A Study on "An Ethno Pharmacological study of medicinal plants at Siddarabetta- A religious hillock of Tumkur District, Karnataka"

MINOR RESEARCH PROJECT

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"An Ethno-pharmacological study of Medicinal Plants at Siddarabetta- A religious hillock of Tumakuru district, Karnataka"

INTRODUCTION.

The Rig- Veda written during 4500 BC to 1600 is believed to be the oldest repository of human knowledge about medicinal usages of plants in Asian subcontinent. In India, although such old documentation is still not rediscovered, but the knowledge on plant utilization is believed to be very old. According to WHO [1], about 80% of the world's population, especially in the rural areas depends on herbal medicine for their healthcare needs.

About 70% of the Indian people reside in rural where access to government health care facilities is lacking [2]. The ethic (Traditional healers) people residing in different geographical belts of India depends on wild plants to meet their basic requirements and all the ethnic communities have their own pool of secret ethno – medicinal and ethno-pharmacological knowledge about the plants available in their surroundings [2-20], which has been serving rural people with its superiority. Due to changing life style, extreme secrecy of traditional healers rural people with its superiority. Due to changing life style, extreme secrecy of traditional healers and negligence of youngsters, the practice and dependence of ethnic societies in folk/traditional medicines is in rapid decline globally, therefore, ethno-botanical exploitation and documentation of indigenous knowledge about the usefulness of such a vast pool of genetic resources is deliberately needed [21-30].

Siddarabetta forest (A religious hillock) of Tumkur district has been selected along with adjoining areas for ethno-medicinal investigation because this area is vary in biodiversity and traditional healers. Besides, other usages of plants the practice of oral tradition for healthcare management of human and domesticated animals using herbal medicines is still prevalent among the inhabitants of the area. They have enormous knowledge about medicinal uses of plants and this knowledge is mostly undocumented and transmitted orally from generation to generation. Recently due to unplanned developmental programs, increasing modern healthcare facilities and impact of modern civilization in this area, natural resources as well as traditional knowledge and tribal cultures are depleting rapidly at an alarming rate. Therefore, it is urgent to explore and document this unique and indigenous, traditional knowledge of the tribal community, before it diminishes with the knowledgeable persons. Further, documentation of indigenous and traditional knowledge is very important for future critical studies leading to sustainable utilization of natural resources and to face the challenges of bio-piracy and patenting indigenous and traditional knowledge by others. Besides, to the best of our knowledge no ethno-botanical work has been carried out in this area.

INTERNATIONAL STATUS.

About 80% population of the world depends in the traditional system of health care (Ahmad, 2005). These medicines have less side effects and man get the herbs easily from nature. Unani areas. (Ahmad et al. 2003). The indigenous traditional knowledge of herbal plants of communities where it has been transmitted orally for many years is fast disappearing from the face of world due to transformation of traditional culture (Hussain et al., 2008). The people, who are native to the area in which the plants occur, use around 90% of the medicinal species (Baquar, 1989). This is indicative of the vast repository of knowledge of plant medicine that is

still available for global use, provided of course that it does not get lost before it can be tapped or documented. Traditional and indigenous medical knowledge of plants, both oral and codified, are undoubtedly eroding (Mujtaba and Khan, 2007).

NATIONAL STATUS.

In ethno-pharmacological/botanical studies, the major contribution has been in the field of medicine. A large number of ethno-medicinal information remained endemic to certain regions or people due to lack of communication. India is the second largest country in the world in respect of human population. Over 550 tribal communities are covered under227 ethnic groups residing in about 5000 villages of India in different forests and vegetation types. The ethnic and rural people of India have preserved a large bulk of traditional knowledge of medicinal uses of plants growing around them. This knowledge is handed down to generation through word of mouth and is extensively used for the treatment of common diseases and conditions [1].

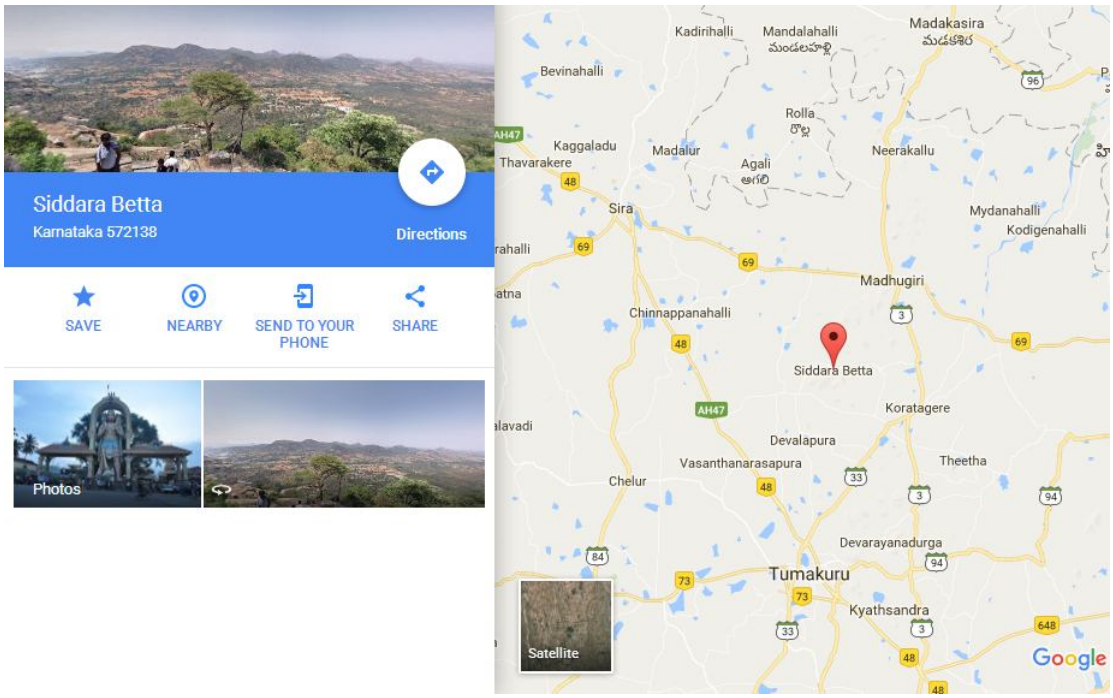
SIGNIFICANCE OF THE STUDY

Ethno-botanical/pharmacological studies are often significant in revealing locally important plant species especially for the discovery of crude drugs[7]. From historic time, the documentation of traditional knowledge especially on the medicinal uses of plants has provided many important drugs of modern day [8,9,10] Traditional medicine still remains main resources for majority (80%) of people in developing countries for treating health problems, particularly because medicinal plants are accessible and cheap [11,12].

Additionally, the use of medicinal plants by the Traditional healer's group is embedded within their culture. In India, there is limited development of therapeutic products and the

indigenous knowledge on usage of medicinal plants as folk remedies is getting lost owing to migration from rural to urban areas, industrialization, rapid loss of natural habits and changes in lifestyle [6]. There is also lack of Ethno-batanical surveys carried out in most parts of the country. In view of these observations, documentation of the traditional uses of medicinal plants is an urgent matter and important to preserve the knowledge. The purpose of this study is to investigate the traditional uses of medicinal plants by the traditional healers and ordinary people in Siddara betta and surrounding Villages in those regions. The study will also provide baseline data for future pharmacological and photochemical studies.

Study Area.



‘Siddarabetta’, a rocky hill, is famous for a temple and few caves. This hill is situated around 100km from Bangalore, 35km from Tumkur and 10 km from Koratagere. This place is ideal for activities like trekking and cave exploration. This hill is located close to the

Devarayanadurga and has a dense forest which is home to several species of migratory birds. Bird-watchers can spot different native and migratory bird species such as the rare yellow – throated bulbul. Siddarabetta has historic significance to it. As name defines in Kannada, Siddara betta entails Hill of Saints. For decades this unique hill was home for numerous Hindu Saints for their sacred meditation and to obtain Nirvana. As time passed by, this practice got into an extinction, one can find very few saints chanting in distances. And it took a old styled "Aashrama" at the base.

It is Sacred place where 9000 Siddaru (Holy spiritual men) made meditation and worship of lord Shiva, They got Mooksha (freedom) from this eternal world. Here is famous temple situated at the top of the Hill. It is very difficult to climb this rock cultures temple. This is more sacred temple for Shivasm.

Siddarabetta, as the name implies, "Hill of saints" (in Kannada) is renowned for numerous the Hindu sadhus and their meditations. But, currently there are very few of the sadhus/ Saints left in the hill. Siddara betta fulfils the likes of different genre of people and hence quite famous among a variety of people.

The objectives of the present study:

Year wise Plan of work and targets Achieved

MATERIALS AND METHODS

1st Year

Field work and collection of Data: Periodical Survey was conducted and information about the availability of Ethno medicinal plant species and their uses and importance. Traditional healers

have sound knowledge about locally available medicinal plants and they were practicing the traditional medicinal treatment for various ailments.

A survey was conducted during Dec2014 to Dec 2016 helped us to collect data collection using questionnaire, conversations, interaction with the farmers and traditional healers about the medicinal plants, part used in the formulation of drug, mode of preparation, type of drug administration, dosage and duration of the treatment against some ailments. In this work 90 plant species have been recorded and nearly 25 voucher specimens of medicinal plants collected, identified and preserved as herbaria at Department of Botany, SSCW, Tumkur. Standard methods followed with regard for collection of plant materials, drying, Mounting preparation and preservation of plant specimens described by Nasirand Ali (2001).

Nearly 20-25 informants were identified and selected from surrounding villages and other places of Sidderabetta. The main intension for the selection of informants was their knowledge about herbal medicines and health care system. These persons were persons RTO's teachers, farmers, social workers etc, who have tremendous knowledge about these things. (Table-1)

Table-1.Details of informants interviewed at Siddarabetta of Tumkur Dist

Sl No	Name	Address	Age	Occupation
1	Dr. Hiremath	BAIF- Institute of Rural Development, Tiptur	52	Research and Biological expert in Karnataka & working in BAIF
2	G.C Siddaiah	Gowragondanahally, Kestur Post, Kora Hobli	65	Rt. Teacher & Traditional Healer
3	Sri Shivashankar	Nama Chilume, Tumkur	53	Secretary, Traditional Healer
4	Sri Krishnamurthy	Nama Chilume, Tumkur	48	Social Worker & Traditional Healer
5	Sri Venkatesh	Chithradurga	61	Traditional Healer
6	Prof. Bhyrappa	Kalpatharu First Grade College, Tiptur	51	Asst. Professor, Dept. Of Botany, Tiptur
7	Sri M.S. Anjanappa	Jayanagra east, Shettihalli Raod, Tumkur	61	Rtd. Railway Engineer & Social Worker & Expert in Folk Medicines
8	Sri Ganganna	Siddarabetta, Koratagere Tq	58	Far mer
9	Sri Basalingappa	Siddarabetta, Koratagere Tq	41	Social Worker
10	Sri Karimannappa	Siddarabetta	66	Far mer
11	Sri Narendrababu	Hiriyur	45	Agricultural Professional from

				Hyderabad
12	Sri Navaneetha	Tarikere	27	RFO
13	L. Shobha	Doddabele		Social Worker
14	Sri Narasimaiah	S S puram,Tumkur	70	Rtd. Post Master & Traditional Healer
15	Dr. Nandeesh	HOD, Siddaganga Pharmacy College, Tumkur	48	Professor, HOD, Siddaganga Pharmacy College, Tumkur

The local names, habits wild/cultivated, need of conservation were carefully recorded. Eventually group discussion were made with healers and local people to know the value of traditional folk medicines and conservation of diversity.(Table-2)

Table- 2. List of Medicinal plants surveyed at Siddarabetta with their Local name, Habit and Altitude.

Sl No	***Botanical Name***	**Local name (Kannada)**	**Family**	**Place**	**Habit**	**Altitude**
1	*Abrus precatorius L.*	Biligulaganji	Fabaceae	Siddarabetta	T	800
2	*Acacia concinna (willd)*	Seege	Fabaceae	Siddarabetta	Cl	700
3	*Acacia polycantha Willd .*	Mugali mara	Mimosaceae	Siddarabetta	T	800
4	*Acalypha indica L.*	Kuppigida	Euphorbiaceae	Siddarabetta	H	Lower region of the hill
5	*Achyranthes aspera .L*	Utharani	Amaranthaceae	Siddarabetta	S	1200
6	*Adhatoda zeylanica Medic.*	Aadusoge	Acanthaceae	Siddarabetta	S	700
7	*Aegle marmelos(L.) Corr.*	Bilvapatre	Rutaceae	Siddarabetta	T	800
8	*Albizia chinensis (Osb)Merr.*	Betta bhage	Fabaceae	Siddarabetta	T	1000
9	*Albizia lebbek L.Benth*	Bhaage	Fabaceae	Siddarabetta	T	900
10	*Aloe vera (L.) N Burm.*	Lolesara	Liliaceae	Siddarabetta	H	Lower region of the hill
11	*Andrographis paniculata*	Nelabevu	Acanthaceae	Siddarabetta	S	700

	(Burm.f.) Wall.					
12	*Anthocephalus cadamba Mic*	Arisina thega /cadamba	Rubiaceae	Siddarabetta	T	1200
13	*Argemone mexicana L.*	Datturi	Papaveraceae	Siddarabetta	H	Lower region of the hill
14	*Argyreia elliptica Choisy*	Ugani balli	Convolvulaceae	Siddarabetta	Cl	700
15	*Aristolochia indica L.*	Eshwari balli	Aristolochiaceae	Siddarabetta	T	1200
16	*Asparagus racemosusWilld.*	Shatavari	Liliaceae	Siddarabetta	H	Lower region of the hill
17	*Boerhaavia diffusa L.*	Sanadika	Nyctaginaceae	Siddarabetta	H	700
18	*Buchnanina lanzan spreng*	Chironji	Anacardiacece	Siddarabetta	T	800
19	*CanthiumparviflorumLam.*	Karegida	Rubiaceae	Siddarabetta	S	Lower region of the hill
20	*Carica papaya L.*	Parangi gida	Caricaceae	Siddarabetta	T	Lower region of the hill
21	*Cassia accidentalis L.*	Tangadi	Fabaceae	Siddarabetta	S	700
22	*Catunaregam spinosa (Thunb)Tiruv.*	Gandukare	Rubiaceae	Siddarabetta	S	800
23	*Celastrus paniculatus*	Jyotishmathi	Celastracece	Siddarabetta	Cl	900
24	*Centella asiatica (L.)Urban*	Ondelaga	Apiaceae	Siddarabetta	T	1200
25	*Cinnamomum zeylanicum Bl.*	Dalchinni chekke	Lauraceae	Siddarabetta	T	900
26	*Cippadessa baccifera (Roth)*	Bettadabevu	Meliaceae	Siddarabetta	S	800
27	*Cissus quadrangularis L.*	Mangroli	Vitaceae	Siddarabetta	CL	Lower region of the hill
28	*Coccinia indica (L)Voigt*	Tonde balli	Cucurbitaceae	Siddarabetta	Cl	700
29	*Cynodon dactylon (L.) pers.*	Garike	Poaceae	Siddarabetta	H	Lower region of the hill
30	*Dalbergia sisso Roxb*	Rose Wood	Fabaceae	Siddarabetta	T	700
31	*Datura innoxiana mill*	Datturi Gida	Solanaceae	Siddarabetta	S	800

32	*Delonix regia L.*	Gulmor	Fabaceae	Siddarabetta	T	800
33	*Derris indica (Lam)Bennet*	Honge mara	Fabaceae	Siddarabetta	T	700
34	*Eclipta prostrata (L.)*	Brungaraja	Asteraceae	Siddarabetta	H	1200
35	*Erythrina indica Lam.*	Alwana	Fabaceae	Siddarabetta	T	700
36	*Euphorbia geniculata Ort.*	Bhedi soppu	Euphorbiaceae	Siddarabetta	H	1200
37	*Euphorbia hirta L.*	Halukudisoppu	Euphorbiaceae	Siddarabetta	H	700
38	*Feronia elephantum Corr.*	Beladamara	*Rutaceae*	Siddarabetta	T	800
39	*Ficus microcorpa.L.*	Chitta aala	Moraceae	Siddarabetta	T	900
40	*Ficus recemosa L.*	Attimara	*Moraceae*	Siddarabetta	T	900
41	*Ficus religiosa L.*	Aralimara	*Moraceae*	Siddarabetta	T	700
42	*Givotia rottleriformis Griff*	Rakthabhutale	Euphorbiaceae	Siddarabetta	T	1500
43	*Gloriosa superba L.*	Gouriballi	Liliaceae	Siddarabetta	H	Lower region of the hill
44	*Helictreres isora L.*	Yedamuri	Sterculiaceae	Siddarabetta	T	1200
45	*Holoptelia integrifolia (Roxb)planch*	Tapashi mara	Ulmaceae	Siddarabetta	T	800
46	*Hyptis suvavolence (L)Poit*	Heddumbe	Lamiaceae	Siddarabetta	H	700
47	*Hybanthus enneaspermus*	Purushrathna	Violaceae	Sidderabetta	H	Lower region of Hill
48	*Jatropha curcas L.*	Kaadu audala	Euphorbiaceae	Siddarabetta	S	700
49	*Lantana camera L.*	Rjada gida	Verbinaceae	Siddarabetta	S	700
50	*Leucaena leucocephala (Lam).De Wit*	Subabul	Fabaceae	Siddarabetta	T	700
51	*Michelia champaka L.*	Sampige	Magnoliaceae	Siddarabetta	T	800
52	*Mirabilis jalapha L.*	Madhana mallige	Nyctaginaceae	Siddarabetta	S	1200
53	*Mucuna prurience (L)DC.*	Nasagunnni	Fabaceae	Siddarabetta	CL	1200
54	*Ocimum sanctum L.*	Thulasi	Lamiaceae	Siddarabetta	H	Lower region of the hill
55	*Oxalis corniculata L.*	Pullampurachi	Oxalidaceae	Siddarabetta	H	Lower region of the hill

56	*Pergularia daemia (Forsk.) Chiov.*	kuntiginaballi	Asclepiadaceae	Siddarabetta	H	Lower region of the hill
57	*Phyllanthus emblica L.*	BettadaNelli	Euphorbiaceae	Siddarabetta	T	700
58	*Phyllanthus niruri L.*	Keela nelli/ Stone breaker	Euphorbiaceae	Siddarabetta	H	900
59	*Plumbago zeylanica*	Chitra moola	Plubaginaceae	Siddarabetta	H	700
60	*Polygonum glabrum Willd.*	Neeru kanagilu	Polygonaceae	Siddarabetta	S	1200
61	*Potulaca oleracea L.*	Goni soppu	Portulocaceae	Siddarabetta	H	1200
62	*Randia candollema .W&A*	Bettamangre	Rubiaceae	Siddarabetta	T	1200
63	*Ricinus communis L.*	Oudala	Euphorbiaceae	Siddarabetta	S	Lower region of the hill
64	*Santalum album .L*	Srigandha	Santalaceae	Siddarabetta	T	800
65	*Sarcostemma brunonianum (wight and Arn)*	Somarasa	Asclepiadaceae	Siddarabetta	Cl	1000
66	*Securinega leucopyrus (willd)Muell.-Arg*	Karihooli	Euphorbiaceae	Siddarabetta	S	800
67	*Shorea roxburghii.G.Don*	Jalari mara	Diptreocarpaceae	Siddarabetta	T	800
68	*Sida acuta N.Burm*	Bhimana Kaddi	Malvaceae	Siddarabetta	H	700
69	*Solanum nigrum L.*	Kaaki hannu	Solanaceae	Siddarabetta	S	1200
70	*Solanum torvum Burm.*	Kaadu sonde	Solanaceae	Siddarabetta	S	700
71	*Spondias indica(wight&Arn).*	Betta amate	Anacardiaceae	Siddarabetta	T	800
72	*Sterculia urens Roxb*	Butti mara	Sterculiaceae	Siddarabetta	T	900
73	*Syzigium cumini (L)Skeel*	Nerale	Myrtaceae	Siddarabetta	T	800
74	*Tamarindusindica L.*	Hunasemara	Caesalpiniaceae	Siddarabetta	T	1200
75	*Techoma stans (L.) H.B.&K.*	Chellar	Bignoniaceae	Siddarabetta	S	1200
76	*Tephrosia purpurea*	Koggi gida	Fabaceae	Siddarabetta	S	700
77	*Terminala bellerica (Ggaertn)*	Tharekai	Combretaceae	Siddarabetta	T	1200
78	*Terminalia chebula Retz.*	Alalemara	Combretaceae	Siddarabetta	T	1200
79	*Terminalia tomentosa(*	Silver Grey Wood	Combretaceae	Siddarabetta	T	1200

	DC) Wt &Arn					
80	*Tinospora cordifolia (willd)*	Amruthaballi	Minispermiaceae	Siddarabetta	Cl	800
81	*Triumfetta rhombidea N.Jacq*	Katawani	Tiliaceae	Siddarabetta	S	800
82	*Tribulus terrestris L.*	Neggilamullu	zygophyllaceae	Siddarabetta	H	700
83	*Tridax procumbence L*	Adike soppu/Ganike Soppu	Compositae	Siddarabetta	H	800
84	*Tylophora indica (N.Burm)Merr.,Philipp.*	Aadumuttada balli	Asclepiadaceae	Siddarabetta	Cl	700
85	*Ventilago madraspatna Gaertn.*	Paappali chekke	Rhamnaceae	Siddarabetta	Cl	800
86	*Vitex negundo L.*	Lakki Pathre	Verbenaceae	Siddarabetta	S	800
87	*Vinca rosea L.*	Kashi Kanagale	Apocynaceae	Siddarabetta	S	1200
88	*Wattakaka volubilis (L.f)stapf.*	Sneez wort/ Cotton Milk Plant	Apocynaceae	Siddarabetta	CL	800
89	*Wrightia tinctoria R.Br.*	Marahaale	Apocynaceae	Siddarabetta	T	700
90	*Zizyphus jujuba Lam*	Kaare gida	Rhamnaceae	Siddarabetta	T	700

2nd Year.

1. A Data-base prepared based on identification and documentation of plant species used for the treatment and prevention of various diseases and ailments in the study area.
2. Identified most common and popularly used medicinal plant species for the treatment and prevention of various diseases and ailments in the study area.
3. The data on Ethno Medicinal plants, Plant part used, formulation of Drug, mode of preparation, Type of Drug administration, dosage and duration of the treatment against concerned ailments.(Table-3)

Table-3. Ethno-Medicinal plants and their traditional therapeutic uses

Sl No	Botanical Name	Family	Local Name	Parts Used	Usages
1	*Acalypha indica L.,*	Euphorbiaceae	Kuppigida	Entire plant	Plant Extract is given orally for tooth ache and fresh leaf juice given orally or paste is applied for rheumatoid arthritis.
2	*Achyranthes aspera L*	Amaranthaceae	Uttaranigida	Entire plant	Root Juice is given orally for Cold, Cough, and asthama and also used treat tooth ache, Snake bite, Scorpion bite and honeybees bite, Leaf Juice given with butter milk to cure dysentry
3	*Aegle marmelos (L.) Correa ex Roxb.,*	Rutaceae	Bilva Pathre	leaf and root Fruit pulp,	A tea spoon full of leaf powder is mixed with water, drink every day morning for reducing diabetes. Juice has given to Stomach disorders. Fruit pulp Juice is given to Diarrhoea.
4	*Adathoda zeylanica Medic*	Acanthaceae	Adusoge	Leaves	Leaf decoction is given to treat asthma and bronchitis & good remedy for sore throat
5	*Aloe vera (L.) N. Burm*	Liliaceae	Lolesara	Leaf pulp	Leaf pulp is used for treatment of Piles, Stomach disorders, Leaf pulp is used for the removal of acne on face and other skin diseases
6	*Argemone mexicana L*	Papaveraceae	Datturi Gida	Milky juice and root	Root paste is applied for skin diseases and malarial fever, seeds are used to induce abortion
7	*Asparagus racemosus Willd.,*	Liliaceae	Shathavari	Tuberous root	Tuberous root powder is given orally with hot water/ goat milk to increase lactation and to cure urinary troubles and menstrual problems.

8	*Azadirachta indica A. Juss.,*	Meliaceae	Bevu (Neem)	Tender shoot, leaf and bark/Tree	Leaf Juice is given to diabetic patients to control the sugar Level, to cure skin diseases, Jaundice tooth ache problems etc.
9	*Boerhaavia diffusa L.*	Nyctaginacene	Punarvasa	Whole Plant with inflorescence	Dried plant powder is given with hot water to cure Jaundice Bark is used as anti fever and diuretic as tonic
10	*Bacopa monnieri (L.)*	Scorphulariaceae	Neer Brahmi	Entire plants/Herb	Plant paste is applied for avoiding hair fall and also used to increase memory power
11	*Calotropis gigantea (L.) W.T.*	Asclepiadaceae	Ekkada Gida	Root, Milky latex and flower/Shrub	Milky latex is applied on wounds boils, pimples and skin diseases, Flower powder is used for respiratory disorders. Root paste is applied for some skin diseases. Stem is used to induce abortion.
12	*Carica papaya L.*	Caricaceae	Papaya Gida	Latex and fruit	Leaf juice is used to cure Dengue, Jaundice and dysentery.
13	*Centella asiatica (L.) Urb.*	Apiaceae,	Ondelaga	Entire plant	Plant decoction is given orally as diuretic, blood purifier, to improve memory power, Leaf extract widely used to control hair fall.
14	*Colocasia esculenta (L.)*	Araceae	Kesavina danta	Corm and tender aerial parts	Tender leaves are used as vegetables. Medicinally for liver treatment and corm paste is applied over cuts to stop bleeding
15	*Coccinia grandis Voigt (L)*	Cucurbitacleae	Thonde balli	Leaf & Fruit	Leaf decoction is used to cure throat infection, Ripened fruits are used to stop dysentery and also used to control sugar level
16	*Coriandrum sativum L.*	Apiaceae	Dhana/Kottum bari	Leaf and seeds	Leaves are used to prepare various dishes, good digestive agent and also used cure stomach disorders. Seeds are used as spices and carminatives

17	*Cynodon dactylon (L.) Pers.*	Poaceae	Garike	Entire plant	Plant juice used for reducing sugar in diabetic patients. Root juice is given orally in the treatment bleeding piles.
18	*Dalbergia sisso Roxb.,*	Fabaceae	Beete	Bark and leaf juice	Leaf juice is used in the treatment of Gonorrhoea, woody bark is used as anthelmentic, anti -pyretic and analgesic.
19	*Eclipta prostrata L.*	Asteraceae	Brungaraja	Entire plant	Plant paste used for various skin diseases. Oil is extracted from the plant and used for hair oil. Leaves are used to cure cough and cold.
20	*Erythrina indica lam*	Fabaceae	Haaluvana	Bark and milky latex/Tree	It is used for treating intestinal worms, anorexia and cholesterol imbalance.
21	*Euphorbia hirta L*	Euphorbiaceae	Halukudi Soppu	Leaf	Leaf Juice is used to stop diarrhoea
22	*Gloriosa superba L.,*	Liliaceae	Gowriballi	Leaf	Leaf paste is used for skin diseases
23	*Gymnema sylvestre R.Br. & S.*	Aslepiadaceae	Madhunashini	Leaves	Leaves used for diabetes control
24	*Mucuna pruriens (L.) DC*	Fabaceae	Nasugunni	Leaves and Seeds	Used to treat parkinson's disease. Seeds are used in nervous disorders.
25	*Mimosa pudica L.,*	Fabaceae	Muttidre Muni	Entire plant	Leaf juice is used in the treatment of piles, skin diseases, high B.P, asthama. Dried root powder is used in the treatment of cold and cough
26	*Ocimum sanctum*	Lamiaceae	Tulasi	Leaves	Leaf decoction is given to reduce fever, cough, cold, headache and builds up the immunity.
27	*Phyllanthus emblica L.,*	Euphorbiaceae	Bettada Nalli	Fruits.	Fruit Juice is used for throat infection and rich source of vitamin-c.
28	*Phyllanthus niruri*	Euphorbiaceae	Keelanelli	Whole plant	Plant Juice used to cure liver diseases(jaundice) & helps to break the stones in Kidney.

29	*Rauvolfia serpentina Benth. ex Kurz*	Apocyanaceae	Sarpaganda	Leaf & root	Root powder is used to reduce BP and intestinal disorders. Root paste applied on wounds.
30	*Ricinus communis L.,*	Euphorbiaceae	Haralgida	Root and seed	Seed oil is given orally in constipation rheumatic pain. Root juice is given orally in diarrhoea dysentery. Oil is used for skin toning
31	*Terminalia chebula Retz.,*	Combretaceae	Alalemara	Stem bark and fruit.	Stem bark juice is used treat Urinary infections. Fruits are given orally in respiratory troubles.
33	*Tinospora cordifolia (Willd)*	Menispermaceae	Amruthaballi	Entire plant	Anti diabetic, Anti hypertensive and also helps in building up the immunity
34	*Vitex negundo L.*	Verbanaceae	Lakki Pathre gida	Leaves	Leaf oil is used for Joint pain

Phytochemical analysis of the following medicinal plants.

Common medicinal plants used in the present study:

1. *Achyranthus aspera*
2. *Centella asiatica*
3. *Tinospora cordifolia*
4. *Adathoda zeylanica*

Phytochemical analysis of different plant materials are important to study the pharmacological activities and therapeutic values of different plants. They have different active chemical constituents, depending upon the location and harvested time.

Preliminary qualitative Phytochemical analysis carried out by the following methods. Where preliminary Phytochemical screening showed the presence of Glycosides, Alkaloids, Flavonoids, Tannins and Proteins. These chemicals play an important role in therapeutic values of medicinal plants.

Flavonoids are secondary plant metabolites that are also known as Vitamin P or citrin. These metabolites are mostly used in plants to produce yellow and other pigments which play a big role in coloring the plants. In addition, Flavonoids are readily ingested by humans and they play an important role in anti-inflammatory, anti-allergic and anti-cancer activities and also found powerful anti-oxidants in them.

Alkaloids are secondary metabolites. They are primarily composed of nitrogen and are widely used in medicine. They can also be highly toxic.

G**lycoside** is a molecule in which a sugar is bound to another functional group via a glycosidic bond. Glycosides play numerous important roles in living organisms. Many plants store chemicals in the form of inactive glycosides. These can be activated by enzyme hydrolysis, which causes the sugar part to be broken off, making the chemical available for use. Many such plant glycosides are used as medications.

An example of an alcoholic glycoside is salicin, which is found in the genus *salix*. Salicin is converted in the body into salicylic acid, which is closely related to aspirin and has analgesic, antipyretic, and antiinflammatory effects.

Tannins are polyphenolic substances found in many plants product of secondary metabolism. It is water-soluble in nature allows easy extraction and is useful in various applications in the

chemical and pharmaceutical industry. They have astringent, hemostatic, antiseptic and toning properties.

I Plant Sample extraction and Processing

1. Leaf part of plants were collected and pulverized into a fine paste by using pestle and Mortar.
2. Preparation of the extract. The crude extract is prepared by adding petroleum ether and filtered by using Whitman No 1 filter paper

II Phytochmeical tests.

Observation and Results.

Chemicals Required. Molish reagent, Wagner's reagent, 5% Ferric Chloride, 10% alcoholic ferric Chloride, 10% NaOH, Distilled H_2O, HCL, Sulphuric acid, Glacial Acetic acid, 20% NaOH, Chloroform.



1. **Test for Glycoside (Keller Kiliani test).–** Added 2ml of Leaf extract, 1ml of Glacial Acetic acid, 2-3 drops of 5% ferric Chloride and 0.5ml of Conc. H_2SO_4 appearance of greenish blue color with in few minutes indicated the presence of glycosides.
2. **Test for Alkaloids (Wagner's Test).** 1ml of plant extract was taken and 2-4 drops of Wagner's reagent (Iodine in KI). Brown precipitate indicated presence of alkaloids.
3. **Test for Flovonoids.** 2ml of plant extract and few drops of NaOH was added. Formation of Yellow color which turned colorless after the addition of few drops of oil-acid indicated the presence of Flavonoids.
4. **Test for Tannins.** 1 or 2 ml of extract was taken and alcoholic ferric chloride solution was added. Appearence of blue colour indicates the presence of Tannins
5. **Test for Protein.** 1 or 2 ml of extract was taken and 2ml of biuret reagent was added. Violet color appeares. It indicates the presence of proteins. (Table-4)

Table-4. Qualitative Phyto Chemical analysis of some medicinal plants selected for our study.

Sl No	Name of the plant Species and parts	Glycoside	Alkaloids	Flavonoids	Tannins	Proteins
1	*Achyranthus aspera (Leaf Part)*	+	++	+	-	-
2	*Centella asiatica (Leaf Part)*	+	+	+	+	-
3	*Tinospora Cordifolia (leaf part)*	+	+	+	-	-
4	*Adathoda zeylanica*	++	+	++	-	-

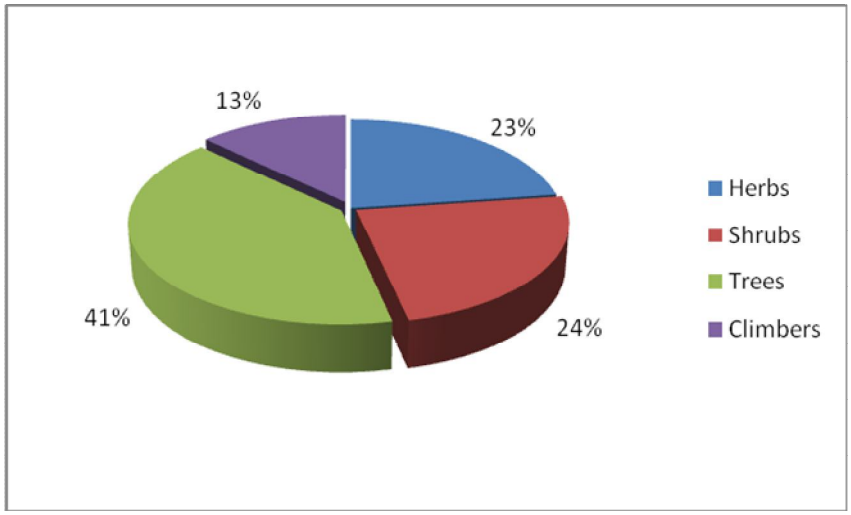
	(Leaf part)					

Note. (+++) – Good, (++) Moderate, (+) Low, (-) Absent

Discussion & Conclusion.

Ethno botany deals with the interaction between plants and people. In the present work, we collected 91 plant species from different study areas. These species contain valuable chemical substances and useful to cure various human ailments. In this survey most of the documented species are herbs 23%, shrubs 24% , trees 41% and Climbers 13%.(Graph-1) Traditional Knowledge provides useful scientific research, Pharmacological and medicinal values. Nearly 25 to 30 wild species are most useful to treat diseases like respiratory disorders, skin diseases, joint pains, cold, cough, fever, digestive disorders and sexual diseases.

Due to the lack of Modern communications, poverty and unavailability of modern health facilities, rural people are still forced to practice traditional medicines for their common ailments. A vast medicinal knowledge about how to use the plants against various illness may have accumulated in areas, where the use of plants is still of great importance. Their knowledge is of great use to the society. These are to be conserved, preserved and their knowledge is to be unearthed.

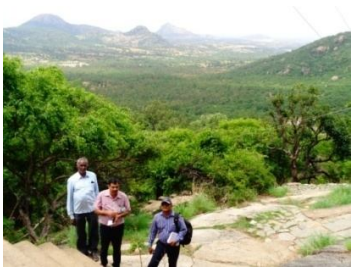


Graph.1. Percentage of herbs. shrubs, trees and climbers

FIELD SURVEY OF ETHNO MEDICINAL PLANTS AT SIDDARBETTA WITH LOCAL AND SUBJECT EXPERTS









INTERACTION AND INTERVIEWED WITH LOCAL HEALERS AND PUBLIC








Abrus precatorius L.

Acalypha indica L.

Adhatoda zeylanica Medic.

Albizia chinensis (Osb)Merr.

Aristolochia indica L.

Boerhaavia diffusa L.

Canthium parviflorum Lam.

Celastrus paniculatus

Centella asiatica (L.)Urban

Datura innoxia mill

Eclipta prostrata (L.)

Feronia elephantum Corr.

Givotia-rottleriformis

Hybanthus ennea spermus

Mucuna prurience (L)DC.

Phyllanthus emblicaL.

Phyllanthus niruri

Givotia spp.

Plumbago zeylanica

Potulaca oleracea L.

Rauvolfia serpentina

Solanum torvum Burm.

Techoma stans (L.) H.B.&K.

Terminalia chebula Retz.

Tinospora cordifolia

Tylophora indica (N.Burm)Merr.,Philipp.

Vitex negundo L.

Withania somnifera

Wrightia tinctoria R.Br.

References.

1. Ghimire K, Bastakoti RR. Ethno – Medicinal knowledge and healthcare practices among the Tharus of Nawalparasi district in central Nepal. Forest ecol Manag 2009, 257.2066-2072.
2. Joshi K, Joshi AR. Indigenous knowledge and uses of medicinal plants by local communities of the Kali Gandaki watershed Area, Nepal.J Ethnopharmacol 2000, 73.175-183.
3. Joshi K, Joshi R, Joshi AR. Indigenous knowledge and uses of medicinal plants in Macchegaum, Nepal. Indian J Tradit Know 2011, 10.281-286.
4. Kunwar RM, Uprety Y, Burlakoti C, Chaudhary CL, Bussmann RW. Indigenous Use and Ethno-pharmacology of Medicinal plants in Far-west Nepal. Ethnobot Res April 2009, 7.005-028.
5. Mahato RB, Chaudhary RP. Ethno-medicinal study and Antibacterial activities of selected plants of palpa district, Nepal. Scientific world 2003, 2.38-45.
6. Rajbhandari KR. Ethno-botanical of Nepal. Nepal. Ethono-botanical Society of Nepal. 2001.
7. Manandhar NP. Ethno-botanical note on folk-lore medicines of Baglang district, Nepal. Contribution to Nepalese studies 1993, 20(2). 183-196.
8. Manandhar NP. A survey of medicinal plants of Jajarkot district, Nepal J. Ethnopharmacol 1995, 48.1-6.

9. Manandhar NP. Plants and people of Napal. Oregon, USA. Timber press prtland; 2002.
10. Manandhar NP. Ethno-botanical census on herbal medicines of Banke district, Nepal. Contribution to Nepalese studies 1998, 25.57-63.
11. Sharestha PM, Dhillion SS. Medicinal plant diversity and use in the highlands of Dolakha district, Nepal. J Ethnopharmacol 2003, 86.81-96
12. Acharya KP, Acharaya R. Ethno-botanical study of medicinal plants used by Tharu community of parroha VDC, Rupeandehi District, Nepal. Scientific world 2009, 7(7).80-84.
13. Bhattarai NK. Traditional Medicine, Medicinal plants and biodiversity conservation in the glbal and Nepalese context. Plant Research 1998,1.22-31.
14. BattaraiS, Chaudhary RP, Taylor RSL. Ethno-medicinal plants used by the people of Nawalparasi District, Central Nepal. Our Nature 2009, 7.82-99.
15. Einger D, Scholz D. Ferula asa-foetida and curcuma longa in traditional medical treatment and diet in Nepal. J Ethno-pharmacolo 1999,67.1-6.
16. ROkaya MB, Munzbergovaa Z, Timsina B. Ethnobotanical study of medicinal plants from the Humla district of werern Nepal. J Ethnopharmacol 2010, 130.485-504.
17. Uprety Y, Asselin H, Boon EK, Yadav S, Sharestha KK. Indigenous use and bio – efficacy of medicinal plants in the Rasuwa District. Central Nepal. J Ethnobiol Ethnomed 2010, 6.3.
18. Panthi MP, Chaudhary RP. Ethnomedicinal plants Resources of Arghakhanchi District, west Nepal. Ethnobotany 2003, 15.71-86.

19. Bussmann RW, Sharon D. Traditional medicinal plant use in Northern peru. tracking 2000 years of healing culture. J Ethnobiolo Ethnimed 2006, 2.47.
20. Kumar A, Pandey VC, Tewari DD. Documentation and determination of consensus about phytotherapeutic veterinary practices among the Tharu tribal community of Uttar Pradesh, India. Trop Anim Health Prod 2012,44.863-872. DOI. 10.1007/S11250-011-9979-x
21. Kumar A. Ethnobotanical Aspects of pharmacological Flora Used by Tharu Tribes in Terai Belt of North- Eastern Uttar Pradesh. Dr. Ram Manoher Lohia Avadh University, 2004. Ph D Thesis.
22. Behera SK. Mishara MK. Indigenous phytototheapy for genitor – urinary diseases used by the Kandha tribe of Orissa, India. J Ethnpharmacol 2005,102.319-325.
23. Kumar, A Tewari DD, pande YN. Ethno phytotherapetics among Tharus of Beerpur Semara Forest range of Balrampur. J Econ Taxon Bot 2003, 27.839-844.
24. Longuefosse JL, Nossin E. Medical Ethno botany survey in Martinique. J Ethnopharmacolo 1996, 53.117-142.
25. Rajkumar N, Shivanna MB. Traditional herbal medicinal Knowledge in Sagar taluk of Shimoga District, Karnataka, India. Indian J Nat Prod Res 2010, 1.102-108.
26. Saikia AP, Ryakala VK, Sharma P, Goswami P, Bora U. Ethnobotany of medicinal plants used by Assamese people for various skin ailments and cosmetics. J Ethnopharmacol 2006, 106.149-7.
27. Rana MP, Sohel MSI, Akhter S, Islam MJ. Ethno-medicinal plants use by the Manipuri tribal community in Bangladesh. J Forestry Res 2010, 21.85-92.

28. Kumar A, Tewari DD, Pande YN. Indigenous and traditional herbal medicines from Gonad District of terai belt of North eastern utter Pradesh. J Nat Con 2003, 15(1).261-268.
29. **Anonymous**. District profile of Rupandehi. Nepal. District Development committee Rupandehi; 2007.
30. Central Bureau of Statistics. Population of Nepal. Village Development Committees/ Municipalities population census 2001.
31. Mc Lean J. Conservation and the impact of relocation on the Tharus of Chitwan, Nepal. Himalyan research Bulletin 1999,XIX(2).38-44.
32. Martin GJ. Ethno – botany. A methods manual. London. Chapman and hall. 1995
33. Rao RR, Sharma BD. A Manual for Herbarium Collections. India. Botanical Survey of India. 1990.
34. Woodland DW. Contemporary plant Systematics. USA. Andrews University Press; 1997.
35. Press JR, Shrestha KK, Sutton DA. Annotated Checklist of the Flowering plants of Nepal. London. The Natural History Museum;2000.
36. Rao CK. Flora. A Gardener's Encylopedia. India. Om Books Service; 2004.
37. Ross IA. Medicinal plants of the world. USA. Human press;1999.
38. Hara H. Stearn WT. Williams LHJ. An enumeration of the flowering plants of Nepal, Volume I. London. British Museum of Natural History; 1978.
39. Hara H. Williams LHJ. An Enumeration of the Flowering plants of Nepal, Volume II. London. British Museum of Natural History; 1979.

40. Hara H. Charter AO, Williams LHJ. An Enumeration of the Flowering plants of Nepal, Volume III. London. British Museum Of Natural History; 1982.
41. The International plant Names Index (2008). http.//www.ipni.org.
42. Trotter R, Logan M. informant consensus. a new approach for identifying potentially effective medicinal plants. In plants in Indigenous Medicine and Diet. Bio behavioural Approaches. Edited by Etkin NL. Bedfort hills. Redgrave publishers; 1986.91-122 .
43. Heinrich M, Moerman ES, Leonti M. Ethnophatmacological field studies. A critical Assessment of their conceptual basis and methods. J Ethnopharmacolo 2009, 124.1-17.
44. Parekh J, Chanda SV. In vitro Antimicrobial Activity and phyto-chemical Analysis of some Indian Medicinal plants. Turkish J Biology 2007,31.53-58.
45. Samy RP, Ignacimuthu S, RAJA DP. Preliminary screening of ethno medicinal plants from India. J Ethnopharmacol 1999, 66.235-240.
46. Srinivasan D, Nathan S, Suresh T, Perumalsamy PL. Antimicrobial activity of certain Indian Medicinal plants used in folkloric medicine. J Ethnopharmacol 2001, 74.217-220.
47. Wiedendfild H, Roader E. Pyrrolizedine alkaloid from Ageratum conyzoides. Planta Medica 1991, 57.578.
48. Chitravadivu C, Manian S, Kalaichelvi K. Qualitative Analysis of Selected Medicinal plants, Tamilnadu, India. Middle-East J Scientific Research 2009, 4.144-146.

49. Ragupathy S, Newsmaster SG, Murugesan M, Balasubrananium V, Muneer HUM. Consesensus of the Malasars traditional knowledge of medicinal plants in the Velliengiri holi hills India. JEthnobiol Ethnomed 2008,4.8.
50. Gazzaneo LRS, de Lucena RFP, De Albuquerque UP. Knowledge and use of medicinal plants by local specialists in a region of Atlantic forest in the state of Pernambuco (Northeastern Brazil). J Ethnobiol Ethnimed 2005, 1.9.
51. Owuor Bo, Kisangau Dp. Kenyan medicinal plants used as antivenin. a comparison of plant usage. J Ethnobiol Ethnomed 2005, 1.9.
52. Kisangau DP, Lyaruu HVM, Hosea KM, Joseph CC. use of traditional medicines in the management of HIV/AIDS opportunistic infections in Tanzania. a case in the Bukoba rural district. J Ethnobiol Ethnomed 2007, 3.29.
53. Garcia D, Domingues MV, Rodrigues E. Ethnopharmacological survey among migrants living in the Southeast Atlantic Forest of Diadema, SaoPaulo, Brazil. J Ethnobiol Ethnomed 2010, 6.29/
54. Cheikhyoussef A, Shapi M, Matengu K, Ashekele HM. Ethnobotanical study of indigenous knowledge on medicinal plant use by traditional healers in Oshikoto region Namibia. Ethnobiol Ethnomed 2011, 7.10.
55. Ragupathy S, Newsmaster SG. Valorizing the 'Irulas' traditional knowledge of medicinal plants in the Kodiakkarai Reserve Forest India. J Ethnobiol Ethnomed 2009, 5.10.
56. Uniyal SK, Sharma S, Jamwal P. Folk medicinal Practices in Kangra District of Himachal Pradesh, Western Himalaya. Human Ecol 2011, 39.479-488.

57. Mishra S.B., S. Dwivedi, A. Shashi and K. Prajapati, 2008. Ethnomedicinal Uses of some Plant Species by Ethnic and Rural Peoples of the Salem District of Tamilnadu with Special Reference to the conservation of Vanishing Species, Ethobotanical Leaflets, 12.873-887.
58. Sudhir, K., 2002. The medicinal plants of North East India, Scientific Publisher, Jodhpur, India.
59. Sinha, R.K., 1998., Tools of investigation. In Enthnobotany; the Renaissaance of traditional herbal medicine. INA shree Publication. Jaipur, PP. 194-202..
60. Balakrishnan, V., Prema, K.C. Prema, K.C. Ravindram and J Philip Rabinson, 2009. Ethno-botanical Studies among Villagers from Dharapuram Taluk, Tamil Nadu, India, Gllobal J. Pharmacol., 3(1)8-14.
61. Sandhya Madan Mohan. [*1] and Bhawana Pandey [2]. World Journal of Pharmacy and Pharmaceutical Sciences. Volume 5, Issue 8. 1342-1347
62. Refrence books: C.K.Kokate. A.P. Purohit. S.B.Gokhale. Pharmacognosy.
63. Dr. K.R. Khandelwal. Edited by Dr. Vrundasethi. Practical Pharmacognosy. (Techniques and Experiments).