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"SURVEY OF MEDICINAL PLANTS OF NEELKANTH HILL REGION W.S.R TO NIGHANTUS AND ETHNOMEDICINE"

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ABSTRACT

An ethnomedicinal plants survey under the title of "SURVEY OF MEDICINAL PLANTS OF NEELKANTH HILL REGION W.S.R TO *NIGHANTUS* AND ETHNOMEDICINE" Performed in Pauri district at Neelkanth Uttarakhand India. Extensive fields survey was performed in Neelkanth forest area and surrounding villages in during between January 2021 to March 2022. during the fields survey ethnomedicinal knowledge were recorded through the interaction, discussion and close ended questionnaires. The total 55 plants species were collected and arranged in their botanical name, family, Sanskrit name, local name and their habit pattern. Local healers of Neelkanth region using the ethnomedicinal plants for the treatment of different kind of diseases such as fever, cough, cold, asthma, jaundice, piles, menorrhagia and skin disease. In out of 55 plants species 35 species have used by the local people in this region find their mention in ancient literature of *Ayurvedic Lexicons* while 20 plants species have not been described in classical texts or their classical names could not be established. This needs further thorough investigations of classical texts and extensive efforts towards identification of unidentified/controversial classical drugs. The traditional knowledge of medicinal plants gathered form local healers at Neelkanth region transmitted orally one generation to another generation but not documented. Now new generation is not interested in traditional

knowledge of medicinal plants due to modernization, so there is an urgent need to document ethnomedicinal plants before the knowledge become extinct.

KEYWORDS: Survey, Ethnomedicine, Pauri district, Neelkanth, Diseases, *Ayurvedic Lexicons.*

INTRODUCTION

India has a richest traditional herbal medicinal system, including *Ayurveda*, which has been prevalent for over 5000 years.[1] In *Ayurveda* the *Shushrut Samhita* and the *Charaka Samhita* are the great encyclopaedias of traditional medicine from 600 to 500 BC.[2] The use of medicinal plants for healing ailments is practicing since at the origin of humanity and Human has always been eager to deal with the mysteries of nature.[3,4] Medicinal Plants (MPs) share a substantial proportion of the plants species used by human beings and contribute significantly to the provision of primary health care services, especially in the developing world.[5] The Indian herbal industries consume about 2000 tons of plants resources annually and approximately 90% of medicinal plants are collected from the wild, in which 70% of collection involves destructive harvesting.[6,7] However, due to limited habitats and habitat loss and overexploitation, it is crucial to conserve the genetic resources of medicinal plants, as a result, The main objective of this survey was to preserved and documentation of traditional medicinal knowledge for further research and identifying new drugs for possible extraction of beneficial bioactive compound. This may also contribute to the maintenance of indigenous culture and natural resource management.

AIMS AND OBJECTIVES

- Field survey, interview with traditional medicine practitioners and observation of the medicinal plants.
- Botanical verification of important medicinal plants used in local health traditions of study area.
- Documentation of traditional knowledge about Ethnomedicinal uses of medicinal plants of study site.
- Analysis of pharmacological properties and therapeutic uses of these medicinal plants on the basis of *Nighantus*.

Description of Study Area: The study was carried out in Neelkanth-Hill region located in Garhwal Himalayas of Pauri district of Uttarakhand. Neelkanth is located nearly east side of

Rishikesh. The distance between Rishikesh to Neelkanth is approx. 12 km on foot. The topography of the area is hilly with gradual slopes. The average summer temperature in the study area ranges from 29 °C (85 °F) during summer and winter temperature 16°C (61 °F). The area receives an average rainfall of 2136 mm annually makes it a suitable place for the growth of large number of annual, perennial herbs, shrubs and large trees. Geographically, it. has rich vegetation and mostly covered by forest areas.[8] The study area comprises of Dense and open forests, scrublands, at places small grassy slopes. A Large number of herbs from the wild are reported to be used in primary health care by local communities.

Methodology: A detailed field surveys on medicinal plants were conduct in the various forest types of Neelkanth area during January 2021 to March 2022. Systematic and regular visits were made covering various seasons to record maximum numbers of species. Surveys were conducted from Rishikesh to Neelkanth temple area and villages in the region. Two basic approaches were followed to conduct the survey of the medicinal plants. First approach was to survey the area along with the resource persons having knowledge of medicinal plants and collect the specimens and second approach was to interview the local people using open ended questionnaire. About 70 informants belonging to men and women in the age group of 45-70 year were consulted and collected information. All the villages viz Diyuli, Punrasu, Moun gaon, Amadi, kothar, Touli, Bhuwan, Malal, Judda, Vairaghad, Idiya are covered to the entire study systematically. Few villages were revisited to get more reliable and relevant information after familiarization. Fresh plant specimens were collected and brought to the Department of Dravyaguna, Rishikul Campus, Uttarakhand *Ayurved* University Haridwar. The specimens were identified using the local and regional floras, working plans. Collected specimens identified and verified by Supervisor and Co-Supervisor. Collected specimens were dried using blotting papers and preserved by dipping them in a solution of mercuric chloride in alcohol. Preserved specimens were mounted on herbarium sheets and labelled. The herbarium specimens verified by Scientist of Uttarakhand Space Application Centre Dehradun. The present study was undertaken with an aim to explore the use of medicinal plant (parts) in Local Health Traditions and to enrich the *Ayurvedic* System of Medicine with certain new plants those are not described in *Ayurvedic* texts and introduction to new indications of already used medicinal plants.

OBSERVATION AND RESULT

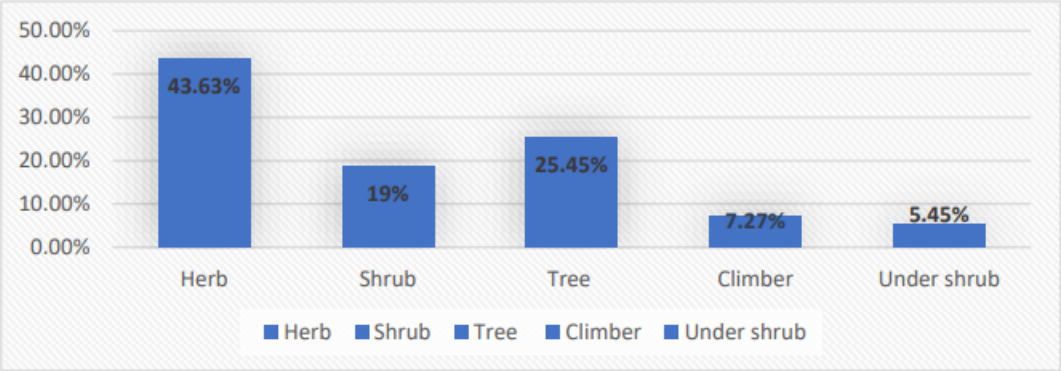
During the study, 55 plants species were recorded by the local informant. Herbal drugs being used by local inhabitants in study area were arranged as per Bentham and Hooker's classification followed by botanical name, family name, local name, habit pattern and plant parts used, mode of preparation, dosage.

Table 1: Enumeration of herbal drugs used by Local dwellers of Neelkanth hill region.

Sr. No.	Binomial Name	Family	Local Name	Sanskrit Name	Flowering/ Fruiting	Habit
1.	*Adina cordifolia Benth* & Hook.	*Rubiaceae*	Haldu	*Girikadamba*	Jun.-Aug.	Tree
2.	*Adhatoda vasica* Nees.	*Acanthaceae*.	Basa	*Vasa*	Feb.- Mar	Shrub
3.	*Ajuga bracteosa*	*Lamiaceae*	Sugar pal	*Neelkanthi*	Mar.-Dec.	Herb
4.	*Anogeissus latifolia* Wall	*Combretaceae....*	Dhaul	*Dhava*	Jun.- Sep.	Tree
5.	*Aerva lanata* L.	*Amaranthaceae.*	Phuldya	*Adanpaki*	Oct.- Mar.	Herb
6.	*Ageratum conyzoides* Linn.	*Asteraceae...*	Basya	*Ajgandha*	Most of the year	Herb
7.	*Bauhinia variegata* Linn.	*Ceasappiniaceae*	Guriyal	*Karbudar*	Jan.- May	Tree
8.	*Bauhinia racemosa Lamk*	*Fabaceae*	Guriyalu	Not described	June - Dec.	Tree
9.	*Bauhinia vahilii* Wight &Arn.	*Fabaceae.*	Malu	*Kanchnar*	Oct.- Mar.	Climbing shrub
10.	*Barleria cristata* L.	*Acanthaceae*	Chuska kanta	*Saireyak*	Oct.- Mar.	Under shrub
11.	*Berberis lycium* Royle.	*Berberidaceae*.	Kilmoda	*Daruhaldi...*	Apr.- June	Shrub
12.	*Clematis gouriana* Roxb	*Ranunculaceae...*	Mirchya bel	Not described	Mar. - Oct.	Climbing shrub
13.	*Callicarpa macrophylla* Vahl.	*Verbenaceae*	Malla koni	*Priyangu*	Jul. - Nov.	Shrub
14.	*Cessampelos pareira* L.	*Menispermaceae*	Pada	*Ambastha, Patha*	Aug.- Nov.	climbing shrub
15.	*Cassia fistula* Lin ...	*Caesalpiniaceae*	Simar	*Aragvadh*	Mar.- Jun.	Tree
16.	*Cuscuta reflexa* Roxb.	*Convolvulaceae*	Akashbel	*Agas – lagulu*	Dec-. Feb.	Climber
17.	*Coix lacryma-jobi* Linn..	*Poaceaes*	Vaijanti	*Gavedhuka*	Sep.- Dec.	Herb
18.	*Commelina benghalensis* Linn.	*Commelinaceae*	Lugdudya	*Kanchat*	Aug.- Nov.	Herb
19.	*Cocculus hirsutus.* Linn. D.	*Menispermaceae*	Pada, Patal	*Patalagarud*	Throughout the year	Climber
20.	*Capparis zeylanica*	*Capparaceae*	Dignia	*Vyaghranakhi*	Feb.- May	Shrub
21.	*Cryptolepis buchanani* Roem. & Schult	Asclepiadaceae	Dudhi-bel	*Medhasingi*	Mar- Dec.	Shrub
22.	*Euporbia hetrophylla Linn*	*Euphorbiaceae..*	Titli phool	Not described	Feb.- Oct.	Herb
23.	*Eupatorium adenophoram* Spreng	*Asteraceae*.	Kala-Basya	Not described	Feb.- Aug.	Shrub
24.	*Erythrina variegate*	*Fabaceae*	Karangi	*kantaki palas*	Jul. - Nov.	Tree
25.	*Ehretia laevis* Roxb.	*Boraginaceae*	Chamror	*Charm vriksha*	Jun.- Apr.	Small tree

26.	*Ichnocarpus frutescens (*L.) R. ..	*Apocynaceae*	Chameli bel	Not described	Aug.-Dec.	Shrub
27.	*Gloriosa superba* Linn.	*Liliaceae*	Pari phool	*Langalika*	July- Dec.	Climber
28.	*Geranium pusillum* L.	*Geraniaceae*	Makda-Pal	Not described	June-July	Herb
29.	*Gomphrena celosioides* Mart.	*Amaranthaceae.. .*	Makhmal-ghas	Not described	Aug.- Sep.	Herb
30.	*Holarrhena antidysenterica wall.*	*Apocynaceae....*	Kogad	*Kutaja*	Apr - Oct.	Small tree
31.	*Holoptelea integrifolia (*Roxb.*)*	*Ulmaceae....*	Papadi	*Chirivilva*	Feb.-Aug.	Tree
32.	*Helicteres isora* Linn. Sp. Pl	*Sterculiace*	Patista	*Awartani*	Apr.-Oct.	Small tree
33.	*Habenaria marginata*	*Orchidaceae...*	Viridhi	Not described	Jul.- Nov.	Herb
34.	*Heliotropium strigosum* Will.	*Boraginaceae..*	Kuru	*Hastishundi*	Jul.- Mar.	Herb
35.	*Leucas cephalotes (*Roth*) spreng.*	*Lamiaceae*	Pagdya	*Dronapuspi*	Jul.- Oct.	Herb
36.	*Leucas lanata* Bent	*Lemiaceae*	Dhurulu ghas	Not described	Apr.-Nov	Herb
37.	*Martynia annua*	*Martyniaceae*	Kowa dona	*Kakanasika*	Jul.-Aug.	Shrub
38.	*Mallotus philippinensis* (Lam.) Muell Arg.	*Euphorbiaceae*	Ruinu	*Kampillaka*	Jan.- Mar.	Tree
39.	*Mucuna pruriens* Hook	*Fabaceac..*	Gonchi	*Kapikacchu*	Sep.-Dec.	Herb.
40.	*Mimosa pudica* Lin.	*Fabaceae*	Chui-Mui	*Lajjalu*	Aug.-Dec	Herb
41.	*Ocimum americanum* L.	*Lamiaceae*	Tulsi bheda	*Van tulsi*	Jul. - Aug.	Herb
42.	*Oxalis corniculata* Linn...	*Oxalidaceae*	Ghilmodi	*Chukrika*	Feb.- Oct.	Herb
43.	*Postemon benghalensis..*	*Lamiaceae..*	Ludjadu	Not described	Jan - Mar.	Herb
44.	*Pyrus pashia Buch*- Ham ex D.Dun.	*Rosaceae*	Mehul	Not described	Feb.-May	Tree
45.	*Rhus parviflora* Roxb.	*Anacardiaceae*	Tungla	*Sinchamla*	May -Aug.	Shrub
46.	*Solanum nigrum* L.	*Solanaceae*	Pilia pal	*Kakmachi*	Through the year	Herb
47.	*Solanum erianthum* D.Don...	*Solanaceae*	Ashadu	Not described	Feb.-Sep	Shrub
48.	*Sigesbeckia orientalis* L.	*Asteraceae*	Lichkura	Not described	Oct.-Nov.	Herb
49.	*Stellaria media* (L.) Vill. .	*Caryophyllaceae*	Badyalu	Not described	May -Oct.	Herb
50.	*Schleichera aleosa*	*Sapindaceae*	Kusum	*Kosamra*	Mar.- May	Tree
51.	*Thalictrum foliolosum*	*Ranunculaceae*	Krimuli	*Peetranga*	Jun.-Oct.	Herb
52.	*Tridax procumbens* Linn.	*Asteraceae*	Kumar	*Jayanti bheda*	Throughout the year	Herb
53.	*Urtica parviflora* Roxb.. .	*Urticaceae...*	Kandali	*Vrscikali*	May- jun.	Herb
54.	*Vitex negundo* Linn.	*Verbenaceae...*	Singwalu	*Nirgundi*	July-Oct.	Shrub
55.	*Woodfordia fruticosa* (L.) Kurz.	*Lytheraceae*	Dhaul	*Dhatki*	Aril – June	Shrub

Distribution of plants used according to Habits:- Analysis of the data based on habits of plant drugs recorded during field survey shows that 24 (43.63%) plants were Herbs, 10 (18.1%) Shrubs, 14 (25.45) Tree, 04 (7.27) Climbers, and 03 (5.45) under-shrubs. Herbs were leading and easily available.



Plants parts used in Medicine

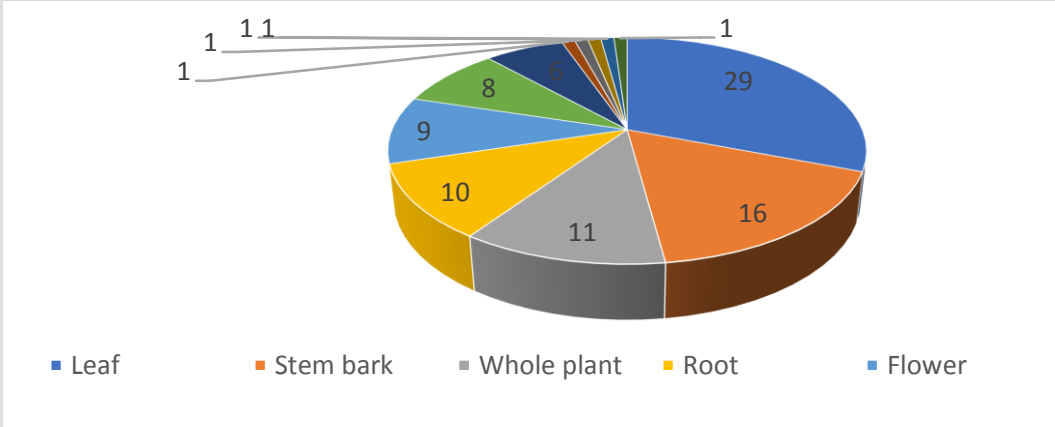


Table 2: Distribution according to application of drugs.

S. No.	Application	Total No.	Percentage
1	Internal application	44	60%
2	External application	32	40%

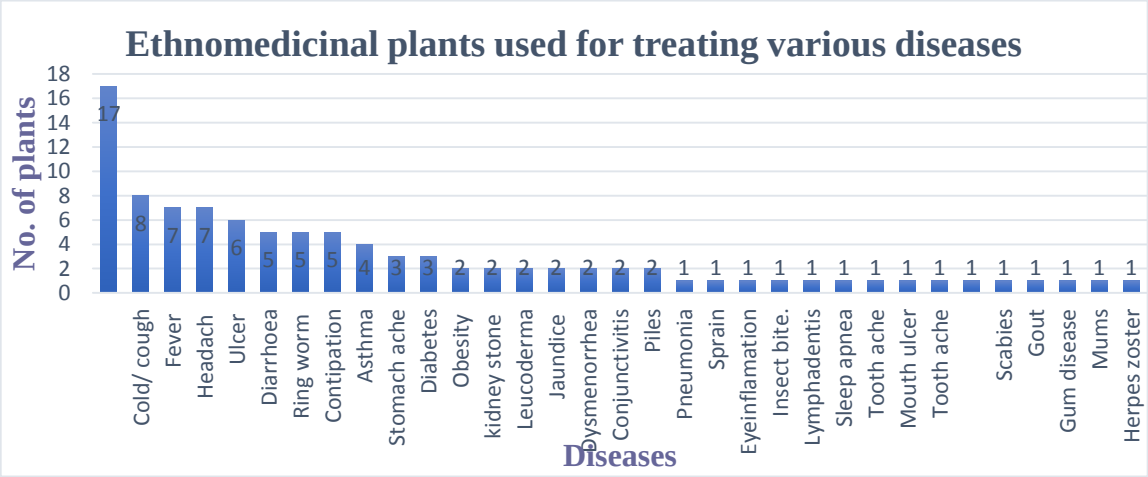
Table 3: Ethnomedicine used of plants by local people of Neelkanth Hill.

Sr. No.	Botanical name	Ethnomedicinal uses of the plant
1.	*Adina cordifolia Benth* & Hook.	Fever, Wound healing, Diarrhoea, Cough
2.	*Ajuga bracteosa* Wall. Ex Benth.	Diabetes, Fever, Jaundice
3.	*Anogeissus latifolia* Wall.	Menorrhea, Cough, Stomach ache
4.	*Aerva lanata L.*	Urinary calculi, Cough, Asthma
5.	*Adhatoda vasica* Nees.	Chronic cough, Sore throat, Dermatitis, Leprosy.
6.	*Ageratum conyzoides* Linn.	Ringworm, Clotting of the blood, Dysentery.
7.	*Bauhinia variegata* Linn.	Nodular growth, Dysentery
8.	*Bauhinia racemosa* Lamk	Diarrhoea, bleeding piles, Nodular growth.

9.	*Bauhinia vahilii* Wight &Arn.	Tonic and aphrodisiac, Diarrhoea, Pimples
10.	*Barleria cristata* L.	Tooth ache, Cough, Cut and Wound.
11.	*Berberis lycium* Royle.	Conjunctivitis, Diabetes, Abscess
12.	*Clematis gouriana* Roxb.	Headache, Ringworm
13.	*Callicarpa macrophylla* vahl.	Indigestion, Headache
14.	*Cocculus hirsutus* (Linn. D.)	Premature ejaculation, Burning sensation
15.	*Cissampelos pareira* L.	Leucorrhoea, Scabies, Dysuria, Joint inflammation.
16.	*Cassia fistula* Linn. ...	Constipation, Ringworm, Headache.
17.	*Cuscuta Reflexa* Roxb.	Constipation, Headache, Hair growth
18.	*Coix lacryma-jobi* Linn.	Obesity, vomiting and thirst, Dysmenorrhea.
19.	*Commelina benghalensis* Linn.	Wound healing, Burn
20.	*Capparis zelanica* L.	Diarrhea, Indigestion
21.	*Cryptolepis buchanani* Roem. & Schult	Fever, Leprosy, Loss of appetite
22.	*Euporbia hetrophylla* Linn	Constipation, Asthma, Insect bites
23.	*Eupatorium adenophoram* Spreng.	Wound and cuts, Bleeding.
24.	*Erythrina variegate* L.	Arthritis, Worm infestation
25.	*Ehretia laevis* Roxb.	Ulcers and gum problems, Cough, Asthma. Headache
26.	*Gloriosa superba* Linn.	Remove foreign object in the skin, Arthritis, Head Lice
27.	*Geranium pusillum* L.	Herpes zoster
28.	*Gomphrena celosioides* Mart.	Leucorrhoea, Burning micturition, Ring worm
29.	*Holarrhena antidysenterica* wall.	Diarrhea, Fever, Bleeding piles..
30.	*Holoptelea integrifolia (*Roxb.*)*	Leucoderma, Lymphangitis, Intestinal worm.
31.	*Helicteres isora* Linn.Sp. Pl	Diarrhea, Intestinal worms.
32.	*Habenaria marginata* C.	Stomach Ulcer
33.	*Heliotropium strigosum* Willd	Difficulty of urination, Constipation
34.	*Ichnocarpus frutescens* (L.) R.Br.	Scabies, Allergies
35.	*Leucas cephalotes* (Roth) spreng.	Fever, Tooth ache
36.	*Leucas lanata* Benth. ..	Cuts and wounds, Boils, Stomach ache, Reptile poison
37.	*Martynia annua* L.	Insect bite. Eczema.
38.	*Mallotus philippinensis* Lam.	Eczema, Intestinal worm, ulcer
39.	*Mucuna pruriens* Hook.F	Aphrodisiac, Tonic
40.	*Mimosa pudica* Linn.	Bleeding piles, Wound
41.	*Ocimum americanum* L.	Stomach ache, Obesity
42.	*Oxalis corniculata* Linn.	Boils and wound, Blood clot, Headache
43.	*Postemon benghalensis*	kidney stone, Fever, wound cleaning
44.	*Pyrus pashia* Buch- Ham ex D.Dun.	Asthma, Mouth ulcer,
45.	*Rhus parviflora* Roxb.	Cholera, Burning, Increase appetite
46.	*Solanum nigrum* L.	Jaundice, Wound healing, Dysentery, Jaundice, Ringworm
47.	*Solanum erianthum* D. Don. ..	Dysentery, wound healing
48.	*Sigesbeckia orientalis* L.	Dressing for wounds, jaundice, Arthritis
49.	*Schleichera aleosa*	Hair growth, Skin disease
50.	*Stellaria media* (L.) Vill.	Dysmenorrhea, Asthma, Wounds cleaning &

		Blood clotting
51.	*Thalictrum foliolosum*	Abdominal pain, Eye inflammation
52.	*Tridax procumbens* Linn.	Dysentery, Rheumatism, Fever, Cuts, wounds
53.	*Urtica parviflora* Roxb.	Gout disease, Cough and cold, Sprain
54.	*Vitex negundo* Linn.	Cough and cold, Headache, Arthritis
55.	*Woodfordia fruticosa* (L.) Kurz	Burning sensation, Hemorrhoids, wounds

Ethnomedicinal Plants Used For Treating Various Diseases: During the survey it is observed that local healers were using the ethnomedicinal plants for the treatment of different kind of diseases such as fever, cough, cold, asthma, jaundice, piles, menorrhagia, ulcer, stomach ache, kidney stone, gout and skin diseases etc.



DISCUSSION

The Neelkanth Hill is full of natural resources and suitable place for the growth of large numbers of medicinal plants in this region. The villagers take the advantage by getting herbs from this hill and make themselves healthy which is very important for their health management. During the study some E.M plant indications could not be authenticated by classical references. These herbal drugs have been experienced and experimented by local healers since long times and require further validation in clinical studies. These indications, if found effective may be adopted in Ayurveda and can be incorporated in Ayurvedic Pharmacopeia. There are still diverse uses of the drugs which have not been worked out so far. These indications need proper investigations. The verdict of this study can grant useful leads for pharmacological authentication of these reported uses which might in future become useful for mankind. This is clearly proven that most of the plants are remained undocumented Ethno botanically.

CONCLUSION

Total 55 plants species were reported to be used by Local Healers practicing of Neelkanth Hill Region in Pauri district. A total of 15 different plants parts were reported to be used in therapeutics leaves root, stem bark and whole plants were the mostly used and decoction and fresh herbs paste were the most common method of drug preparation. Most of the therapeutic preparations were used internally (60%) and rest 40% externally in the form of paste, eye drop, juice and oils etc. Maximum therapeutic preparation has been reported to be used in the treatment of skin disorder and digestive disorder. Almost 9 systems of the human body were being treated by these 55 plants species. There are some important ethnomedicinal herbs which are more extensively used by local people such as *Ajuga bracteosa* in fever and diabetes, *Ageratum conyzoides* Linn. in cuts and wound *Callicarpa macrophylla* vahl. in mouth ulcer, *Leucas cephalotes* (roth). in Fever, *Geranium pusillum* L. in herpes zoster, *Euporbia hetrophylla* Linn in constipation and *Clematis gouriana* R. in ringworm. These herbs have the strong effect on mentioned disease which is accepted by the healers and sufferers. Work on the ethnomedicinal plants at Neelkanth hill area has been done by every possible and maximum efforts. I hope the work will be beneficial for the further research and development.

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