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ECONOMICALLY IMPORTANT ETHNOMEDICINAL PLANTS OF DISTRICT KULLU, HIMACHAL PRADESH, INDIA.

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ABSTRACT

The present paper deals with the documentation of field observations on traditional uses of medicinal and aromatic plants by the inhabitants of Kullu districts of Himachal Pradesh. A large number of plants of local flora are used to cure various ailments of human and livestock. In the present study, 47 medicinal plants belonging to 34 families are used for the treatment of various diseases. Rosaceae, Apiceae, Asteraceae, Poaceae and Ranunculaceae are major families which contribute large number of plant species and their parts like leaves, fruits and seeds are predominantly used. The utility lies through their roots, leaves, fruits, seed, barks and even whole plants. These are taken orally or applied locally in the form of infusion, decoction, paste or powder. Utilization of medicinal plants plays a vital role in the lives of inhabitants of rural area. This study documents valuable information for traditional remedies and contributes to the usage of medicinal plants in the research area.

Keywords: Medicinal Plant; Ethno-medicinal; Kullu; Traditional usage; Himachal Pradesh

Introduction:

A large number of studies on medicinal plants have been carried out in the Indian Himalayan region. These regions are rich repositories of medicinal wealth that occupy an important place in the Vedic treatise (Chauhan, 1999). Kullu district is well known for the production of ethnomedicinal plants in western Himalayan. Banjar is a town in Kullu district in the state of Himachal Pradesh, India. Dhaliwal and Sharma (1999) recorded more than 900 species of angiosperms from Kullu valley. A brief ethnobotanical account of 109 plant species belonging to 41 families and 86 genera of Kullu district in North Western Himalayan have been recorded by Singh (1999). Kullu valley comes under the Great Himalayan National Park. Kullu valley is rich in indigenous local flora population.

Singh and Rawat (1998) have listed more than 250 species as ethnomedicinal and about 50 of them are commercially exploited which have been listed in the Red Data Book of IUCN. Singh (2004) reported that there are about 58 locally used medicinal plants from Great Himalayan National Park Banjar Valley. Rana and Samant (2011) moutaineous regions human populations are dependent in plants form their sustenance particularly for medicine. For centuries temperate forests have experienced intensive human activity. In the Himalaya, most of the people live in villages and use plants as medicine, food, fuel, timber, agricultural tools, fodder and various other purposes (Sharma, 1998; White, 1931). The Himalayas have a great wealth of medicinal flora and folklore medicinal knowledge (Badola and Pal, 2003; Guleria and Vasishth, 2009). Vast Ethnobotanical knowledge exists in India from ancient time (Jain, 1994; Sandhya *et al.*, 2006). An alphabetical list of Ethnobotanical plants is given along with their family, local name, local uses, locality and collection number (Jain and Puri, 1984; Edeoga *et al.*, 2005; Sharma, 2015). Dhauladhar Range is rich in flora. It includes almost all types of plants such as medicinal, aromatic, ornamental plants (Savita *et al.*, 2013; Somal, 2003; Ates and Erdogrul, 2003).

The people of the rural area have knowledge and experience about the traditional uses of medicinal plants, but this knowledge of traditional herbal wealth is diminishing due to modern civilization. Other plants are also present in the wildlife sanctuary (Jagdish *et al.*, 2018; (Samant *et al.*, 2007). A large number of studies on medicinal plants have been carried out in the Indian Himalayan Region (Jain, 1991; Singh and Rawat, 2000; Rai *et al.*, 2000). Kaur and Sharma, (2004) have mentioned medicinal uses of the plants. The traditional used of the plants of lower foot hills of Himachal Pradesh is highlighted by Aggarwal *et al.*, 2009; Saikia *et al.*, 2006, Bihar by Jain *et al.*, 1994, Gujrat by Jadeja, 2006, Karnataka by Hersha, 2000, Rajasthan by Sharma and Kumar, 2011, Tamilnadu by Muthu *et al.*, 2006, Uttrakhand by Dhiman, 2007 and Uttar Pradesh by Singh *et al.*, 2002, Maharashtra by Patil and Yadav, 2002 as well as Orissa by Prusti and Behera, 2007 and Punjab by Attri, 2008 respectively.

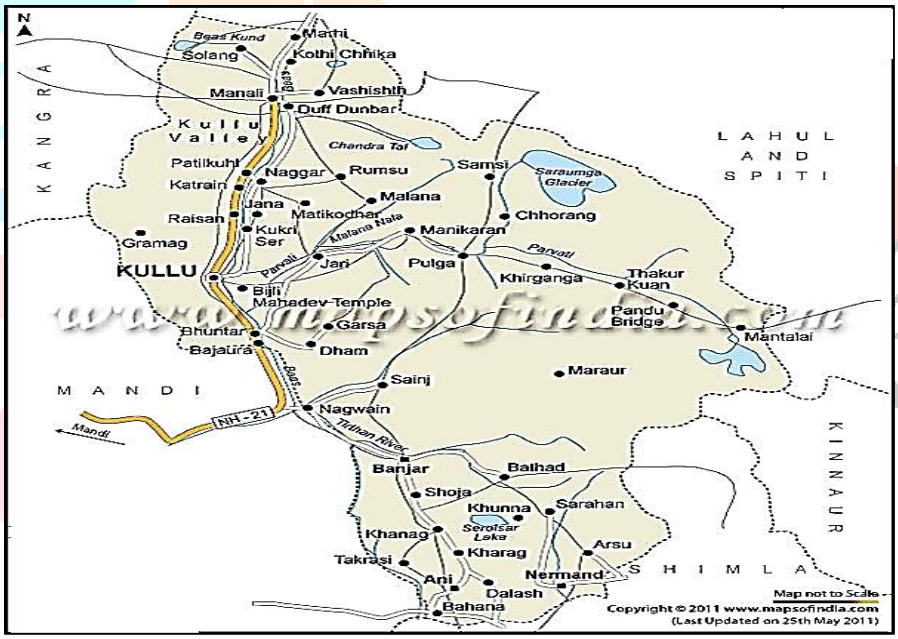
Vishuwanthan and Basavaraju (2010) gave an account in relation to composition of medicines, plants parts used, and their method used for the particular disease. The flora of the north-western Himalayas mainly affected by climatic conditions and altitude (Neeraj, 2015; Dhar *et al.*, 2000; Thakur *et al.*, 2014). The traditional uses of some plants which are used for the treatment of various diseases such as hepatitis, jaundice,

oral health problems and other liver diseases (Kumar and Choyal, 2012) even today, the locally available cultivated and wild plant species are collected and preserved by the rural people and use various parts of these plants such as roots, rhizomes, stem, fruit, bark, leaves, flower, seed, tubers, etc. These parts are main source of proteins, minerals, vitamins, carbohydrates, fibers and have greater medicinal value for the treatment of many diseases (Mahishi *et al.,* 2005; Kala, 2006). Information about plants is gathered from the rural people and plants are collected for study and identification from the study area.

Methodology:

Study Area

The present study was undertaken in three villages, *viz*. Bhumptar, Banjar and Manali in of Kullu district of Himachal Pradesh (Fig.1). The area is located between latitude 31º 33` 00`` to 31º 56` 56`` North and longitude 77º 17` 15`` to 77º 52` 51`` East (Kala, 2006).



Source: www.mapsofindia.com

Fig.1 Map of Kullu Valley

All three sites fall under Kullu district situated on the bank of Palachan rivulet, a tributary of river Tirthan, Parvati and Vayas rivers. Agriculture is the predominant occupation of the villagers but most of the household reared live stock (sheep and goat). Collection of medicinal plants has been the only traditional occupation of cash earning of locals.

Herbarium collection and its preservation

A complete specimen possesses all parts including root system, flowers and fruits. The tools required are mainly digger for digging roots, scissors and knife for cutting twigs, a stick with a hook for collection of parts of tall trees, a field notebook, polythene bag, old newspaper and magazines in the field. Five genera

of the same specimens are collected to avoid damage during transportation and preservation. The collected specimen are transported in the vasculum to prevent willing, livery collected specimen must be tagged with a field number and necessary information should be recorded in the field notebook.

Pressing and Drying–The specimen are spread out between the folds of old newspapers avoiding overlapping of parts. Blotting sheets with plants specimen should be placed in the plant press for drying. After 24 to 48 hours the press is opened.

Mounting–The dried specimens are mounted on herbarium sheets of standard size (41 X 29 cm) with the help of glue, adhesive or cello tape.

Preservation –The mounted specimens are sprayed with fungicides like 2% solution of mercuric chloride

Labelling –A label is pasted or printed on the lower right hand corner. The label should indicate the information about the locality, altitude, habit, date and time of collection, name of collector, common name, complete scientific name etc.

Storage–Properly dried, pressed and identified plant specimens are placed in thin paper folds which are kept together in thicker paper folder genus overs. And finally they are incorporated in the herbarium cupboard in their proper position according to a well-known system of classification.

Results and Discussion:

In present study 47 plants species had been documented which includes Angiosperms (58%), Gymnosperms (14%), Pteridophytes (14%), Lichen (7%), Fungi (7%). Angiospermsincludes familiesAmaranthaceae (2), Apiaceae (3), Asteraceae (3), Berberidaceae (1), Cannabaceae (1), Crassulaceae (1), Ericaecae (1), Fabaceae (1), Hippocastanaceae (1), Lamiaceae (2), Malvaceae (1), Melanthiaceae (1), Menispermaceae (1), Myricaceae (1), Plantaginaceae (1), Poaceae (2), Polygonaceae (2), Ranunculaceae (1), Rosaceae (4), Violaceae (1), Rutaceae (2), Solanaceae (2), Urticaceae (1), Iridaceae (1), Zingiberaceae (1). Gymnosperms includes families Taxaceae (1), Pinaceae (1). Pteridophytes includes families Dennstaedtiaceae (1), Balsaminaceae (1). Lichen families includes are Morchellaceae (1). Fungi includes families Parmeliaceae (1) (Table 1).

Table 1: List of important Ethnomedicinal plants species of Kullu District, Himachal Pradesh.

Family	No. of Plant Species	Name of Species
Amaranthaceae	2	*Achyranthes bidentata*Blume *Amaranthus spinosus*L.
Anacardiaceae	1	*Pistacia integrrima* J.L. Stewart ex Brandis
Apiaceae	3	*Angelica edgew* L. *Centella asiatica* (L.) Urban *Selinum vaginatum* DC.
Asteraceae	3	*Artemisia vulgaris* L. *Conyza canadensis* (L.) Cronquist *Saussurea costus* (Falc.) Lipsch
Balsaminaceae	1	*Diplazium esculentum* (Retz.) Sw.
Berberidaceae	1	*Berberis lyceum* Royle
Cannabaceae	1	*Cannabis sativa* L.
Crassulaceae	1	*Bryophyllum pinnatum* (Lam.) Oken
Dennstaedtiaceae	1	*Pteridium aquilinum* (L.) Kuhn
Ericaceae	1	*Rhododendron arboretum* Sm.
Fabaceae	1	*Trigonella foenum* L.
Hipocastanaceae	1	*Aesculus indica* (Wall. ex Camb.) Hook.
Iridaceae	1	*Iris taochia* Woronow ex Grossh
Juglandaceae	1	*Juglans regia* L.
Lamiaceae	2	*Ajuga bracteosa* Wall. ex benth *Nepeta cataria* L.
Lythraceae	1	*Punica granatum* L.
Malvaceae	1	*Malva verticillata* L.
Melanthiaceae	1	*Trillium govanianum* Wall. ex D. Don
Menispermaceae	1	*Tinospora cordifolia* (Thunb.) Miers
Morchellaceae	1	*Morchella esculenta* L.
Myricaceae	1	*Myrica esculenta* Buch.-Ham. Ex D. Don
Parmeliavceae	1	*Xentho palmelia* (Vain.) Hale
Pinaceae	1	*Pinus wallichiana* A.B. Jacks.
Plantaginaceae	1	*Picrorhiza kurroa* Royle ex Benth.
Poaceae	2	*Hordeum vulgare* L. *Paspalum srcobiculatum* L.
Polygonaceae	2	*Rheum austral* D. Don *Rumex acetosella* L.
Ranunculaceae	1	*Aconitum heterophyllum* Wall. ex Royle
Rosaceae	4	*Malus pumila* M. *Prunus armeniaca* L. *Prunus persica* (L.) Batsch *Rosa canina* L.

Rutaceae	2	*Citrus limon* (L.) Osbeck *Zanthoxylum armatum* DC.
Solanaceae	2	*Datura stramonium* L. *Nicotina tobaccum* L.
Taxaceae	1	*Taxus baccata* L.
Urticaceae	1	*Urtica dioica* L.
Violaceae	1	*Viola reichenbachiana* L.
Zingiberaceae	1	*Curcuma longa* L.

1. *Achyranthus bidentata* Blume (**Puthkanda**)

(Plate I, Figure 1)

Locality: Sajwad

Description: Plant is erect or straggling herb, much branched. Stem and branches are indistinctly quadrangular or channeled hairless to moderately hairy, the nodes frequently much shrunken when dry. Leaves are elliptic-oblong.

Ethnomedicinal uses: Roots possess blood-purifying, astringent and haemostatic properties (Sharma *et al.* 2012).

2. *Amaranthus spinosus* L. (**Sariyara**)

(Plate I, Figure 2)

Locality: Sajwad

Description: The plant is erect, many branched annual herb growing up to 1.5 m. The stem is smooth, robust, cylindrical and often reddish. The leaves are simple and alternate, glabrous or with sparse hairs on the main veins.

Medicinal uses: It is used in the treatment of internal bleeding, diarrhoea, excessive menstruation, snake bite, boils, stomach disorders, ulcerated, mouth ulcers, vaginal discharges, noscbleeds and wounds (Saswade, 2017).

3. *Pisticia integrrima* J.L. Stewart ex Brandis (**Kakkarsingi**)

(Plate I, Figure 3)

Locality: Rashala

Description: It is moderate sized deciduous tree with rough grey bark. Leaves are 15-23 cm long with or without a terminal leaflet. Petiole is terete, puberulous. Leaflet is stalked, 4-5 sub-opposite pairs, lanceolate, entire and arched.

Medicinal uses: Galls are considered as store house of secondary metabolites and leaf galls are used in so traditional herbalism for cough, fever, asthma and diarrhea (Chopra et al. 1982).

4. *Angelica edgew* L. (**Choura**)

(Plate I, Figure 4)

Locality: Rashala

Description: It is a critically endangered plant of the Himalayas. Plants are 1-2.5 m tall, glabrous, aromatic. Root is thick, long-conic. Stem are stout, ribbed. Leaves are long stalked.

Medicinal uses: Roots and seeds of this species are used as carminative, diaphoretic, diuretic, antiseptic and antidepressant agents (Butola and Vashistha, 2013).

5. *Centella asiatica* (L.) Urban (**Brahmi**)

(Plate I Figure 5)

Locality: Jibhi

Description: A prosrate herb, rooting at the nodes. Leaves: usually glabrous, orbicular-reniform, entire, crenate or lobulate. Bracts small, ovate. Flowers: white, borne in 3-6 flowered umbels.

Medicinal uses: It is applied as both poultice and powder respectively in the treatment of leprosy and syphilitic ulcers (Singh *et al*. 2010)

6. *Selinum vaginatum* DC. (**Bhutkesi**)

(Plate I Figure 6)

Locality: Jibhi

Description: It is found in Western Himalayas between 1800 to 3800 m. It is hairless plant but its rhizomes are with long hair. Roots are used as nervine sedative.

Medicinal uses: Many anti-disease properties such as anti-allergic, antitumor, antibacterial (Choudhary *et al*. 2005).

7. *Artemisia vulgaris* L. (**Jhaula**)

(Plate II Figure 7)

Locality: Sai Ropa

Description: The plant is a long-stemmed, 70-150 cm high shrub with a branched, many headed and creeping rhizome without runners or rosette. Flowers are ovoid. Leaves are 5-10 cm long.

Medicinal uses: This mixture is taken every day empty stomach in the morning for a minimum of one month to cure diabetes (Sharma et al. 2015).

8. *Conyza canadensis* L. (**Lingtha ghas**)

(Plate II Figure 8)

Locality: Sai Ropa

Description: Annual or over-wintering (facultative biennial), stinking, seed-propagated weed, often forming only one leaf rosette in the first year. Young plants are round-oval, rounded at the top, petiolate. Stems are erect,dark green, bristly cilliate.

Medicinal uses: Applied for the treatment of wounds, swelling, and pain caused by arthritis (Veres et al. 2011).

9. *Saussurea costus* (Falc.) Lipsch (**Kuth**)

(Plate II Figure 9)

Locality: Tandi

Description: Perennial 3-4 feet tall shrub and its outer surface appear yellowish brown. It has thick cylindrical roots 5-20 cm long, 1 cm in diameter.

Medicinal uses: Helping to normalize and strengthen digestion. Its dried powder is the principal ingredient in an ointment for ulcers; it is also a hair wash.

10. *Diplazium esculentum* (Retz.) Sw. (**Lingar**)

(Plate II Figure 10)

Locality: Tandi

Description: Rhizome erect, often with a slender, rhizome scales dark brown with black margins,up to 10mm long. Stipe up to 6 cm long.

Medicinal uses: It is used in the treatment of cough, cold, fever, etc (Razal *et al*. 2014).

11. *Berberis lyceum* Royle (**Kamshal**)

(Plate II Figure 11)

Locality: Sarthi

Description: Large genus of deciduous and evergreen shrubs from 1-5 m tall. Short shoots only 1-2 mm long. These leaves are 1-10 cm long, simple and either entire or with spiny margins.

Medicinal uses: Tender shoots are chewed to cure skin diseases. Rootsare crushed and mixed with clarified butter (Sharma *et al*. 2015).

12. *Cannabis sativa* L. (**Bhang**)

(Plate II Figure 12)

Locality: Jibhi

Description: Annual herb, usually erect, stem variable up to 8 feet tall. Flowers monoecious or dioecious.

Medicinal uses: Cannabis can also induces unpleasant effects incliding anxiety, pabic, perannoia (Sahoo, 2017).

13. *Bryophyllum pinnatum* (Lam.) Oken (**Patharchatt**)

(Plate III Figure 13)

Locality: Tung

Description: Succulent plant on grow up to 1 m- 2 m in height. Plant grows in tropical, sub-tropical and warm temperature climate zone.

Medicinal uses: It is use for the treatment of kidney stone, cough, asthma, cold (Yadav *et al*. 2014).

14. *Pteridium aquilinum* (L.) Kuhn (**Barn**)

(Plate III Figure 14)

Locality: Rashala

Description: Commonaly called bracken fern, is a coarse, deciduous, rhizomatous, cosmopolitan found in woods, fields, old pastures.

Medicinal uses: They are eaten as a treatment for the cancer, leaves are ised in a steam bath as a treatment for arthritis (Sahayaraj *et al*. 2005).

15. *Rhododendron arboretum* Sm. (**Buransh**)

(Plate III Figure 15)

Locality: Jibhi

Description: Leafy shrubs with round clusters of white, pink, red or purple blooms. In early and mid-spring, trusses of 15-20 bell shaped flowerrs, 5 cm wide and 3-5 cm long.

Medicinal uses: The juice of the bark is used in the treatment of coughs, diarrhea and dusenterry (Srivastava, 2012).

16. *Trigonella foenum* L. (**Methi**)

(Plate III Figure 16)

Locality: Kartah

Description: It is an annual plant with leaves consisting of three small obovate to oblong leaflets.

Medicinal uses: It normalizes the gastric secretions and increases the bile flow from the liver (Sheikhlar, 2013).

17. *Aesculus indica* (Wall. ex Camb.) Hook. (**Khanor**)

(Plate III Figure 17)

Locality: Gusheni

Description: Deciduous, tree growing up to 30 m by 12 m. It is June to July and the seed ripen in October.

Medicinal uses: It is use for the skin treatment. The juice of the bark is also used to treat rheumatism (George *et al*. 2011).

18. *Iris taochia* Woronow ex Grossh (**Bauj**)

(Plate III Figure 18)

Locality: Hidav

Description: It is an indigenous plant with a fleshy, horizontal root or rhizome. Its stem is 2 or 3 feet in height.

Medicinal uses: It is used for the treatment of gastric. It powerfully excites thr biliary salivary and pancreatic secretion (Parray *et al*. 2012).

19. *Juglans regia* L. (**Akhrot**)

(Plate IV Figure 19)

Locality: Shoja

Description: Plant is deciduous. Height of plant is 20 m. flowering period is June, it is a scented tree.

Medicinal uses: It is used in the treatment of constipation, chronic, coughs and asthma (Paul *et al*. 2018).

20. *Ajuga bracteosa* Wall. ex Benth (**Neelkanthi**)

(Plate IV Figure 20)

Locality: Khun

Description: It is a hairy herb, found in temperate regions. It is a diffusely branched perennial evergreen herb remains compressed to the ground**.**

Medicinal uses: It is use in the treatment of agues. Juice is useful in the treatment of diarrhea (Chauhan, 1999).

21. *Nepeta cataria* L. (**Kaudi**)

(Plate IV Figure 21)

Locality: Shoja

Description: Plant is erect, square, branched stems and it can grow to a height of 2 to 3 feet.

Medicinal uses: It is use in the treatment disorder of digestive system, fevers, cold, cough (Turner, 1995).

22. *Punica granatum* L. (**Anar**)

(Plate IV Figure 22)

Locality: Sajwad

Description: Plant may attain 5 or 7 m in height, has elliplic to lance-shaped, bright-green leaves about 7.5 cm long**.**

Medicinal uses: It is use for the treatment of cancer, sorethroats, coughs and urinary infection (Bhowmik *et al*. 2013).

23. *Malva verticillata* L. (**Shochla**)

(Plate IV Figure 23)

Locality: Sarthi

Description: It is and erect, usually unbranched, annual to biennial plant, usually growing 50-100 cm tall.

Medicinal uses: They are use in the treatment of renal, disorders. The retention of fluids, frequent thirst and diarrhea (Begum et *al. 2016)*

24. *Trillium govanianum* Wall. ex D. Don (**Nagchhatri**)

(Plate IV Figure 24)

Locality: Jibhi

Description: The plant is small herb. Purple flower in the center. Leaves are broadly acute and conspicuously stalked.

Medicinal uses: Roots can be used for anti-ageing, anti-inflammatory agent and anti-tumor properties (Rani *et al.* 2013).

25. *Tinospora cordifolium* (Thumb.) Miers (**Giloye**)

(Plate V Figure 25)

Locality: Rashala

Description: Leaves are simple, alternate, cordate, entire, glabrous, flowers are yellow in colour.

Medicinal uses: It is used for the treatment of fever, vomiting, diabetes, jaundice, anemia (Pandey *et al.* 2013).

26. *Morchella esculenta* L. (**Dunglu**)

(Plate V Figure 26)

Locality: Rashala

Description: Cap 3-6 cm in diameter, 4-8 cm long, pale brownish, cream yellow to tan or pale brown to greyish brown.

Medicinal uses: Morchella species are used in traditional Chinese medicine to treat indigestion, phegm, croup and shortness of breath (Ying *et al.* 1987).

27. *Myrica esculenta* Buch.-Ham. ex D. Don (**Kafal**)

(Plate V Figure 27)

Locality: Jibhi

Description: It is medium to large woody tree about 12-15 m in height with trunk diameter about 92.5 cm. The outer bark is greyish dark in color, rough, vertically wrinkled while inner bark is dark brown in color with smooth surface.

Medicinal uses: Bark is also used in the treatment of mental illness and bark is chewed to relieve toothache (Sood *et al.* 2017).

28. *Xentho palmelia* (Vain.) Hail (**Jhaij**)

(Plate V Figure 28)

Locality: Rashala

Description: The ends of the leaf-like lopes are often squashed-tipped. The upper surface is pale bluish-grey to light brown in direct sunlight.

Medicinal uses: Species have been used in diarrhea, dyspepsia, dysentery and as wound healing (Sharma *et al.* 2013).

29. *Pinus wallichiana* A.B. Jacks. (**Kail**)

(Plate V Figure 29)

Locality: Khun

Description: Pine is a coniferous evergreen softwood tree of the family Pinaceae, growing up to 12 to 24 m. Its trunk is deeply furrowed and reaches up to a diameter of 1 m.

Medicinal uses: The wood is diaphoretic and stimulant. It is useful treating burning of the body, cough and ulcers (Sharma *et al.* 2018).

30. *Picrorhiza kurroa* Royle ex Benth. (**Jungli Kodu**)

(Plate V Figure 30)

Locality: Khun

Description: Leaves are 5-15 cm long, almost all at the base, often withered, rhizomes of the plants are 15-25 cm long and woody. Flowers are small, pale or purplish blue and about 8 mm, 5-lobed to the middle.

Medicinal uses: The roots part are used in traditional Chinese medicinal for the treatment of damp-heat dysentery, jaundice, bone disorder (Varshney *et al.* 2013).

31. *Hordeum vulgare* L. (**Jau**)

(Plate VI Figure 31)

Locality: Sarthi

Description: The plant is annual and height of the plant is upto 100 cm. The flowering period of the plant is June to August.

Medicinal uses: They are used in the treatment of stomach ache and cold, fever, cough, vomiting (Phon dani *et al.* 2010).

32. *Paspalum srcobiculatum* L. (**Kodra**)

(Plate VI Figure 32)

Locality: Sarthi

Description: It is a monocot and an annual grass that grows to height of 4 feet. It has an inflorescence that produces 4-6 racemes that are 4-9 cm long. Its slender, light green leaves grow to be 22-40 cm in length.

Medicinal uses: It is used for the treatment of eye and it is also used for the treatment of stomach infection, urinary infection (Chuan-Ying Chao 1977).

33. *Rheum austral* D. Don (**Shunth**)

(Plate VI Figure 33)

Locality: Hidav

Description: The plant is perennial and the height of the plant is upto 3 m. The flowering period of this plant is from June to July.

Medicinal uses: The root is used as anti-cholesterolemic, antiseptic, anti-tumor, astringent and is also used in the treatment of digestive system (Zhi-Gang Ruan *et al.* 2010).

34. *Rumex acetosella* L. (**Malora**)

(Plate VI Figure 34)

Locality: Hidav

Description: The arrow-shaped leaves are small, slightly longer than 1 inch, and smooth with a pair of horizontal lobes at the base.

Medicinal uses: It is used in the treatment of stomachache, gastric problem and it is also used in herbal medicines (Stopps *et al.* 2011).

35. *Aconitum heterophyllum* Wall. ex Royle (**Patish**)

(Plate VI Figure 35)

Locality: Shoja

Description: The roots are biennial, paired tuberous, whitish or grey. The stem erect, simple or branched, from 15-20 cm high. The roots are biennial, paired, tuberous, conical or cylindrical 4-10 cm long, 0.75-3 cm thick.

Medicinal uses: It is used in treating patients with urinary infections diarrhea and inflammation (Paramanick *et al.* 2017).

36. *Malus pumila* M. (**Seu**)

(Plate VI Figure 36)

Locality: Jibhi

Description: This small tree is typically 15-20 feet tall, forming a short crooked trunk about 1-2.5 inch across and a globoid crown with spreading crooked branches. Trunk bark is reddish grey in color.

Medicinal uses: It is used for the treatment of heart disease, diabetes, high cholesterol and cancer (Sneha Sadhwani 2015).

37. *Prunus armeniaca* L. (**Khumani**)

(Plate VII Figure 37)

Locality: Rashala

Description: The plant is deciduous tree. The height of this plant is about 9 m and the flowing period of this plant is from March to April.

Medicinal uses: It is used in the treatment of asthma, cough, acute or chronic bronchitis and constipation (Sneha Sadhwani 2015).

38. *Prunus persica* (L.) Batsch (**Aadu**)

(Plate VII Figure 38)

Locality: Kartah

Description: The plant is deciduous tree. The height of this plant is upto 6 m (20 feet). The flowering period of this plant is from March to April.

Medicinal uses: It is usually used in the treatment of constipation, cough, could, asthma, gastric (Pandey *et al.* 2011).

39. *Rosa canina* L. (**Kuji**)

(Plate VII Figure 39)

Locality: Sajwad

Description: It is a deciduous shrub normally ranging in height from 1-5 m. Its stems are covered with small, sharp, hooked prickles. The leave are pinnate, with 5-7 leaflets.

Medicinal uses: Rose pseudo-fruit traditionally used for the prevention and therapy of common cold, inflammation of the gastric mucosa and gastric ulcer (Montazeri *et al.* 2011).

40. *Citrus limon* (L.) Osbeck (**Nimbu**)

(Plate VII Figure 40)

Locality: Shoja

Description: Lemon tree reaches 10-20 feet in height and usually has sharp thorns on the twigs. The fruit is oval with a nipple-like protuberance at the apex; 2 ¾ to 4 ¾ in long.

Medicinal uses: Its fruit, juice and peel are used to make medicine. Lemon is used to treat scurvy (Chaturvedi, 2016).

41. *Zanthoxylum armatum* DC. (**Timber**)

(Plate VII Figure 41)

Locality: Tandi

Description: Shrubs are small trees, up to 8 m tall with incurved reddish brown prickles; bark grey-brownish, scabrate. Leaves compound, imparipinnate 20 cm long.

Medicinal uses: Its bark, fruits, seeds are used in medicine system such as carminative, stomachic and anthelmintic (Singh *et al.* 2011).

42. *Datura stramonium* L. (**Dhatura**)

(Plate VII Figure 42)

Locality: Kartah

Description: The root is long, thick, fibrous, and white. The stem is stout, erect, leafy, smooth, and pale yellow-green to reddish purple in color.

Medicinal uses: They are used in the treatment of stomach and intestinal pain, toothache, and fever from inflammation. The juice of its fruit is applied to scalp, to treat dandruff and falling hair (Dar *et al.* 2015).

43. *Nicotina tobaccum* L. (**Tambakhu**)

(Plate VIII Figure 43)

Locality: Kartah

Description: The plant is annual and the height of this plant is 120 cm (4 feet). Flowering period of this plant is from July to September and it is scented annual plant.

Medicinal uses: They are used externally in the treatment of rheumatic swelling, skin disease and scorpion stings (Tonia Rabe *et al.* 1997).

44. *Taxus Baccata* L. (**Rakhal**)

(Plate VIII Figure 44)

Locality: Jibhi

Description: The plant is evergreen tree and the height of this plant is 15 m and the flowering period of this plant is March to April. Usually seen as ornamental shrub but may grow as a tree. Bark is reddish brown and peely.

Medicinal uses: It is an anti-cancer drug, particularly in the treatment of ovarian cancers. Internally it is used in the treatment of asthma, bronchitis, hiccups, indigestion (B Sener *et al.* 2001).

45. *Urtica dioica* L. (**Kungash**)

(Plate VIII Figure 45)

Locality: Sarthi

Description: Stems are upright and rigid. Leaves are heart shaped, finely toothed, and tapered at the ends, and flowers are yellow or pink. The plant is covered with tiny stiff hairs.

Medicinal uses: The plant is used as pectoral in the treatment of chest complaints including tubercular problems. It is also used to treat cholera. The stems, leaves and flowers are bruised and applied to foul sores and wounds (Mohajerani *et al.* 2012).

46. *Viola reichenbachiana* L. (**Banksha**)

(Plate VIII Figure 46)

Locality: Rashala

Description: With long-stalked heart-shaped leaves, which are either hairless or only slightly downy, early Dog-violets produced flowers 15-20 mm across which range in color from blue to deep violet. The flowers are 5 petals backed by small pointed sepals.

Medicinal uses: It is used for the treatment of cancer, fever, cough, cold, asthma. (Chandra *et al.* 2015).

47. *Curcuma longa* L. (**Haldi**)

(Plate VIII Figure 47)

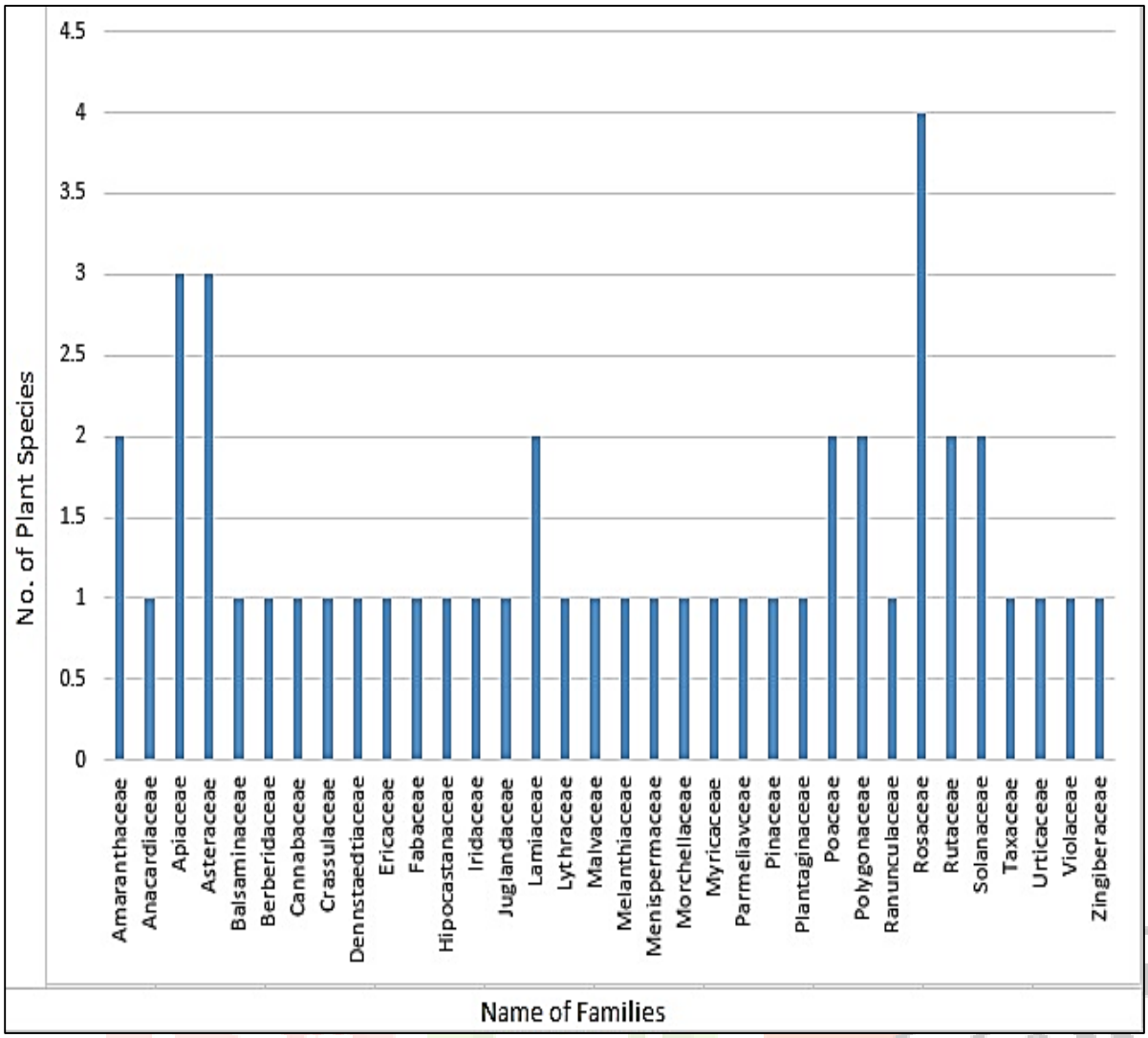
Locality: Jibhi

Description: The plant of turmeric is herbaceous perennial, which is 60-90 cm high. It has a short stem, it has large leaves oblong and up to 1 m long.

Medicinal uses: Turmeric powder has beneficial effect on the stomach. The rhizome of the turmeric plant is highly aromatic and antiseptic. It is taken as the blood purifier and is very useful in the common cold, leprosy, intermittent and wound healing (Lee *et al.* 2003).

In the present study 47 medicinal plants belongs to families contributed large number of plant species are used for the treatment of various diseases belonging to 34 families. Rosaceae, Apiceae, Asteraceae, Poaceae and Ranunculaceae are major families which contributed large number of plant species and leaves, fruits and seeds are predominantly used (Table 2). The utility lies through their roots, leaves, fruits, seed, barks and even whole plants. These are taken orally or applied locally in the form of infusion, decoction, paste or powder. Utilization of medicinal plants plays a vital role in the lives of inhabitants of rural area. Remote areas of developing countries are mostly deprived of health and transport facilities, particularly due to insufficient spending in the health sector. This makes them to depend for the most part on what they get from the plants. Forests are the only source for them to get vegetables, fruits and herbal products are the symbols of purity and safety rather than synthetic drugs, which may become fatal sometimes with adverse effects. This is very essential to intensify our traditional knowledge and to come back to nature. The forty seven species in 34 families have been used in medicinal use by native of Kullu.

Fig.10. Column chart showing different families and no. of plant species of Ethnomedicinal plants.



The family Rosaceae have 4 plant species. Apiaceae and Asteraceae have 3 plant species in each. Amaranthaceae, Lamiaceae, Poaceae, Polygonaceae, Rutaceae and Solanaceae have 2 plant species in each. Anacardiaceae, Balsaminaceae, Berberidaceae, Cannabaceae, Crassulaceae, Dennstaedtiaceae, Ericaceae, Fabaceae, Hipocastanaceae etc. have 1 plant species in each. (Fig. 2).

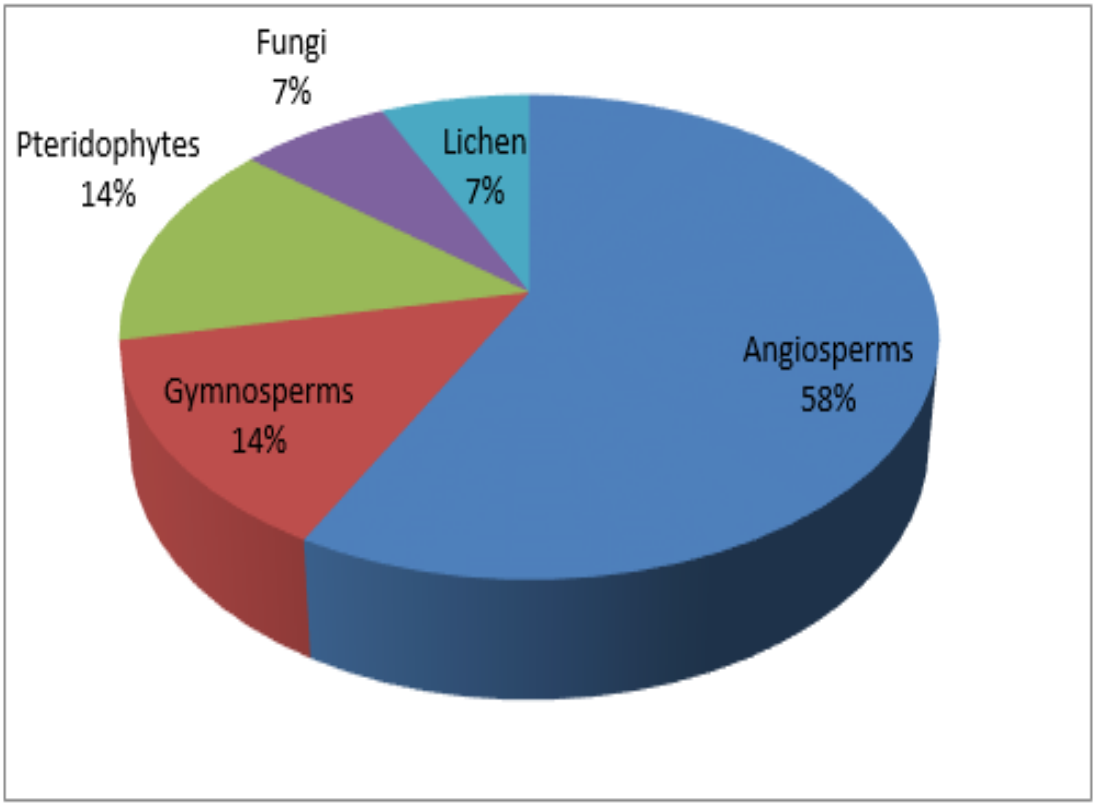


Fig.3. Pie chart showing percentage of Lichen, Fungi, Pteridophytes, Gymnosperms and Angiosperms.

In this pie chart, the highest percentage of Angiosperms that is 58%, Gymnosperms and Pteridophytes is 14% each. 7% of Fungi and Lichen (Fig.3).

Conclusion:

During present investigation, a total of forty seven species of ethnomedicinal plant were collected from Kullu Valley. The ethnomedicinal palnts were collected during December 2020 to February 2021 from different localities of Kullu district of Himachal Pradesh. A total of 47 species of ethnomedicinal plants were identified on the basis of botanical description and medicinal uses. The local people of the study area have a great traditional knowledge on ethnomedicinal plants. Most of the herbal medicines are used in the form of powder, paste, decoction and extract. Some herbal plants are used for the treatment of more than one disease. The use of local plant species should be necessary step for the sustainable conservation of plant species and traditional knowledge associated with them for future generation. The species were deposited in CPUH (The Herbarium of Department of Bio-sciences Career Point University, Hamirpur).

References

1. Ahmad, I. (2001) 'Antimicrobial and phytochemical studies on 45 Indian medicinal plants against multi-drug resistant human pathogens', *Journal of ethnopharmocology*, 74(2), 113-123.
2. Bhattacharya, U.C., and Uniyal, B.P. (1982) 'A Botanical tour to Pangi and Trilokinath in upper Chenab', *Journal Bombay natural History Society*, 7(9), 57-78.
3. Bhat, R.B. (2014) 'Medicinal plants and traditional practices of Xhosa people in the Transkei region of Eastern Cape, South Africa', *Indian Journal of Traditional Knowledge*, 13(2), 292-298.
4. Bates, D.M. (1985) 'Plant utilization: patterns and prospects', *Economic Botany*, 39(3), 241.
5. Ballabh, B., and Chaurasia, O.P. (2017) 'Traditional medicinal plants of cold dessert Ladakh- used in treatment of cold, cough and fever', *Journal of Ethnopharmacology*, 112(2), 341-349.
6. Bauri, R.K., Tigga, M.N., and Kullu, S.S. (2015)'A review on use of medicinal plant to control parasites',*Indian Journal of Natural Products and Resources*, 6(4), 268-277.
7. Boktapa, N.R., and Sharma, A.K. (2010) 'Wild medicinal plants used by local communities of Manali, Himachal Pradesh, India', *Ethnobotanical leaflets*, 4(3).
8. Chauhan, N.S. (1988)'Ethnobotanical Study of medicinal plants of Himachal Pradesh', In Kaushik P (ed.), *Indigenous Medicinal Plants*, 2(1), 187-98.
9. Chauhan, N.S. (1990) 'Medicinal Orchids of Himachal Pradesh', *Journal of Orchids Society of India*, (4), 99-105.
10. Chauhan, N.S. (1983) 'Potential of Aromatic Plants Flora in Himachal Pradesh', *Indian Perfumes*, 33(2), 118-222.
11. Dhar, U., Rawal, R.S., and Upreti J. (2000) 'Setting prioritization for conservation of medicinal plants: a case study in the Indian Himalaya', *Biological Conservation*, 9(5), 57-65.
12. Duraipandiyan, Ayyanar, Ignacimuthu (2006) 'BMC *Complementary and Alternative Medicine*, 6(1), 35.
13. Edeoga, Okwu, and Mbaebie (2005) 'Phytochemical constituent of some Nigerian medicinal plants', *African Journal of Biotechnology*, 4(7), 685-688.
14. Hada, B.S., and Katewa, S.S. (2015) 'Ethnomedicinal plants used against various diseases in Jhalawardistt.of Rajasthan, India,'*Journal of Global Bioscience*, 4(4), 2077-2086.
15. Jain, j.B., Kumane, S.C., and Bhatacharya, S. (2006) 'Medicinal flora of Madhya Pradesh and Chattisgarh- A review,'*Indian Journal of Traditional Knowledge*, 5(2), 237-242.
16. Kanwar, P., Sharma, N., and Rekha, A. (2006) 'Medicinal plants use in traditional healthcare systems prevalent in Western Himalayas', *Indian Journal of Traditional Knowledge*, 5(3), 300-309.
17. Kaur, I., Sharma, S., and Lal, S. (2011) 'Ethnobotanical survey of medicinal plants used for different diseases in Mandi district, Himachal Pradesh', *International Journal Research Pharmacy and Chemistry*, 1, 1167-71.

18. Mukharjee, P.k., NemaN.k., Bhadra, S., Mukharjee, D., Braga, F.C., and Matsabisa, M.G.(2014) 'Immunomodulatory leads from medicinal plants', *Indian Journal of Traditional Knowledge*, 13(2), 235-256.
19. Nautiyal, S., Maikhuri, R.K., Rao, K.S., and Saxena, K.G. (2001) 'Medicinal plants resources in Nanda Devi Biosphere Reserve in the Central Himalayas',*Journal of Herbs, Spices and Medicinal Plants*, 8(4), 47-64.
20. Raven, P.H. (1998)'Medicinal Plants and global sustainability: The canary in the coal mine. Proceeding of the International conference on medicinal plants for survival, New Delhi',*International Medicinal plants: A global* heritage, 14-18.
21. Savinaya, M.S., Patil, S.S., Narayna, j., and Krishna, V. (2016) 'Traditional medicine knowledge and diversity of medicinal plants in Sharavathi valley region of central western ghats',*International Journal of Herbal Medicine*, 4(6), 24-130
22. Sharma, P., and Sumant, S.S. (2014) 'Diversity distribution and indigenous uses of medicinal plants in Parvati Valley of Kullu District in Himachal Pradesh, North Western Himalaya', *Asian Journal Advance Basic Science*, 2, 77-98.
23. Samant, Pant, S., Singh, M., Lal, M., Singh, A., Sharma, S., Sakshi (2007) 'Medicinal plants in Himachal Pradesh, North Western Himalaya, India', *The International Journal of Biodiversity Science and Management*, 3(4), 234-251.
24. Sharma, P.K., Chauhan N.S., and Lal B. (2005) 'Studies on plant associated indigenous knowledge among the Malanis of Kullu district, Himachal Pradesh', *Indian Journal of Traditional Knowledge*, 1(4), 403-408.
25. Rani, S. (2013) 'Ethnobotanical notes on 30 medicinal polypetalous plants of district Kangra of Himachal Pradesh', *Journalof Medicinal Plants Research*, 7(20), 1362-1369.
26. Rani, S., Chahota, R.K., Sharma R. (2015) 'Ethnobotanical survey and traditional knowledge of some medicinal and aromatic plants of Himachal Pradesh, North-West Himalayas',*International Journal of Applies and Pure Science and Agriculture*, 1(12), 234-237.
27. Samant, S.S. (2007) 'Medicinal plants in Himachal Pradesh, north western Himalaya, India', *International Journal of Biodiversity Science and Management*, 3(2), 234-25.
28. Singh, J. (2018) 'Ethnomedicinal plants used by indigenous people of Kanda Range Chopal Forest Division, Himachal Pradesh', *World Journal of Pharmacy and Pharmaceutical Sciences*, 7(1), 697-710.
29. Singh, S.K. (1999) 'Ehnobotanical Study of useful plants of Kullu District in North Western Himalaya, India', *Journal of Economic and Taxonomic Botany*, 2(3), 185-198.
30. Sharma, P.K. (2014) 'Important Medicinal and Aromatic Plants and their traditional use in District Hamirpur- A sub Himalayan Tropical Region of Himachal Pradesh', *Journal of Krishi-Vigyan*, 2(2), 88-91.
31. Sharma, P.K., Chauhan, N.S., and Lal, B. (2005) 'Studies on plant associated indigenous knowledge among the Malanis of Kullu District, Himachal Pradesh', *Indian Journal of traditional knowledge*, 4(4), 403-408.
32. Samant, S.S., Dhar, U., &Rawal, R.S. (1996) 'Natural resources use by some natives of Nanda Devi Biosphere Reserve in West Himalaya',*Ethnobotany*, 8, 40-50.

33. Valsaraj, R., Pushpangadan, P., Smith, U.W., Ad Sersen, A., Nyman, U. (1997) 'Antimicrobial screening of selected medicinal plants from India', *Journal of Ethnopharmacology*, 52(2), 75-83.
34. Uniyal, S. Kr., Awasthi, A., and Rawat, G.S. (2002) 'Traditional and Ethnobotanical uses of plants in Bhagirathi valley, (Western Himalaya)', *Indian Journal of Traditional Knowledge*, 1(1), 7-19.
35. Uniyal, M.R., & Chauhan, N.s. (1971) 'Medicinal plants of Kangra valley in Kangra forest division, Himachal Pradesh', *Journal Research Indian Medical*, 6, 287-299.
36. Bhattacharya, D. (2011) 'Rhododendron species and their uses with special reference to Himalayas- a review', *Assam University Journal of Science and Technology*, 7(1), 161-167.
37. Gupta, A., Nagariya, A k., Mishra, A k., Vansal, P., kumar, S., Gupta V., Singh A k. (2010) 'Ethno-potential of medicinal herbs in skin diseases: An overview', Journal *of Pharmacy Research*, 3(3), 435-441.
38. Kaur, I., Sharma, S., & Lal, S. (2011) 'Etnobotanical survey of medicinal plants used for different diseases in Mandi district, Himachal Pradesh', *International Journal of Research Pharmacy and Chem*istry, (1), 1167-71.
39. Suntonvipart, P., Chantachan, S., and Koseyayothin, M. (2014) 'Medicinal herbs: Traditional knowledge used for constipation therapy in metropolitan Bangkok', *Indian Journal of Traditional Knowledge*, 13(3), 466-472.
40. Bhat, R.B. (2014) 'Medicinal plants and traditional practices of Xhosa people in the Transkei region of Eastern Cape, South Africa', *Indian journal of Traditional Knowledge*, 13(2), 292-298.
41. Mukherjee, P.K., Nema, N.K., Bhadra, S., Mukherjee, D., Braga, F.C., and Matsabisa, M.G. (2014) 'Immuno modulatory leads from medicinal plants', *Indian Journal of Traditional Knowledge*, 13(2), 235-256.
42. Jain, A.K., Wagh, V.V., and Kadel, C. (2011) 'Some Ethnomedicinal plant species of Jhabua district, Madhya Pradesh', *Indian Journal of Traditional Knowledge*, 10(3), 538-540.
43. Malik, H.A., Khuroo, A.A., Dar, G.H., and khan, Z.S. (2011) 'Ethnomedicinal uses of some plants in the Kashmir Himalaya', *Indian Journal of Traditional Knowledge*, 10(2), 362-366.
44. Bhatt, V.P., and Vashishtha, D.P. (2008) 'Indigenous plants in traditional healthcare system in Kedarnath valley of Western Himalaya', *Indian journal of Traditional Knowledge*, 7(2), 300-310.
45. Panda, T., and Padhy, R.N. (2008) 'Ethnomedicinal plants used by tribes of Kalahandi district, Orissa', *Indian Journal of Traditional Knowledge*, 7(2), 242-249.
46. Gupta, M., Biswas, T.K., Saha, S., and Debnath, P.K. (2006) 'Therapeutic utilization of secretory products of some Indian medicinal plants– a review', *Indian Journal of Traditional Knowledge*, 5(4), 569-575.
47. Sharma, P.K., Sethi, G.S., Sharma, S.K., and Sharma, T.K. (2006) 'Ethnomedicinal observations among the inhabitants of cold desert area of Himachal Pradesh', Indian *Journal of Traditional Knowledge*, 5(3), 358-361.
48. Patil, H.M., and Bhaskar, V.V. (2006) 'Medicinal knowledge system of tribals of Nandurbar district, Maharashtra', *Indian Journal of Traditional Knowledge*, 5(3), 327-330.

49. Kanwar, P., Sharma, N., and Anju, R. (2006) 'Medicinal Plants use in traditional healthcare systems prevalent Western Himalayas', *Indian Journal of Traditional Knowledge*, 5(3), 300-309.
50. Kumar, A., Tewari, D.D., and Tewari, J.P. (2006) 'Ethnomedicinal knowledge among Tharu tribe of Devipatan division', *Indian Journal of Traditional Knowledge*, 5(3), 310-313.
51. Jadeja, B.A., Odedra, N.K., Solanki, K.M., and Baraiya, N.M. (2006) 'Indigenous animal healthcare practices in district Porbandar, Gujrat', *Indian Journal of Traditional Knowledge*, 5(2), 253-258.
52. Jain, J.B., Kumane, S.C., and Bhattacharya, S. (2006) 'Medicinal flora of Madhya Pradesh and Chattisgarh-A review', *Indian Journal of Traditional Knowledge*, 5(2), 237-242.
53. Sharma, B., and Maheshwari, S. (2005) 'Traditional medicinal practices of Gaddi tribes in Kangra district, Himachal Pradesh', *Indian Journal of Traditional Knowledge*, 4(2), 169-172.
54. Kanwar, P., and Yadav, D. (2005) 'Indigenous animal healthcare practices of Kangra district, Himachal Pradesh', *Indian Journal of Traditional Knowledge*, 4(2), 164-168.
55. Kumar, M., Sheikh, M.A., and Bussmann, W.R. (2011) 'Ethnomedicinal and ecological status of plants in Garhwal Himalaya, India', *Journal of Ethnobiology and Ethnomdicine*, 7(1), 32.
56. Kala, C.P. (2005) 'Ethnomedicinal botany of the Apatani in the Eastern Himalayan region of india', *Journal of Ethnobiology and Ethnomedicine*, 1(1), 11.
57. Singh, D.A., and Kaur, J.G. (2007) 'Antibacterial activity of some Indian medicinal plants', *Journal of natural medicine*, 61(3), 313-317.
58. Srinivasan, D., Nathan, S., and Suresh, T. (2001) 'Antimicrobial activity of certain Indian medicinal plants used in folkloric medicine', *Journal of ethnopharmocology*, 7(3), 217-220.
59. Sankaronarayanan, S., Bama, P., Ramachandran, J., Kalaichelvan,PT., M Deccaraman. (2010) 'Ethnobotanical study of medicinal plants used by traditional users in Villupuran District of Tamilnadu India' *Journal Medical Plants Research*, 4(12), 1089-1101.
60. Mahawar, M.M., D.P.,Jaroli. (2008) 'Traditional zootherapeutic studies in India: a review' *Journal of Ethnobiology and Ethnomedicine*, 4(1), 17.
61. Sukanya, S.L., Sudisha, J. Hariprasad, P., Niranjana, S.R., Prakash, H.S., Fatima, S.K. (2009) 'Antimicrobial activity of leaf extract of Indian medicinal plants against clinical and phytopathogenic bacteria', *African Journal of Biotechnology*, 8(23).
62. Sheng-ji, P. (2001) 'Ethnobotanical approaches of traditional medicine studies: some experience from Asia', *Pharmaceutical biology*, 39(1), 74-79.
63. Jagetia, G.C., Baliga,M.S. (2004) 'The evaluation of nitric oxide scavenging activity of certain Indian medicinal plants in vitro:a preliminary study', *Journal of Medicinal Food*, 7(3), 343-348.
64. Okwu, D.E., Josiah, C. (2006) 'Evaluation of the chemical composition of two Nigerian medicinal plant', *African Journal of Biotechnology*, 5(4), 357-361.
65. Kar, A., Choudhary, B.K., and Bandyopadhyay. (2003) 'Comparative evaluation of hypoglycaemic activity of some Indian medicinal plants in alloxan diabetic rats', *Journal of Ethnopharmacology*, 84(1), 105-108.

66. Ahmad, I., Beg, A.Z. (2001) 'Antimicrobial and phytochemical studies on 45 Indian medicinal plants multi-drug resistant human pathogens', *Journal of Ethnopharmacology*, 74(2), 113-123.
67. Parekh, J., Chanda, S. (2007) 'Antibacterial and phytochemical studies on twelve species of Indian medicinal plants', *African Journal of Biomedical Research*, 10(2).
68. Jain, S.K. (1994) 'Ethnobotany and research in medicinal plants in India', *Ethnobotanical Search New Drugs*, (185), 153-168.
69. Shoba, f.G., Thomas. (2001) 'Study of antidiarrhoeal activity of four medicinal plants in castor-oil induced diarrhea', *Journal of Ethnopharmacology*, 76(1), 73-76.
70. Chhetri, D.R., Parajuli, P., and Subba, G.C. (2005) 'Antidiabetic plants used by Sikkim and Darjeeling Himalayan tribes', India. *Journal of Ethnopharmacology*, 99(2), 199-202.
71. Aldam, C. (2002) 'Endangered medicinal plant species in Himachal Pradesh', *Current Science*, 83(7), 797.
72. Rani, S., Rana, J.C., and Rana, P.K. (2013) 'Ethnomedicinal plants of Chamba District of Himachal Pradesh, India', *Journal of Medicinal plant Research*, 7(42), 3147-3157.
73. Malik, A.R., Siddique, M.M., Sofi, P.A., Butola, J.S. (2011) 'Ethnomedicinalpracites and conservation status of medicinal plants of north Kashmir Himalayas', *Research Journal of Medicinal Plants*, 5(5), 515-530.
74. Uniyal, S.K., Singh, K.N., and Lal, B.L. (2006) 'Traditional uses of medicinal plants among the tribal communities of Chhota Bhangal, Western Himalaya', *Journal of Ethnobiology of Ethnomedicine*, 2(1), 14.
75. Bhattacharya, D. (2011) 'Rhododendron species and their uses with special reference to Himalayas- a review', *Assam University Journal of Science and Technology*, 7(1), 61-167.
76. Gupta, A., Nagariya, A.K., and Mishra, A.K. (2010) 'Ethno-potential of Ethnomedicinal herbs in skin diseases: an overview', *Journal of Pharmacy Research*, 3(3), 435-441.

PLATE I

Fig. 1 *Achyranthes bidentata* Blume. / Puthkanda

Fig. 2 *Amaranthus spinosus* L. / Sariyara

Fig. 3 *Pistacia integrrima* J. L. / Kakkarsingi

Fig. 4 *Angelica edgew* L. / Choura

Fig. 5 *Centella asiatica* L. / Brahmi

Fig. 6 *Selinum vaginatum* DC. / Bhutkesi

PLATE II

Fig. 7 *Artemisia vulgaris* L. / Jhaula

Fig. 8 *Conyza Canadensis* L. / Lingtha ghas

Fig. 9 *Saussurea costus* (Falc.) Lipsch / Kunth

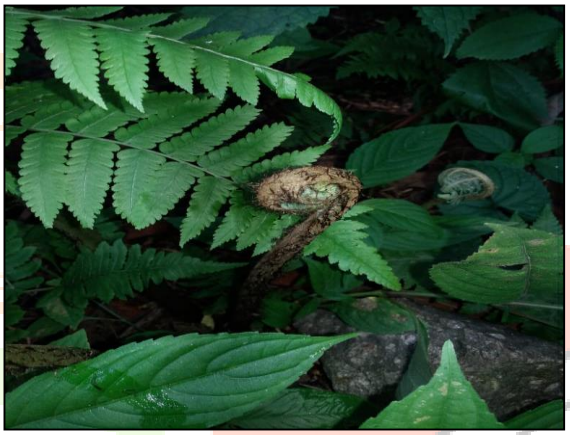


Fig. 10 *Diplazium esculentum* (Retz.) Sw. / Lingar

Fig. 11 *Berberis lyceum* Royle. / Kamshal

Fig. 12 *Cannabis sativa* L. / Bhang

PLATE III

Fig. 13 *Bryophyllum pinnatum* Lam. / Patharchatt

Fig.14 *Pteridium aquilium* L. / Barn

Fig. 15 *Rhododendron arboretum* Sm. / Buransh

Fig. 16 *Trigonella foenum* L.\ Methi

Fig. 17 *Aesculus indica* Wall. ex Camb. / Khanor

Fig. 18 *Iris taochia* Woronow ex Grossh / Bauj

PLATE IV

Fig. 19 *Juglans regia* L.\ Akhrot

Fig. 20 *Ajuga bracteosa* Wall.ex Benth/ Neelkanthi

Fig. 21 *Nepeta cataria* L. / Kaudi

Fig. 22 *Punica granatum* L. / Anar

Fig. 23 *Malva verticillata* L. / Shochla

Fig. 24 *Trillium govanianum* Wall.ex D.Don

PLATE V

Fig. 25 *Tinospora cordifolia* Thumb. / Giloye

Fig. 26 *Morchella esculenta* Fr. / Dunglu

Fig. 27 *Myrica esculenta* Buch. Ham. ex D. Don / Kafal

Fig. 28 *Xentho palmelia* Vain. / Jhaij

Fig. 29 *Pinus wallichiana* A.B. Jacks. / Kail

Fig. 30 *Picrorhiza kurroa* Royle ex Benth. / Jungli Kodu

PLATE VI

Fig. 31 *Hordeum vulgare* L. / Jau

Fig. 32 *Paspalum srcobiculatum* L. / Kodra

Fig. 33 *Rhueum australe* D. Don / Shunth

Fig. 34 *Rumex acetosella* L. / Malora

Fig. 35 *Aconitum heterophpyllum* Wall. ex Royle / Patish

Fig. 36 *Malus pumila M.* / Seu

PLATE VII

Fig. 37 *Prunus armeniaca* L. / Khumani

Fig. 38 *Prunus persica* L.\ Aadu

Fig. 39 *Rosa moschata* L. / Kuji

Fig. 40 *Citrus limon* L. / Nimbu

Fig. 41 *Zanthoxylum armatum* DC. / Timber

Fig. 42 *Datura stramonium* L. / Dhatura

PLATE VIII

Fig. 43 *Nicotina tobaccum* L. / Tambakhu

Fig. 44 *Taxus baccata* L. / Rakhal

Fig. 45 *Urtica dioica* L. / Kungash

Fig. 46 *Viola reichenbachiana* L. / Banksha

Fig. 47 *Curcuma longa* L. / Haldi