Number of plant species produced medicine from different parts.

Table.1.

<i>PLANT NAME</i>	IUCN Status
<i>Acantholimon lycopodioides</i>	EN
<i>Achillea millefolium</i>	NL
<i>Acontum heterophyllum</i>	CRE-EN
<i>Aconitum violaceum</i>	CRE-EN
<i>Arabidop isishimalaica</i>	NL
<i>Arnibia eucroma</i>	EN

<i>Artemisia gmelinii</i>	NL
<i>Artemisia sieversiana</i>	NL
<i>Bidens pilosa</i>	NL
<i>Capsella bursa</i>	NL
<i>Gentiana moorcroftiana</i>	NL
<i>Hippophae rhamnoides</i>	LR-NT
<i>Iris hokeriana</i>	NL
<i>Juniperus macropoda</i>	NL
<i>Malva verticillata</i>	NL
<i>Medicago sativa</i>	NL
<i>Mentha longifolia</i>	NL
<i>Melilotus officinalis</i>	NL
<i>Plantago depressa</i>	NL
<i>Podophyllum hexandrum</i>	EN
<i>Rheum spiciforme</i>	VU
<i>Rheum webbiana</i>	VU
<i>Rosa webbiana</i>	NL
<i>Senecio chrysanthemoides</i>	NL
<i>Taraxacum officinale</i>	NL
<i>Thymus serpyllum</i>	NL
<i>Tulipa stellata</i>	NL

List of Rare, Endangered and Threatened medicinal plants of Ladakh.(G.Phanikumar et al. 2011)

(IUCN status observation: CRE-EN (critically endangered), EN (endangered), VU (vulnerable), R (rare), LR-NT (low risk -near threatened), NL (not listed).

CONCLUSION

The purpose of the study on ethnobotanical plants from Ladakh is with following objectives

1. Listing of plants with different uses in Ladakh through communication with local people.

2. Study of distributional pattern
3. Listing of rare, endangered and threatened medicinal plants.

Ladakh Himalaya houses valuable medicinal plants and among them many are endemic to that area. Since the area exhibits extremities in climatic conditions and remote people are mostly dependent on the traditional system of medicine so there is need to document the informative literature for further exploration of their medicinal properties in future.

As this knowledge is depleting because it is transferred orally to the people who are unaware of medicinally important plants. Another reason may be the financial gain by the legitimate as well as illegitimate and illegal trade by the local people. All of this has led to huge depletion of the habitat and medicinal plant population.

The trans-Himalaya region sustains 337 species of medicinally important plants among this 45 are placed in different categories according to the Red Data Book of Indian plants. In the present study out of 28, 8 plants that is 3 plants are endangered, 2 vulnerable, 2 critically endangered and 1 low risk -near threatened. With the increase in anthropological activities year by year (e.g. the increase in transport vehicles, tourists etc.) and ignorance to the wild flora makes plant endangered or extinct from wild. Many of the places of the area are still undiscovered for the medicinally important plants that will be good source to the listing of plants and their conservation.

The following conclusion is made from the present research work on the listing of Ethnobotanically important plants are:

1. A proper database is to be prepared by identify and exploring medicinal plants of the area.
2. Sound planning could help in protecting the rare and endangered plants as a anthropological activities causes variation in climate altering the pattern of vegetation and distribution of the medicinally important plants.
3. The comprehensive report of the flora and their role and function in the ecosystem and subsequently for the conservation of plants.
4. To boost the economy of the region, different cultivation practices should be practised for the economically and endangered plants and protecting the flora to extinct from the region.

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