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An approach to the study of traditional medicinal plants used by locals of block Kralpora Kupwara Jammu and Kashmir India

Aadil Abdullah[1], Syed Aasif Hussain Andrabi[2]
[1] Research Scholar, Department of Life Science, Glocal University Saharanpur, Uttar Pradesh, India
[2] Associate Professor, School of Agricultural Science, Glocal University Saharanpur, Uttar Pradesh, India

Abstract
The present study reports ethno-medicinal uses of medicinal plants in the northern region of Kashmir Himalayas. The aim of the study is to document the valuable knowledge of the local people regarding the use of plants. The local people use the plants in their unique ways for various purposes mostly for the treatment of various diseases. An initiative was taken to document the ethnic knowledge regarding the medicinal plants in the Kupwara District. Surveys were conducted for documentation of traditional knowledge of medicinal plants. 112 medicinal plant species (87 herbs, 7 shrubs and 10 trees), representing 53 families, were recorded to be used under traditional health care system.

Keywords: ethno-botanical, medicinal plants, Kralpora, Kupwara, Jammu and Kashmir

Introduction

Since prehistoric times, mankind all over the world have studied and practiced the utilization of plants growing in their surroundings for curing various diseases (Yuan *et al*. 2016; Sewell 2014) [49, 44]. Being a part of Indian Himalayan region, Kashmir valley is recognized for its economically important plant species and their products including, food, fodder, medicine, fiber etc. Because of the plant richness and its unique floral biodiversity, a large number of plant species are used as medicine in this region in one or another form (Lone *et al*. 2014, Malik *et al*. 2015) [30, 32]. Plants have been used as healers and health rejuvenators since ancient times. Even now most of the tribal communities mostly depend on plants used as medicine.The local communities in many developing countries depend on plant based medicines even today, whereas, the modern system of health care is mainly dependent on plant based ingredients. The use of plants in modern medicine has considerably increased, on the other hand traditional knowledge is gradually decreasing due to rapid urbanization and dependence of man on modern health care system, but this folk system still prevails in the rural communities (Jan *et al*., 2020) [20].

Traditional systems of medicines have been in vogue for treating various ailments in many countries such as China, Japan, and India. Our country India is commonly called the botanical garden of the world, owing to its wealth of herbal medicines. India with its great topography and climatic diversity has a very rich and diverse flora and fauna. Ethno medicine, in its totality, is virtually an old field with new dimensions of research, and if this field is investigated thoroughly and systematically, it will yield results of great value that is missed by the ethnologists, archaeologists, botanists and linguists and ultimately to pharmacologists and phytochemists. It will appear to be a bridge between botany and medicinal plants (Mahbubur Rehman, 2013) [31]. Ethno botanical information on medicinal plants and their use by indigenous cultures is useful not only in conservation of traditional cultures, but also for community health care and drug development (Farooq *et al*., 2011). Demands for medicinal plants are increasing in both developing and developed countries. As per WHO estimate, about 80% of the population in developing countries depends directly on plants for medicine (Itoo, 2011) [17]. In India, ethnobotany is an old age practice with over 400 different ethnic and tribal communities (Joshi *et al*., 2010) [22].

The United Nations through WHO programmers sought to promote and develop traditional medicine in the health care systems to integrate traditional medicine and modern medicine and to promote manpower development and research in traditional medicine (Adachukwu and Yusuf, 2014) [1]. According to data released by the WHO, ethno medicine has maintained its popularity in all regions of the developing world and its use is rapidly expanding in the industrialized countries. For instance in China, traditional herbal preparations account for 30-50% of the total medicinal consumption. In Ghana, Nigeria and Zambia, the first line of the treatment for 60% of the children with malaria is the use of herbal medicine (Bhat *et al*., 2012) [9].

Plants have been used by tribal and local people for cure of various diseases. Moreover several difficult diseases have problems related with vitality, diabetes; memory loss could be cured effectively by the use of herbal medicine which generally is not possible by the allopathic medicines (Agarwal *et al*., 2013) [2]. Importance of medicinal plants in traditional health care practices which provide clues to new areas of research and in biodiversity conservation is now well known. However, information on the uses of plants for medicine is lacking from many hilly and tribal areas of Kashmir Himalayas (Jeelani *et al*., 2013) [21]. up to now a very few studies have been carried out to document ethno medicinal uses of plant in this particular region because of being remote and difficult terrains (Dar GH *et al* 1984; Kachroo P *et al* 1987 Ara & Naqshi 1992, Kaul 2010, Khan *et al*. 2004, Lone 2003, Navchoo & Bhat 1994, Singh 1995) [10, 24, 4, 27, 28, 29, 38, 47]. Herbal medicine even today plays an important role in rural areas and many locally produced

drugs are still being used as household remedies for various diseases especially in these areas for different ailments. (*Qureshi and Ghufran 2005*) [35]. This is the first detailed study of ethnic medicine in the Block Kralpora of district Kupwara. Although the rural healthcare facilities are we developed, the tribal people in the study area still rely on native medicines to a great extent. It is well known that traditional medicine offers minimal side effects and relatively low cost as compared to other system of medicine. The present study was carried out to document the local knowledge of common people and their practice among local communities about use of some valuable medicinal plant of the study area.

Study area

Current study was carried out in block Kralpora of district Kupwara Jammu and Kashmir (Figure. 1). Kashmir valley of J&K (UT) has 10 districts under its jurisdiction of which Kupwara is one of the backward border areas, located in the northern part of Kashmir valley, with coordinates 34° 01' 60.00" N Latitude and 74° 15' 60.00" E Longitude. The total geographic area of the region is 2,379 sq km consisting of 368 villages. According to the 2011 census (Anonymous 2011) [3], the population density is 366 persons per square kilometre and the total population is 870,354. The schedule caste and schedule tribe population of the area is 7.97 %. The most common language spoken here is Kashmiri, followed by Phari and Gojree. During winter, the study area faces severe cold and a pleasant weather during summers. The temperature ranges between –4° C minimum in winter and up to 32° C maximum in summers (Ahmad & Qayoom 2019) [14]. The present study was carried in block Kralpora of district Kupwara. During the study some of the villages like (Dardpora, Thandipora, Budnamal, Keran, Rashanpora, Tee-Pee and Bungus valley) which are richly populated with the tribal people (Gujjars, Bakarwals) were surveyed.

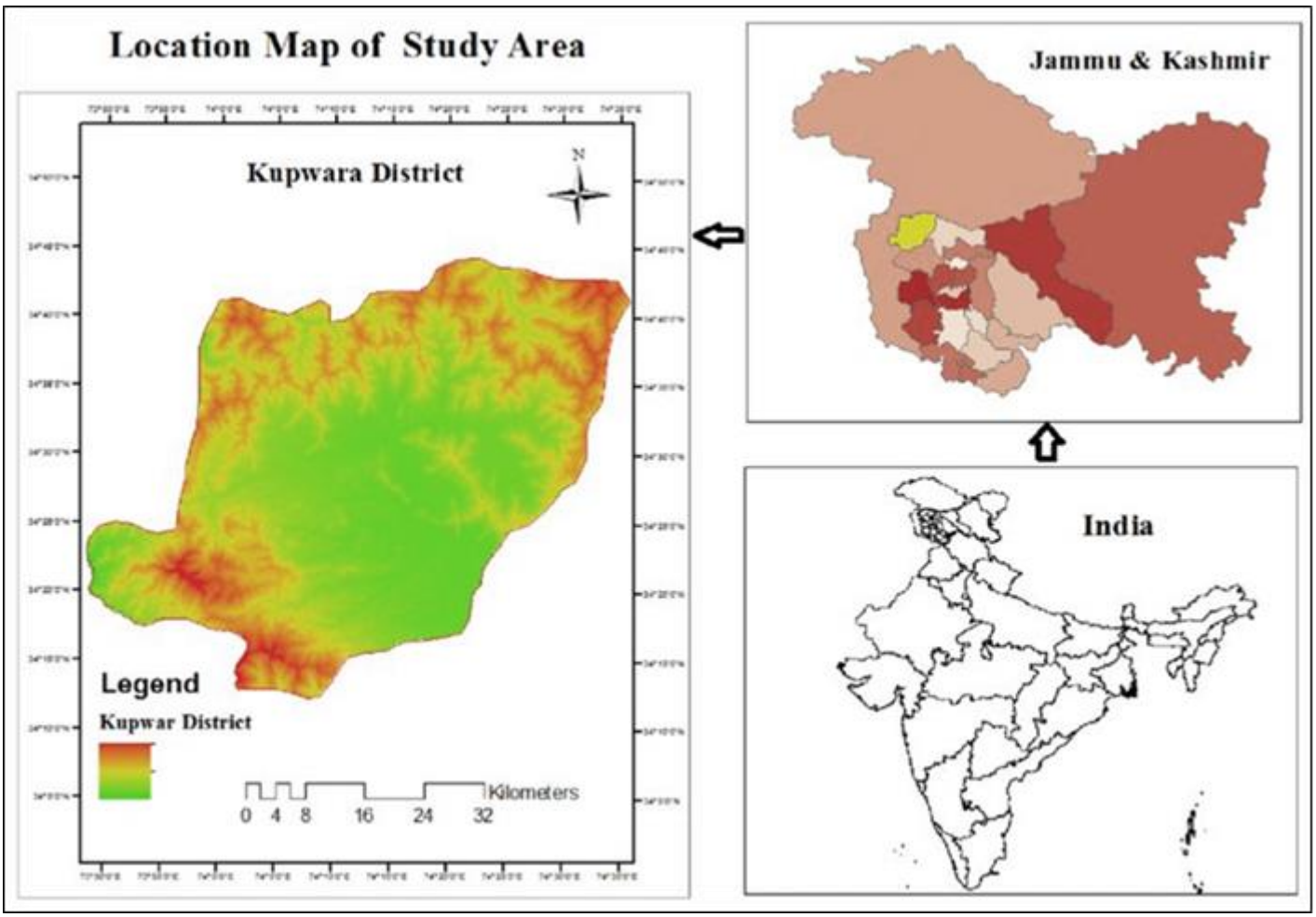

Fig 1: Map of study area.

Methodology

Data collection

An ethno botanical study was conducted from June 2019 to May 2021 in block Kralpora of district Kupwara, Jammu and Kashmir. During the study some of the villages (Dardpora, Budnamal, Karen, Rashanpora, Thandipora and Tee Pee) richly populated with tribal people (Gujjar and Bakerwal) were surveyed. To obtain the knowledge regarding the use of medicinal plants some 98 informants including men, women and herbal healers (locally known as Hakeem's) of varied age groups ranging from 25-90 years, were selected. Questionnaires were proposed in local language and face to face interaction and semi-structured interview patterns were followed during the study. The interviews were carried out in local language and all the recorded data was translated into English. Guided field trips to the forests area allow us to gather the best information and the identification, utilization of precious medicinal plant species. It was ensured to provide same questions to all the informants, so that essential information could be sourced (Martin, 2008) [36]. The questionnaire used in the study for data collection includes two parts, (i) Dealing with the

demographic status of the participants, and (ii) dealing with the information about plants including, local name, and mode of administration, preparation and application of the remedy against a particular ailment. A prior informed consent was obtained from the respondents before the interview.

Preservation and identification

All the required plant specimens and also the useful plant parts were collected for identification in flowering stage from the study area. All the specimens were then identified by using pertinent floras and available literature (Singh *et al*., 2002; Singh and Kachroo, 1994; Mir *et al*., 2021; Jan *et al*., 2021, Kachroo, *et al*. 1977; & Kachroo, 1978.) [48, 46, 37, 37, 23, 25]. The botanical identity of voucher specimens was reconfirmed by taxonomists in the field. All the botanical names were updated according to the International Plant Names Index (http://www.ipni.org). All the identified plant specimens were then verified at KASH herbarium of Department of Botany, University of Kashmir Srinagar, Jammu and Kashmir.

Data analysis

The data collected through interviews with the informants was analyzed using two different quantitative indices *viz*. informant consensus factor (ICF) and use value (UV).

Informant consensus factor (ICF)

Informant consensus factor (ICF) was used to test the uniformity of knowledge about medicinal plant species (Heinrich *et al*. 1998). To develop the informant consensus factor, diseases were categorized into different ailment categories based on the information provided by the informants (Table 2).

Informant consensus factor was calculated as:

$$Fic = Nur - Nt \div Nur - 1$$

Where, Nur denotes the number of use reports for a particular disease category and Nt denotes the number of taxa used for that particular disease category by all informants. ICF values range from 0-1, an ICF value of 0 means that there is no exchange of information regarding the usage of plant species among informants and ICF values approaches 1, when the information is exchanged between the informants (Gazzaneo *et al*. 2005) [12]. Informant's consensus within a population and between ethnic groups shows which plant species are rigorously used and hence helps in the selection of plant species for pharmacological and phytochemical analysis (Giday *et al*. 2007) [13].

Use value (UV)

The use value (UV) demonstrates the importance of a medicinal plant species by taking into account the number of use reports mentioned by the informants. In the present study, use value was calculated by the following formula (Phillip and Gentry 1993) [39].

$$UV = \sum Ui \div N$$

Where Ui is the total uses reported by each informant for a given pant species and N is defines the total number of informants participating in the study.

Results

The present study has documented 112 plant species belonging to 53 families that have been reported for medicinal purposes by the Gujjars and Bakarwals in block Kralpora. These have been arranged alphabetically and the information has been provided about their Botanical name, family, local, mode of application, plant part used, and the method of administration (Table 1). It was observed that due to topographical and climatic variation, the area has a rich diversity of medicinal plants and so is the case with the associated knowledge in people. These plants grow in a variety of habitats such as forest areas, open grasslands, fields, and rocky areas on the hills, etc. The most commonly used plant part was Leaves (31 species), followed by Roots (of 28 species), Whole plants (24 species), Floral parts and Fruits (15 species), Seeds (15), Latex (04) and Bark (01) (figure 2).

Among 53 families, most species belonged to Asteraceae, (16 species) as its one of the largest family of angiosperms, followed by Lamiaceae (11), and followed by Amaranthaceae, Polygonaceae, and Rosaceae, each with five. Four species belong to the Caryophyllaceae family, and the other 3 families have 3 species each such as Pinaceae, Sapindaceae and Plantaginaceae. There are two species in each family, including Berberidaceae, Apiaceae, Cuscutaceae, and Brassicaceae, Violaceae, Malvaceae, Saliaceae, Araceae, Solanaceae, Fabaceae, Rubiaceae, Liliaceae and Ranunculaceae. All the other families which have only one species account about 31 families (Figure 3).

The medicinal plants were mainly Herbs (78%), Trees (9%), shrubs (6%), Ferns (3%), Fungi (2%) followed by climbers and epiphytes both contribute only (1%) each (Figure 4). A total of more than 13 major aliment categories are treated with medicinal plants (Figure 5). The main types of diseases treated are other diseases which includes many aliments like Gastroenterology, Orthopedic, Pulmonary, Urology, Respiratory tract diseases, Otorhinolaryngology, Dermatology, Dentistry, Fever, Hair loss, Neurology and foot and mouth disease of cattle. One plant species can be used to treat many human diseases. Some of the remedies are prepared by combining different plants such as *Saussurea costus, Bergina ciliate, Fritillaria roylei and Geranium wallichianum* are cooked in combination to cure bone and joint problems. It was observed that old aged people have better knowledge of medicinal plants and their usage as compared to younger folk.

Informants

The informants were mainly local residents of the study area. A total of 98 informants were interviewed during the field visits, all the informants follow Islam. Among them, male informants have more knowledge about the medicinal plants as compared to female informants, the number of male informants is 63 is dominant as compared to female informants 35.

Mostly the elder persons were contacted during the field visits as they have more information as compared to young generations, the age of informants varies from 25 to 90 years old. Most of the selected interviewees are illiterate, only the few have education up to middle class. Kashmiri and Gujjars are the two dominant communication languages. Demographic status of informants is given in the table 2.

Table 1: Demographic status of informants

Variable	Total	Percentage
Gender		
Male	63	64.28
Female	35	35.72
Age groups		
25-40	15	15.31
41-55	28	28.57
56-75	34	34.70
76-90	21	21.42
Education qualification		
Illiterate	48	48.98
Primary	28	28.57
Secondary	14	14.29
Above secondary	8	8.16
Occupation		
Males		
Shepherd	30	30.62
Farmers	22	22.45
Hakeem's	10	10.20
Unemployed	11	11.22
Women's		
House wife's	17	17.35
Unemployed	8	8.16

Informant consensus factor (ICF)

Different diseases reported from block Kralpora Kupwara were classified into 13 ailment categories (Table 3) in order to develop consensus of the informants on medicinal plant species. The informants consensus factor (ICF) value ranged from (0.82-0.90) are the highest value for Gastrointestinal (0.90), while the lowest ICF value is of antipyretic (0.82). Some of the plants which are mostly used by the people living in study area are *Acorus calamus*, *Aconitum heterophyllum*, *Artemisia absinthium*. During the research, it was discovered that out of 112 plant species 45 plants are used in treatment of different gastrointestinal diseases. These medicinal plants are also mentioned in traditional medicine around the world, and some of them have been objectively verified using experimental pharmacological analysis. According to (Imam *et al*., 2013) [18] photochemical studies have reported the presence of glycosides, flavonoids, saponins, tannins, polyphenolic compounds, mucilage, volatile oil and bitter principle in *Acorus calamus. Artemisia absinthium* is one of the most important herbs that has exhibited several pharmacological activities, such as being antimicrobial, insecticidal, antiviral, hypoglycemic, hepatoprotective, and wound of Artemisia absinthium (Ahmad *et al*. 2019) [14]. *A. heterophyllum* possesses some phytochemical constituents which have medicinal values. The composites of A. heterophyllum such as alkaloids, amide alkaloids, flavonoids, flavonol glycosides, and diterpenoid and norditerpenoid compounds were isolated and characterized with the help of chromatographic separation techniques and their structures were explained by the using nuclear magnetic resonance techniques (Sadia *et al*. 2015). The 2nd and 3rd highest value of ICF is of dermatology followed by Liver and kidney diseases (0.88), wounds (0.88), and foot and mouth disease (0.88). The next ICF vale of Body weakness, Cardiovascular, Respiratory and Orthopedic (0.87), Body weakness (30 use reports from 4 plant species) Cardiovascular (3 plant species with 23 use reports) Respiratory (52 plant species with 437 use reports) Orthopedic (29 plant species with 234 use reports). Other four types of disease categories have the lowest value of ICF starting from ear, mouth & eye (0.86), Nervous disorders (0.85), Gynecological (0.83) and the lowest of all is of Antipyretic (0.82). The highest ICF for gastrointestinal diseases shows that informants have better transmission and they share knowledge about the use of medicinal plants to treat various gastrointestinal diseases. It can also be attributed to the reality that such barriers are relatively high in the study area.

Use valve (UV)

It has been that most of the medicinal plants in the study area have great use value. To estimate the relative importance of medicinal plant species in the study area, the use value (UV) is calculated on the citations of the informants provided. In our study the Use value (UV) of all the plants is briefly given in table 1. The highest use value Artemisia absinthium (0.61) followed by *Aconitum heterophyllum* (0.54), *Acorus calamus* (0.48), *Ajuga parviflora* (0.45) and *Arnebia benthamii* (0.45), while the lowest use value was recorded in *Viscum album* (0.05) followed by *Cynoglossum glochidiatum* (0.06), *Silene vulgaris* (0.06). High use value of medicinal plant species indicates the richness of these plants in the region and the dependence of local population on such species for treating various ailments (Hussain *et al*.2019) [14].

Table 2: Medicinal plants used by local communities in block Kralpora, Kupwara Jammu & Kashmir.

S.no.	Botanical name and family	Application	Common name	Part used	Life from	Disease treated	Mode of administration	Total use reports	UV
01.	*Acorus calamus* L. [Araceae]	Internal	Vai	Roots	Herb	Diarrhoea (8) Stomach pain(18) Cough (7) Swellings (14)	Dried roots are eaten empty stomach in small quantity to cure Diarrhoea, stomach pain, cough and swellings.	47	0.48
02.	*Aconitum heterophyllum* Wall. ex Royle [Ranunculaceae]	Internal	Patris	Roots	Herb	Joint problems (11) Skin diseases (8) Wounds (9) Abdominal pain (25)	Roots are dried and grinded, boiled in water then taken orally or used to cook rice which is eaten to cure joint problems. Treatment of skin diseases and healing of wounds. Dried roots are also taken empty stomach to cure abdominal pain.	53	0.54

03	*Acer caesium* Wall. ex Brandis [Sapindaceae]	Internal	Chadd	Seeds and gums	Tree	General weakness (23)	Seeds boiled in the water and taken orally by pregnant women as tonic for General weakness of women after birth.	23	0.23
04.	*Ajuga parviflora* Benth. [Lamiaceae]	Internal	Jain-a-adam	Leaves	Herb	Diuretic (15) diarrhoea (18) wounds (11)	Extract of leaves is mixed with a glass of water and sugar is also added and taken orally early in the morning to cure Diuretic, diarrhoea. Paste of leaves is applied on cuts for treatment of wounds.	44	0.45
05.	*Anthemis cotula* L. [Asteraceae]	External	Fack Gass	Whole plant	Herb	Muscular pain (14) insect sting (5) insect repellent (9)	Paste of whole plant is applied on effected portions Muscular pain, insect sting. Whole plant is also used as insect repellent.	28	0.29
06.	*Artemisia absinthium* L. [Asteraceae]	Internal	Teethwan	Leaves and Flowers	Herb	Anthelmintic (22) Abdominal pain (17) fever (8) indigestion (13)	Extract of whole plant is taken orally along with water and sugar to cure Anthelminthic, abdominal pain, fever and indigestion.	60	0.61
07.	*Arnebia benthamii* Wall. ex G.Don [Amaranthaceae]	Internal as well as external	Kahzaban	Whole plant	Herb	Lactation (17) cough & throat infection (14) hair fall (13)	Enhances lactation in women, cough and throat infection, root extract is mixed with oil to control hair fall.	44	0.45
08.	*Artemisia moorcroftiana* Wall. ex DC. [Asteraceae]	Internal	Jungle teethwan	Whole plant	Herb	Abdominal pain (6) anthelminthic (4)	Extract of whole plant is taken orally to trat Abdominal pain, anthelminthic.	10	0.10
09.	*Aesculus indica* (Wall. ex Cambess.) Hook. [Sapindaceae]	External	Handoon	Leaves, seeds	Tree	Fever (7) hair (6) headache (5)	Extract from leaves is used to treat fever, seed oil is used for healthy hair and headache.	18	0.18
10.	*Amaranthus caudatus L.* [Amaranthaceae]	Internal	Leesa	Whole plant	Herb	Diarrhoea (6) fever (3) anthelminthic (8)	Whole plant is used to treat Diarrhoea, fever and oil from seeds is used as anthelminthic.	17	0.17
11.	*Adinatum capillus-veneris L.* [Pteridaceae]	External	Geautheer	Whole plant	Fern	Hair tonic (5) swellings (7)	Paste of whole plant with ghee is used as hair tonic and is also applied on swellings and hair fall.	12	0.12
12.	*Achillea millefolium* L. [Asteraceae]	Internal	Pahelgass	Whole plant	Herb	Toothache (4) diuretic (3) brain tonic (2) snake bite (4)	Leaves are chewed to cure toothache, flowers are diuretic and stimulant tonic to brain, 10-15 grams of dried root powder is taken orally to cure snake bite.	13	0.13
13.	*Amaranthus dudis* Mart. ex Thell. [Amaranthaceae]	Internal	Ganhar	Roots, leaves	Herb	Toothache (5) paralysis (6) weakening of gums (8).	Leaf extract is used for toothache and healing of old cavities, root powder is taken along with milk to cure paralysis, and weakening of gums.	19	0.19
14.	*Ailanthus excelsa* Roxb. [Simaroubaceae]	Internal as well as external	Bran	Bark roots and leaves	Tree	Astringent (4) diarrhoea (3) wounds (9)	Bark is used as astringent, leaves for diarrhoea and are also applied to wounds.	16	0.16
15.	*Aconitum chasmanthum* Stapf ex Holmes. [Ranunculaceae]	Internal	Mohand	Roots	Herb	Toothache (13)	Roots are used to cure toothache.	13	0.13
16.	*Astragalus grahamianus* Benth. [Fabaceae]	Internal	Darrib dawa	Roots	Herb	Toothache (7)	Small amount of dried roots are put in the effected teeth Treatment	7	0.07

							of toothache		
17.	*Adiantum venustum* D.Don [Pteridaceae]	Internal	Kakbi/gauetheer	Whole plant	Fern	Jaundice (8) stomach problems (6) body pain (3) hair loss (5)	Extract of whole plant is taken orally or cooked in water which is given as tonic to cure jaundice, stomach problems, body muscular pain and hair loss.	22	0.22
18.	*Abies pindrow* (Royle ex D.Don) Royle [Pinaceae]	Internal	Bunder	Bark	Tree	Anti-inflammatory (6) rheumatism (5)	Resins are applied on effected portions Anti-inflammatory and decoction of bark is used against rheumatism.	11	0.11
19.	*Arisaema jacquemontii Blume* [Araceae]	Internal	Hapat gogij	Rhizome / tuber	Herb	Anthelminthic (6) burns (5)	Powder form of rhizome is taken along with water against Anthelminthic, dried root powder mixed with oil is applied on burns.	11	0.11
20.	*Berberis lyceum* Royle [Berberidaceae]	Internal	Kaw dach/ cxakhma chang	Whole plant	Shrub	Chest and throat (8) Skin problems (5)	Berries are good for chest and throat troubles, bark of roots is powdered and is applied on effected areas to cure skin problems.	13	0.13
21.	*Bergenia ciliate* (Haw.) Sternb. [Saxifragaceae]	Internal	Pulfort	Roots	Herb	Joint pain (11) wounds (16) abdominal diseases (5)	The root is dried & crushed to make powder used to treat wounds. The powder is mixed with ghee to make it paste to cure joint pain, dried roots are also used to make tea is good for abdominal diseases.	32	0.33
22.	*Bistorta amplexicaulis* (D.Don) Greene [Polygonaceae]	Internal	Manchrai chai	Roots	Herb	Rheumatic (5) whitening of tongue (2) stomach problems (6) coldness (4)	Roots are used to make tea, rheumatic, and whitening of tongue, fever, stomach pain and coldness.	17	0.17
23.	*Cannabis sativa* L. [Cannabinaceae]	Internal	Bang	Leaves and Stem	Herb	Cholera (5) skin diseases (8) smoked (11)	Powder of leaves and stem is mixed with ghee to treat cholera, skin diseases, leaves are smoked.	24	0.24
24.	*Coriandrum sativum* L. [Apiaceae]	External	Dainwall	Whole plant	Herb	Hair fall (7) fatty liver (4) piles (5)	Plant extract mixed with honey is used to cure loss of hair fall, fatty liver, piles.	16	0.16
25.	*Cuscuta europaea* L. [Cuscutaceae]	External	Kukliport	Stem	Herb	Joint pain (6) wounds (5) hair problem (7) asthma (3)	Whole plant is boiled in edible oil and then used for joint pains, healing of wounds. And hairs problems. Herb powder in water is taken for curing asthma.	21	0.21
26.	*Codonopsis rotundifolia* Benth. [Campanulaceae]	Internal	Tunda jaid	Whole plant	Herb	Asthma (5) general weakness (8)	Extract of herb is used for the treatment of Asthma & general weakness in livestock.	13	0.13
27.	*Cascuta reflexa* Roxb. [Cuscutaceae]	Internal as well as external	Kukliport	Stem	Herb	Testicles (6) hair fall (9)	Whole plant extract is applied on effected portions of Swelling of testicles and falling of hair.	15	0.15
28.	*Capsella bursa pastoris* L. [Brassicaceae]	Internal as well as external	Kralmond	Leaves and Seeds	Herb	Anti-inflammatory (11) skin diseases (6) wounds (3)	Seeds are Anti-inflammatory, paste of leaves is applied on skin diseases and wound healing.	20	0.20

29.	*Cynoglossum glochidiatum* Wall. ex Benth. [Boraginaceae]	Internal	Cheur	Roots	Herb	Pimple's (6)	Crushed roots are applied pimple's to cure them,	6	0.06
30.	*Cichorium intybus* Linn. [Asteraceae]	Internal	Saz hand	Whole plant	Herb	Typhoid (6) blood purifier (4) joint pain (11)	Root extract with sugar is used to cure typhoid, whole plant is used as blood purifier, dried herb is powdered and mixed with oil and is applied on effected portions joint pain.	21	0.21
31.	*Chenopodium album* L. [Amaranthaceae]	Internal	Gunhar /krey kul	Whole plant	Herb	Joint pain (12) lice (5) hair fall (7)	Seeds are boiled and ghee is added to it then eaten to cure joint problems, whole plant extract is used to kill lice and prevent falling of hair.	23	0.23
32.	*Celosia argentea L.* [Amaranthaceae]	Internal as well as external	Mawal	Leaves and seeds	Herb	Anti-bacterial (7) anti-allergic (11)	Extract of leaves and seeds is applied Anti-bacterial, and anti-allergic.	18	0.18
33.	*Centaurea iberica* Trevir. & Spreng [Asteraceae]	External	Krech	Leaves and thorns	Herb	Burns (8) eye vision (6)	Crushed leaves are applied on Burns skin rashes and small drop is put in eyes to treat eye vision.	14	0.14
34.	*Conyza Canadensis* L. [Asteraceae]	Internal	Shallut	Leaves and flowers	Herb	Indigestion (7) fever (9)	Extract of leaves is taken as tonic to treat Indigestion, paste of flowers is applied on head to cure fever.	16	0.16
35.	*Colchicum luteum* Baker [Colchicaceae]	Internal	Vir-kum-poash	Corm and seeds	Herb	Back pain (13) cough (3) fever (7) constipation (6)	Fresh corm extract is mixed with ghee then eaten to cure back pain, cough and fever, seeds are used to treat constipation.	29	0.30
35.	*Cedrus deodara* (Roxb.) G.Don [Pinaceae]	External	Deodar	Stem	Tree	Toothache (14) foot and mouth disease (16)	Oil is extracted by burning resinous wood of stem locally called DEODAR which is used to cure toothache, foot and mouth disease of cattle.	30	0.31
37.	*Corydalis govianiana* Wall [Fumariaceae]	Internal	Sangi harb	Shoot	Herb	Respiratory disorders (6) chest pain (3) whooping cough (7) asthma (5)	Extract of shoots is used to treat respiratory disorders, chest infection, whooping cough and asthma.	21	0.21
38.	*Datura stramonium* L. [Solanaceae]	Internal as well as external	Datur	Seeds	Herb	Cough (9) frost bites (5) boils (3)	Seeds are boiled with water and is used to cure cough and frost bites, leaves are antiseptic and applied on boils.	17	0.17
39.	*Dipsacus inermis* Wall ex Roxb. [Caprifoliaceae]	Internal	Wapul haakh	Leaves	Herb	Tightening of blood vessels (11) body weakness (6)	Extract of leaves is used against Tightening of blood vessels and body weakness.	17	0.17
40.	*Diplazium maximum* (D.Don) [Dryopteridaceae]	Internal	Longdi	Whole plant	Fern	Diuretic (7) anti-microbial (8)	Young leaves are eaten as vegetable, diuretic, anti-microbial.	15	0.15
41.	*Erigeron annuus* (L.) Prers. [Asteraceae]	Internal	Dar gass	Seeds and leaves	Herb	Chest pain (7) kidney problems (4) hair tonic (2)	Leaves are crushed to cure chest and kidney problems and also acts as hair tonic.	13	0.13
42.	*Eryngium planum* L. [Apiaceae].	Internal	Dawha mool	Roots	Herb	Jaundice (12) diuretic (6)	Dried roots are taken empty stomach to cure	18	0.18

							jaundice and are diuretic		
43.	*Equisetum diffusum* D.Don [Equisetiaceae]	Internal	Gandamgud	Whole plant	Fern	Kidney stones (12) UTI infection (4) teeth's (6)	Stem is crushed into juice which is used to cure kidney stones, UTI infection and stem is also used to clean teeth's.	22	0.22
44.	*Euphorbia willichii* Hook.f. [Euphorbiaceae]	Internal as well as external	Herbi	Leaf and stem extract	Herb	Skin diseases (9) abdominal cramps (6) cholera (3)	Leaf extract is used against Skin diseases, abdominal cramps, seeds are taken along with piper to cure cholera.	18	0.18
45.	*Fragaria nubicola* Lindl. ex Lacaita [Rosaceae]	Internal as well as external	Rengreash	Rhizome powder	Herb	Headache (7) rheumatic pain (6) tonsillitis (3)	Tea of rhizome is given to patients having headache, rheumatic pain. Rhizome powder is also used to cure tonsillitis.	16	0.16
46.	*Ficus carica* L. [Moraceae]	Internal as well as external	Anjeer	Fruit and stem latex	Tree	Throat problems (5) cough (8) skin problems (14)	Fruits are boiled in water and taken orally to cure throat problems and cough, stem latex is applied on skin diseases.	27	0.28
47.	*Fritillaria roylei* Hook. [Liliaceae]	Internal	Sheethkhar	Roots	Herb	Abdominal pain (11)	Crushed roots are mixed with water to cure abdominal pain.	11	0.11
48.	*Galium aparine* L. [Rubiaceae]	External	Chouir	Whole plant	Herb	Wounds (7)	Whole plant is crushed and applied on wounds of livestock	7	0.07
49.	*Geranium wallichianum* Oliv. [Gernaniaceae]	Internal	Ratanjog	Whole plant	Herb	Acidity (5) diarrhoea (7) joint problems (15) weakness (11)	Leaves are used to treat acidity and diarrhoea, roots are dried and boiled water is separated which is taken orally or used to cook rice to treat joint problems and general body weakness.	38	0.39
50.	*Hypericum perforatum L.* [Hypericaceae]	Internal	Julab Ki dawa	Leaves	Herb	Diarrhoea (9)	Leaves are crushed and taken with water to cure diarrhoea.	9	0.09
51.	*Rhizopogon villosus* Zeller [Rhizopogonaceae]	Internal	Mangdde	Fruiting body	Fungi	Stomach tumours (15) asthma (6)	Eaten raw to cure stomach tumours. Dried and powdered to cure asthma.	21	0.21
52.	*Herniaria hirsute* L. [Caryophyllaceae]	Internal	Chilk	Leaves	Herb	Dizziness (12)	Leaves are grinded and mixed with egg to cure Dizziness.	12	0.12
53.	*Iris germanica* L. [Iridaceae]	Internal	Mazarmund	Leaves	Herb	Rheumatic (6) bronchitis (4) insect repellent (11)	Powder of dried roots is used to cure rheumatic pain, bronchitis and also act as insect repellent.	21	0.21
54.	*Impatiens glandulifera* Royle [Balsaminaceae]	Internal	Trul	Leaves	Herb	Joint pain (6)	Leaves are applied on effected portions against joint pain.	6	0.06
55.	*Jurinea dolomiaea* Boiss. [Asteraceae]	External	Gogal dhoop	Roots	Herb	Wounds (15) skin problems (9) burns (10)	Roots are crushed into powder, which is used to cure wounds, skin problems and burns.	34	0.35
56.	*Juncus inflexus* L. [Juncaceae]	Internal	Tujj	Roots	Herb	Blood in urine (9)	Roots are grinded into powder is taken orally with sugar to cure blood in urine.	9	0.09
57.	*Lavatera cashmeriana* Camb. [Malvaceae]	Internal	Jungli Socxal	Seeds	Herb	Antiseptic (8)	Seeds are thought to be Antiseptic.	8	0.08
58.	*Linum usitatissimum* L. Linaceae	Internal as well as external	Alish	Seeds	Herb	Boils (7) rheumatism (11) defective milk production (5)	Seeds are used to cure boils, rheumatism and defective production of milk and cows.	23	0.23
59.	*Ligularia jacquemontiana*	Internal	Mutasham	Roots	Herb	Constipations (10)	Dried roots are grinded and taken orally to cure	22	0.22

	(Decne.) [Asteraceae]					anthelminthic (12)	constipations and anti-helminthic.		
60.	*Lamium alba* L. [Lamiaceae]	External	Zakhmi dawa	Whole herb	Herb	Boils (6) wounds (9)	Paste of plant is applied on boils and wounds.	15	0.15
61.	*Leonurus cardiaca* L. [Lamiaceae]	Internal	Jungle pudina	Whole plant	Herb	Asthma (7) cough (3) indigestion (6) diarrhoea (2)	Extract of whole plant is taken orally to treat Asthma, cough, Indigestion and diarrhoea.	18	0.18
62.	*Malva neglecta* Wallr. [Malvaceae]	Internal	Gurr socxal	Whole plant	Herb	Stomach cramps (6) diarrhoea (11)	Extract of whole plant is used for stomach cramps, diarrhoea.	17	0.17
63.	*Merremia tridentate* (L.) Hallier f. [Convolulaceae]	Internal	Raiz posh	Whole plant	Climber	Rheumatism (7) anti-venom (3)	Whole plant extract is used against Rheumatism leaves are given as anti-venom after snake bite.	10	0.10
64.	*Mentha arvensis* L. [Lamiaceae]	Internal	Pudina	Whole herb	Herb	Asthma (6) cough (9) diarrhoea (11)	Extract of whole plant is used to treat Asthma, Cough, and diarrhoea.	26	0.27
65.	*Menthe longifolia* (L.) Huds. [Lamiaceae]	Internal	Gud Pudina	Leaves	Herb	Abdominal pain (6) tonsillitis (4)	Leaves are used to make herbal tea which is used to cure abdominal disorders. Whole plant is cooked with egg to cure tonsillitis.	26	0.27
66.	*Morchella esculenta* Fr. [Morchellaceae]	External	Guich	Fruiting body	Fungi	Healing (10) cough (6)	Extract from fruiting body is used to treat Rapid healing and cough.	16	0.16
67.	*Nepeta cataria* L. [Lamiaceae]	Internal as well as external	Gandsoi	Leaves	Herb	Colic (7) skin irritation (3) urinary disorders (4)	Teas made from leaves which is used to relieve colic in babies. Leaf extract is applied externally for skin irritation, urinary disorders.	14	0.14
68.	*Nasturtium officinale* W.T.Aiton [Brassicaceae]	Internal	Naag socxal	Dried flower	Herb	Mumps (7)	Given with milk is used in treatment of mumps in children.	7	0.07
69.	*Origanum vulgare* L. [Lamiaceae]	Internal as well as external	Babar	Whole herb	Herb	Skin diseases (8) intestinal pain (6) urinary disorders (4)	Extract from the plant is applied to cure Skin diseases, intestinal pain and urinary disorders.	18	0.18
70.	*Podophyllum hexandrum* (Royle) T.S Ying [Berberidaceae]	Internal	wanwangun	Roots	Herb	Tumours (6) diarrhoea (3) constipations (8)	Extract from roots is used to treat Tumours, diarrhoea and constipations.	17	0.17
71.	*Phytolacca acinosa* Roxb. [Phytolaccaceae]	Internal	Braand	Fruits and leaves	Herb	Eye diseases (5) cough (6) rheumatic pain (11)	Extract from leaves and fruits is used to cure eye diseases, cough and rheumatic pain.	22	0.22
72.	*Polygonium hydropiper* L. [Polygonaceae]	Internal as well as external	Macxrawangan gass	Seeds	Herb	Cough (7) joint pain (3) skin itching (5)	Paste of seeds is mixed with water to treat Whooping cough, joint pain, and skin itching.	15	0.15
73.	*Prunella vulgaris* L. Lamiaceae	Internal	Kall yutt	Flowers and leaf	Herb	Sore throat (6) cough and cold (8) headache (9) fever (11) constipation (3).	Whole plant extract is used to cure Sore throat, cough and cold, headache, fever and constipation.	37	0.38
74.	*Plantago lanceolata* L. [Plantaginaceae]	Internal	Gul	Whole herb	Herb	Cough (4) urine disorders (11) asthma (5)	Whole plant extract is used to cure Cough, urine disorders and asthma.	20	0.20
75.	*Plantago major* L. [Plantaginaceae]	Internal as well as external	Bodd gul	Whole herb	Herb	Rheumatism (7) dysentery (5) insect sitting (3)	Decoction of whole plant is used to treat Rheumatism. Seeds are used to cure dysentery. Fresh leaves are used against insect sitting.	15	0.15
76.	*Papaver somniferum*	Internal	Khashkhaash	Latex	Herb	Stomach	Latex of capsule is	20	0.20

	L. [Papaveraceae]					problems (7) bronchitis (11) diarrhoea (2)	narcotic. capsule wall powder mixed with water is used to cure stomach problems, bronchitis and diarrhoea		
77.	*Polygonium plebium* R.Br. [Polygonaceae]	Internal	Drabh	Leaves	Herb	Pneumonia (7) stomach problems (5)	Extract is taken against Pneumonia and stomach problems.	12	0.12
78.	*Pyrus cyadone Mill.* [Rosaceae]	Internal	Bumb cxoonth	Fruit	Tree	cough & cold (13)	Fruits are eaten mostly in winter season to cure Cough and cold	13	0.13
79.	*Pinus wallichiana* A. B. Jacks [Pinaceae]	External	Kaayarr	Stem latex	Tree	Cracked heels (7) wounds (22)	Stem latex commonly known as KAANGUL is used in cracked heels and cure wounds.	29	0.30
80.	*Parrotiopsis jacquemontiana* (Decne.) Rehder. [Hamamelidaceae]	External	Pouh/ posh	Stem and leaves	Shrub	Joint pain (5) wounds (7)	Oil extracted from stem is applied on effected areas joint pain, Leaves are crashed and applied on wounds.	12	0.12
81.	*Potentilla alba* L. [Rosaceae]	Internal as well as external	Saban gass	Whole herb	Herb	Diarrhoea (4) tonsillitis (7)	Whole plant extract is used to cure Diarrhoea, tonsillitis.	11	0.11
82.	*Rheum webbiana* Royle [Polygonaceae]	External	Pambchalan	Roots	Herb	Skin diseases (8) wounds (27)	Crushed roots are mixed with ash to cure skin problems also roots are used in healing of wounds.	35	0.36
83.	*Rubus ulmifolius* Schott [Rosaceae]	Internal as well as external	Gounch	Whole plant	Shrub	Boils (8) cough (5) diarrhoea (8)	Extract from bark and roots is used to cure boils, whooping cough. Leaves are used in treatment of diarrhoea.	21	0.21
84.	*Rumex nepalensis* Spreng. [Polygonaceae]	Internal as well as external	Abij	Leaves and Roots	Herb	Back pain (17) skin diseases (8)	Dried roots are crushed and boiled with water to cure joint pain and skin diseases.	25	0.26
85.	*Rosa webbiana* Wall. ex Royle [Rosaceae]	Internal	Jungle gulab	Flowers	Shrub	Cough & cold (14) chest pain (8)	Dried flowers are used to make khambeer which is used to cure cough and cold, paste of petals is used to cure chest pain.	22	0.22
86.	*Sonchus oleraceus* L. [Asteraceae]	Internal	Dudije	Whole plant	Herb	fever (9) indigestion (8)	Dried Leaves are grained and given to women's after delivery, high fever, indigestion.	17	0.17
87.	*Stellaria media* L. [Caryophyllaceae]	Internal as well as external	Nick haakh	Whole plant	Herb	Itchy skin (5) pulmonary diseases (8)	As a remedy to cure to treat itchy skin conditions and pulmonary diseases.	13	0.13
88.	*Sambucus wightiana* Wall. [Adoxaceae]	Internal as well as external	Brand	Leaves and roots	Herb	Diuretic (8)foot and mouth disease (16)	Extract of roots is Diuretic. Extract of leaf and roots is applied externally on livestock cure foot and mouth disease.	24	0.24
89.	*Saussurea costa* (Falc.) Lipsch. [Asteraceae]	Internal	Kouth	Roots	Herb	Joint problems (25)	Dried roots are boiled and used to cook rice which is used to cure joint problems.	25	0.26
90.	*Silene coronaria* (L.) Clairv. [Caryophyllaceae]	External	Chock dawa	Leaves	Herb	Burns (13)	Leaves are boiled and applied on burns.	13	0.13
91.	*Silene vulgaris* (Moench) Garcke [Caryophyllaceae]	Internal	Watt kram	Leaves	Herb	Abdominal problems (7)	Leaves are also cooked and also used in the treatment of abdominal problems.	7	0.07
92.	*Solanum nigrum* L. [Solanaceae]	Internal	Kambai	Fruits and leaves	Herb	Abdominal pain (5) jaundice (11)	Fruits are eaten raw while as extract from leaves is used to treat Abdominal pain and jaundice.	16	0.16

93.	*Salvia hians* Royle ex Benth [Lamiaceae]	Internal as well as external	Nil-posh	Whole plant	Herb	Cough (8) eye vision (7)	Whole plant extract is used to cure Cough, defective eye vision.	15	0.15
94.	*Senecio chrysanthemoides* DC. [Asteraceae]	Internal as well as external	Bough	Whole plant	Herb	Skin rashes (8) cuts (4) stomach problems (9) urine disorders (11)	Paste of whole plant is used to cure Skin rashes minor cuts, while as decoction of whole plant is given to cure stomach problems and urine disorders.	32	0.33
95.	*Sorghum halepense* (L.) Pers. [Gramiaceae]	Internal as well as external	Durham	Roots	Herb	Dandruff (8) skin problems (5)	Paste of roots is mixed with desi ghee to treat Dandruff, skin infection, and young plant is poisonous for cows.	13	0.13
96.	*Salvia moorcroftiana* Wall. ex Benth. [Lamiaceae]	External	Gulkan	Roots	Herb	Skin diseases (8)	Dried roots are crushed and made into a powder. Powder is applied on affected portion externally to cure skin diseases.	8	0.08
97.	*Salix alba* L. [Saliaceae]	External	Veer kul	Plant extract	Tree	Cleaning teethes (18)	Twigs are used to clean teethes, herbal drug from the plant is used to treat blood clot in arteries and veins in heart patients.	18	0.18
98.	*Salix acomphylla* Boiss. [Saliaceae]	External	Kashir veer	Leaves and fresh twigs	Tree	Boils (7) burst of pus (8) stomach problems (14)	Paste of leaves is applied on boils to help in ripe, bursts of pus. Fresh twigs is chewed and juice is slowed to cure stomach problems.	29	0.30
99.	*Taraxacum officinale* (L.) Weber ex F.H.Wigg [Asteraceae]	Internal	Hand	Leaves	Herb	Stomach cramps (11) back pain (6) tightening of vessels (8)	Decoction of leaves is used to cure Stomach cramps, back pain, tightening of vessels.	25	0.26
100.	*Thymus linearis* Benth. [Lamiaceae]	Internal	Jiand	Leaves	Shrub	Stomach cramps (16) snake bite (7) vision (8)	Leaves are boiled with water and added with eggs to cure stomach cramps, snake bite cure and weak vision.	31	0.32
101.	*Trigonella foenum-graecum L.* [Fabaceae]	External	Meath	Leaves and seeds	Herb	Factures (21) stomach pain (7) body pain (13)	Seeds are grinded into powder then mixed with egg yolk then applied to factures externally, leaves are used to cure stomach problems and body pain.	41	0.42
102.	*Trillium govanianum* Wall. ex D.Don [Melanthiaceae]	Internal	Trupater	Roots	Herb	Worms (11) boils (7)	Powder of rhizome is given to cows to cure worms, and cure boils.	18	0.18
103.	*Tulipa clusiana* Red. Liliac. [Liliaceae]	Internal	Yerki posh	Bulb	Herb	Tonic (8)	Blub is used as tonic after pregnancy.	8	0.08
104.	*Tussilago farfara L.* [Asteraceae]	Internal	Wat pann	Roots and leaves	Herb	Chronic bronchitis (7) asthma (5) stomach problems (11)	Extract of whole plant is used to treat Chronic bronchitis, asthma, also given to livestock to cure stomach problems.	23	0.23
105.	*Tagetes minuta L.* [Asteraceae]	Internal	Buat poash	Flower and leaves	Shrub	Piles (2) kidney trouble (4) muscular pain (5)	Leaves are given to cure piles, kidney troubles, and muscular pain	11	0.11
106.	*Urtica dioica L.* [Utricaceae]	Internal as well as external	Soi	Roots and leaves	Herb	Rheumatoid pain (14) wounds (5) asthma (6) urine irritation (8)	Paste of roots and oil is applied externally to cure rheumatoid pain, healing of wounds. Asthma and urine irritation.	33	0.34

107.	*Viburnum grandiflorum* Wall. ex DC [Viburnaceae]	Internal	Kilmish	Fruits and roots	Shrub	Cough (9) stomach problems (6)	Fruits are eaten after ripening, roots are boiled in water and then taken with food to treat cough and stomach problems.	15	0.15
108.	*Verbascum Thapsus* L. *[Scrophulariaceae]*	Internal as well as external	Sarfe makai	Seeds and leaves	Herb	Asthma (8) burns (6)	Seeds are smoked for relaxation of mind, and asthma. Paste of leaves and flower is applied on burns.	14	0.14
109.	*Verbena officinales* L. [Verbenaceae]	Internal as well as external	Van tamook	Whole plant	Herb	Food poisoning (5) indigestion (7) wounds (6)	Whole plant extract is used to cure Food poisoning, indigestion and treatment of wounds.	18	0.18
110.	*Viola biflora* L. [Violaceae]	Internal as well as external	Gulnakash	Flower and leaves	Herb	Joint pain (4) neck pain (5) foot fever (7)	Extract of flowers and used is mixed with oil and applied to cure neck and joint problems. Dried leaves are boiled in water to cure foot fever.	16	0.16
111.	*Viscum album* L. *[*Santalaceae]	Internal	Goundh	Whole plant	Epiphyte	Joint problems (5)	Whole plant extract is used to cure joint problems.	5	0.05
112.	*Viola oderata* L. [Violaceae]	Internal	Nun posh	Flower	Herb	Cough and cold (15)	Flowers are collected in early spring and dried up to make Khambeer which is taken orally in winter to cure Cough and cold.	15	0.15

Discussion

Present study reported the medicinal importance of plants used against a number of ailments in Block Kralpora of district Kupwara, Jammu and Kashmir. This is the first ethno medicinal report of medicinal plant from the study area. It has been found that female members in rural areas have more knowledge regarding the use of medicinal plants than males, because most of the male members move away from their home for earning livelihood leaving behind their women to deal with day to day ailments (Rossato *et al.*, 1999) [40]. Logically, plant species which are popular for the treatment of a particular ailment holds the healing properties because it is tested overtime by patients and healers (Shah *et al.*, 2015; Singh *et al.*, 2011) [43, 45]. These findings are in consistent with other studies carried out in Jammu and Kashmir (Malik *et al*. 2011, Bhatia *et al*. 2014) [33, 7] and other parts of the world (Bolson *et al*. 2015, Hu *et al*. 2020; Kadir *et al*. 2014) [8, 28]. As per Simbo (2010) [41], occurrence of pharmacologically active substance in greater concentration in herbs makes them valuable for treating various ailments. The study also revealed that nearly 40% of the local population is dependent on medicinal herbs to treat different ailments, as most the the population of the study area moves to higher peack along with their livestock in the summers. It was found that the knowledge and usage of medicinal plants for the treatment of various problems among the people of study area is still a main part of their life as well as culture. Herbs can grow in different habitats, inculding vegetable gardens, lawns and farmland,etc. so local residents can easily obtain them for traditional medicine. This information of the traditional usage of medicinal plants is not documented properly, so there is an urgent need to document this valuable information and to preserve it for future needs. Among 53 families, most species belonged to Asteraceae, (16 species) was the dominant followed by Lamiaceae (Figure3). Our results on the rich use of Asteraceae are consistent with other studies conducted in various other areas of Jammu and Kashmir (Lone *et al*. 2014, Mir *et al*. 2021) [30, 34]. Ethno medicinal information regarding medicinal plants and their utilization by native people is useful not only for the preservation of traditional knowledge and biodiversity, but it also helps to promote the community healthcare. This information can also prove helpful for drug development, assuming that the plant that has been used by people from long period of time may have good allopathic properties (Khan *et al.*, 2010) [26].

Some of the commonly used medicinal species are *Ajuga bracteosa, Artemisia absinthium, Acorus calamus, Aconitum heterophyllum, Jurinea dolomiaea, Fritillaria roylei, Geranium wallichianum, Rheum webbianum,* in wild trees *cidrus deodara* and *Pinus wallichiana* are mostly used. In the past these plants were only used by specialized herbal healers and rural communities, but now the herbal products these plants are used by all the households.

As in most of the cases roots and whole plant is used as medicine which may cause extinction of some of the important medicinal plants, as these plants also critically endangered as per IUCN which includes *Trillium govanianum, Aconitum heterophyllum, Saussurea costa, Arnebia benthamii, Jurinea dolomiaea* and *Fritillaria roylei.*

The endemic extraction and remedy formation practices reported in the present study should be approved and regulated on scientific scale. The wholesale harvesting of threatened medicinal plants should be banned, strictly. The native communities should be given knowledge about conservation of wild species especially these medicinal plants which they used to collect mostly.

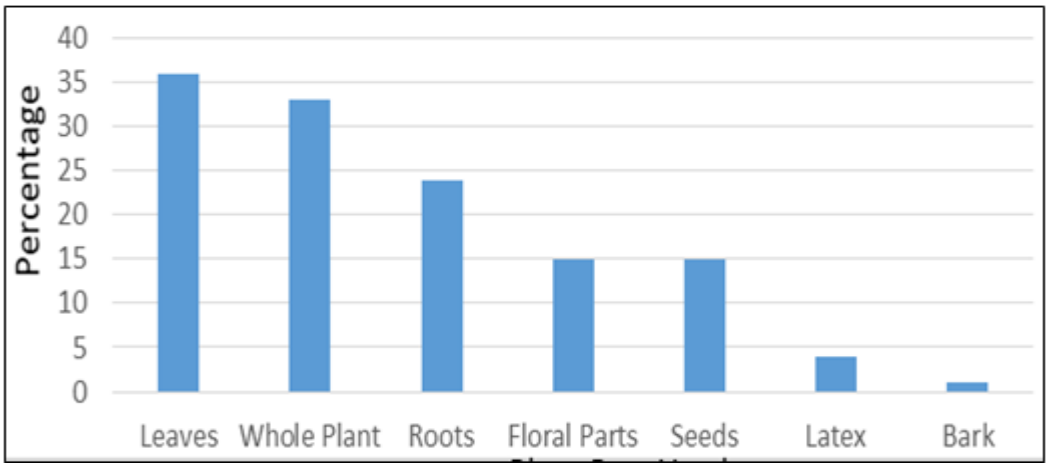

Fig 2: Types of plant parts with ethno medicinal uses in Kralpora (Chowkibal, Thandipora, Tee-Pee, Budnamal and Rashanpora.

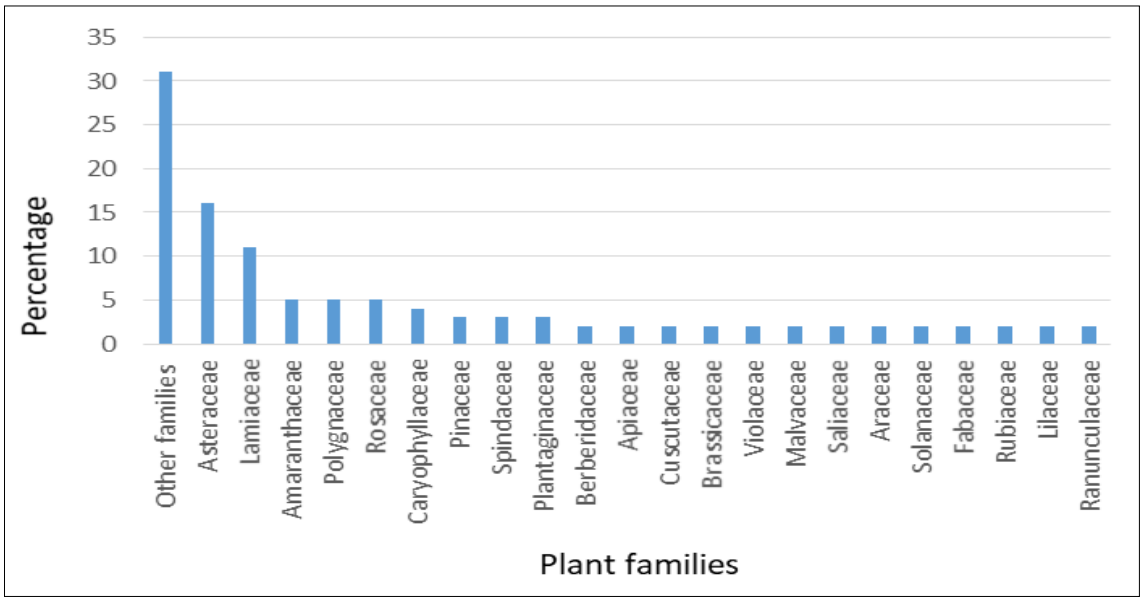

Fig 3: No. of plant species used to treat various ailments in Kupwara block Kralpora.

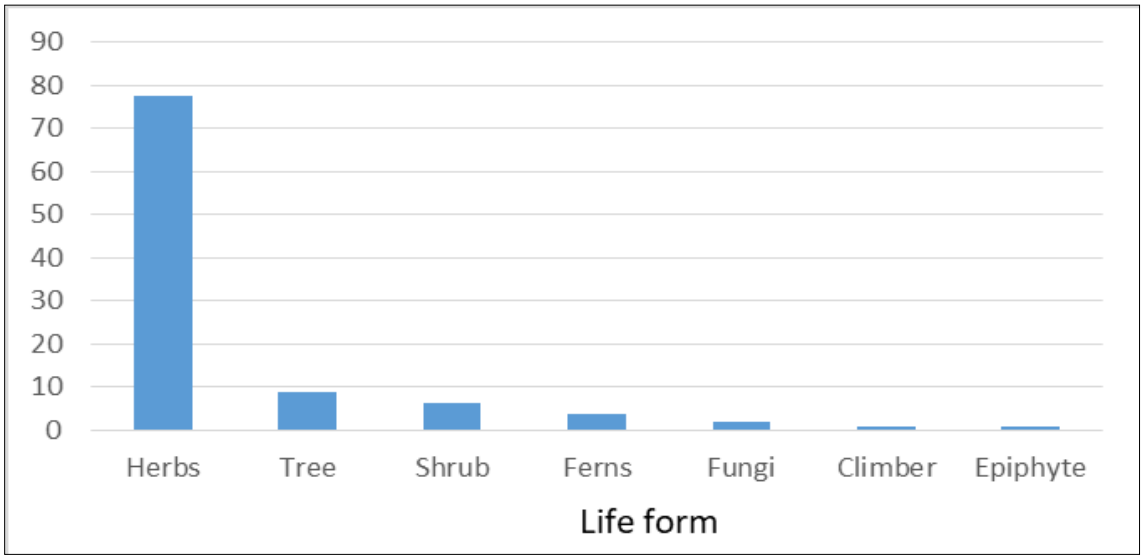

Fig 4: Distribution of various medicinal plants in different life forms.

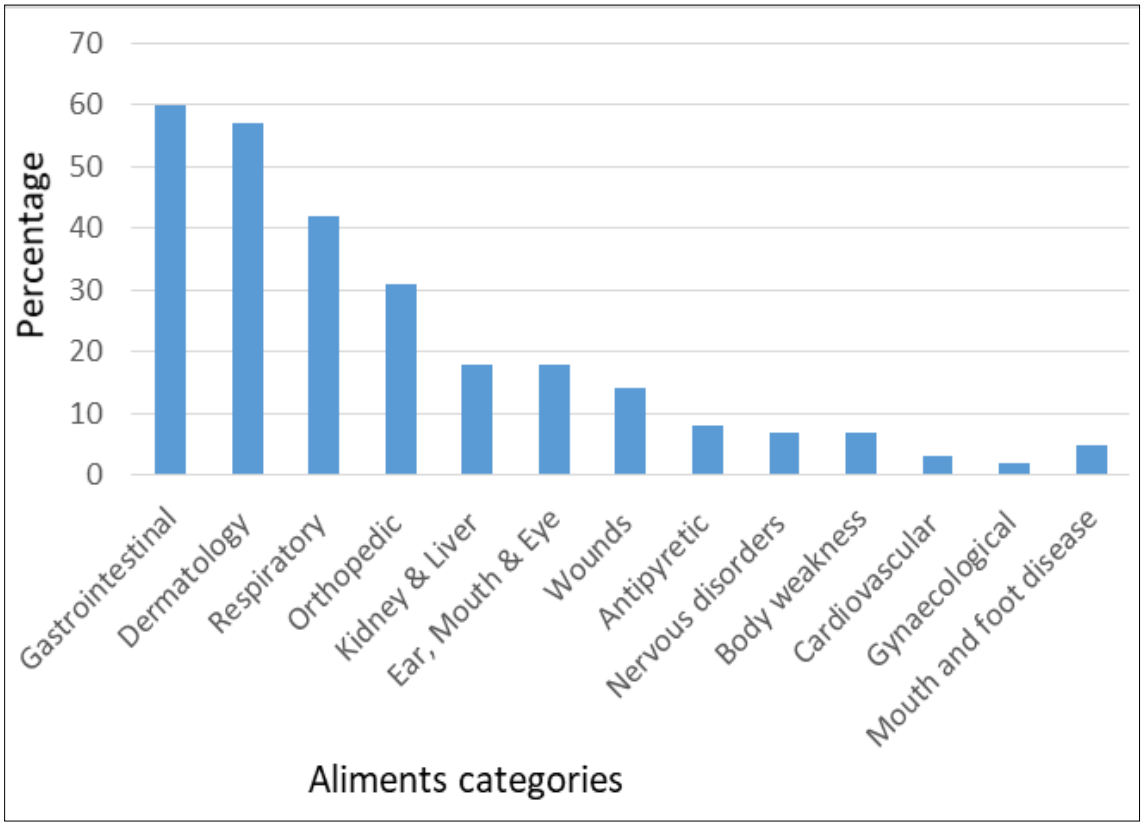

Fig 5: The Frequency of use of the plant species in different disease categories.

Table 3: Value of informant consensus factor (ICF) for each disease category.

Disease category	Aliments	Number of use reports (Nur)	Number of taxa (Nt)	ICF
Gastrointestinal	Abdominal pain, Diarrhoea, Stomach disorders, Constipation, Vomiting, Stomach problems, Stomach cramps, intestinal pain, Indigestion, Purgative, Dysentery, Anthelminthic, Indigestion, Piles, Colic.	473	45	0.90
Dermatology	Burns, Hair fall, Pimples, Swellings, Killing lice, Allergy, Hair growth, Anti-bacterial, Skin allergies, Insect sting, Cracked heals, Boils, Snake bite, skin itching, Skin irritation, Fungal infections, Anti-inflammatory.	437	52	0.89
Respiratory	Chest problems, Chest pain, Common cold, Cough, Pneumonia, Asthma, Bronchitis, Throat infections, Chronic bronchitis, chest and throat troubles, Throat problems, whooping cough	234	29	0.87
Orthopedic	Rheumatism,Fractured bones, Muscular pain, Swelling of joints, Paralysis,Back pain, Joint pain, Neck pain,	231	30	0.87
Kidney & Liver	Urine infection, kidney trouble, fatty liver, Jaundice, Diuretic, UTI infection, urine irritation	138	17	0.88
Ear, Mouth & Eye	weakening of gums, Toothache, Eye diseases, Weak vision, Mumps, Tonsillitis	117	16	0.86
Wounds	Excessive urination, Urine infection, Jaundice, Diuretic	109	13	0.88
Antipyretic	Fever, Malaria	45	8	0.82
Nervous disorders	Headache, Depression, brain stimulants, brain tonic	47	7	0.85
Body weakness	General weakness, Body tonic	30	4	0.87
Cardiovascular	Blood pressure, Blood purifier, tightening of blood vessels.	23	3	0.87
Gynecological	Lactation, increase in milk production.	12	2	0.83
Foot & Mouth disease	Foot and mouth disease.	32	5	0.88

Conclusions

Medicinal plants are the backbone of our traditional medical structure. The purpose of the research is to record the ethno medicinal plants attribution used by the people of Block Kralpora (study area). Investigational support that rich informants (ethno medicine) is mostly held by elderly people, hence documentation is essential. A total no of 112 plant species have been recorded mostly belonging to family Asteraceae 16 species. The highest priority for locals is leaves (31%), majority of the plants which are used as medicine are herbs (78%). It can be concluded from the current documentation that the people in the study area have a wealth of traditional knowledge inherited from their ancestors, and the record of this valuable knowledge provides new information for the area. Indigenous population still depend on medicinal plants for primary health care, but at the same time are concerned about the degradation of wild flora. The study emphasized the importance of wild medicinal plants for national medical purpose.

Our current documentation will help the new generation to understand traditional knowledge related to medicinal plants. The research provides a useful self-care tool for locals in the study area and older districts of the state as well. We suggest that the reported species with high value of ICF and UV should be used for further phytochemical and pharmacological studies to verify this native knowledge.

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