



A CASE STUDY

Ethno-medicinal plants in five forest ranges in Dang's district, South Gujarat, India

VIKAS KUMAR**ABSTRACT**

An extensive field studies were undertaken in order to study the utilization of wild medicinal plants in five forest ranges in Dang's district, southern Gujarat during September 2010 to August 2013. It resulted that the utilized 99 species of plants which included trees (49), herbs (29), climbers (4) and shrubs (17), distributed in 88 genera and 50 families. Family Fabaceae was found dominant species (12) and followed by Malvaceae (9), Asteraceae and Moraceae (6), Apocynaceae (5) and Combretaceae (4). Drink or decoction made out of plant parts were observed as the most common mode of intake, while leaves were the common plant part used as medicine. This study highlights the need for recording the local ecological knowledge of indigenous communities, which will help to formulate plans aimed at multiple-use-forestry.

Key words : Tribes, Traditional knowledge, Ethno-medicinal plant, Dang's district, South Gujarat

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INTRODUCTION

The cultural diversity in the Indian society reflects close relationship between the existence of human life and nature including all other living creatures and non-living features. The conservation of environment, natural resources and biological diversity has been deeply rooted in the Indian traditional and culture. Current estimates suggest that, in many developing countries, a large proportion of the population relies heavily on traditional practitioners and medicinal plants to meet primary health

care needs (Abu-Rabia, 2005). Although modern medicine may be available in these countries, Drugs obtained from plant are believed to be much safer (Katewa *et al.*, 2004) and exhibit a remarkable efficacy in the treatment of various ailments (Siddiqui *et al.*, 1995). The World Health Organization (WHO) has estimated that 80 per cent population of developing countries relies upon traditional medicinal-mostly plant drugs-for their primary health care needs (Farnsworth and Soejarto, 1991). Local people have knowledge about the flora and fauna, their utility, interactions between the flora and fauna, the seasonal variations in the ecosystem and other such details of the functioning of the ecosystems. They understand the ecological process through experience and observation (Kumar *et al.*, 2014a).

AUTHOR FOR CORRESPONDENCE

VIKAS KUMAR, Department of Silviculture and Agroforestry, College of Forestry, Kerala Agricultural University, THRISSUR (KERALA) INDIA
Email : vskumar49@gmail.com

Gujarat state is the western part of India. It has poor forest cover (less than 10% forest land of its geographical area) but it has fairly rich biodiversity (Kumar *et al.*, 2013). The tribal population forms about 15 per cent of the total population of the state. The forest areas all along the eastern boundary of the state are predominantly inhabited by tribal population, spread over eight districts, *viz.*, Dangs, Valsad, Surat, Bharuch, Vadodara, Panchmahals, Sabarkantha and Banaskantha (Anonymous, 1991). According to different studies on tribal communities of Gujarat has revealed that, out of 2000 plant species occurring in Gujarat, 760 are medicinal and 450 are economic and ethnobotanical importance species (Table A) and most of these plant species are used by tribals (Umadevi, 1988; Umadevi *et al.*, 1989; Kumar *et al.*, 2014a; Kumar *et al.*, 2014b; Kumar, 2015a and b).

Utility	No. of species used
Cereals and pseudo cereals	21
Pulses	07
Vegetables	80
Fruits and seeds	71
Fodder plants	43
Species and condiments	15
Beverages	06
Oil yielding plants	15
Tooth brushes	11
Bidi wrappers	02
Timber trees	44
Fish poison and arrow head poison	15
Taboos	17
Musical instruments	08
Narcotics	06
Fibre yielding plants	17
Hedge plants	24
Miscellaneous	48
Medicinal plants	760

There are very few cases or sporadic attempts made to document traditional knowledge in Gujarat (Bedi, 1968; Gopal, 1983; Reddy, 1987 and Joshi, 1994) and are restricted to ethnobotany. Gujarat Pustakalya Sahayak has Published few books on ethnobotany to popularize traditional knowledge. In these studies only the name of plants and their uses are given. But information on how

to use them is lacking (Anonymous, 1996). Now-a-day's Gujarat Institute of Desert Ecology (GUIDE) has started research and documentation on traditional knowledge on plants and animals of the desert area only (Nisha *et al.*, 2003). Hence, documentation and conservation of these medicinal plants have been big challenges to scientific community to ensure that the traditional knowledge benefited to generation to generation.

MATERIALS AND METHODS

The hamlet was frequently visited from December 2010 to August 2012. The present investigation was a part of my M.Sc. course 'Ecology of Rare and Endangered plant species of Dang's Forest, South Gujarat' studies, field surveys were conducted covering five forest ranges areas in Dang's district, south Gujarat (Fig. A). These observations are based on interviews with aged local tribes and knowledge rich persons, who are residing and practicing herbal therapy and they are much familiar with forest flora diversity. Such information was verified through repeated quarries with another 'Local Vaidya', available ethonobotanical literature Vaidya Bapalal, 1982; Jain, 1991; Ant, 2000; Patel, 2001; Patel, 2002; Gavalia and Sharma, 2003; Patel *et al.*, 2010 and Kumar *et al.* (2014b) has worked extensively and documented the ethnobotanical information about plants of Gujarat. The plant is identified with the help of Gujarat flora (Shah, 1978). Voucher specimens are deposited in the herbarium department of Navsari Agricultural University, Navsari.

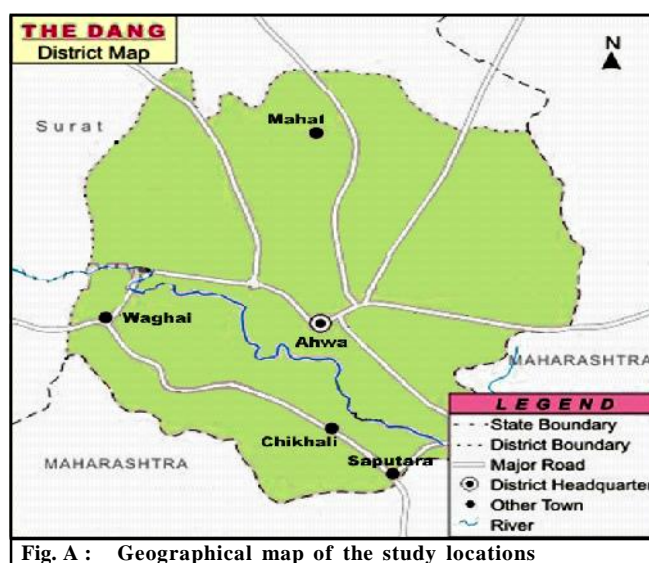


Fig. A : Geographical map of the study locations

RESULTS AND DISCUSSION

However, during the survey 99 species which included trees (49), herbs (29), climbers (04) and shrubs (17) were recorded which are used for the treatment of different types of diseases by the villager communities, mostly belong to schedule caste and schedule tribes in Dang's district at Gujarat (Fig. 1). Family Fabaceae was found dominant species (12) and followed by Malvaceae (9), Asteraceae and Moraceae (6), Apocynaceae (5) and Combretaceae (4), Amaranthaceae, Asparagaceae, Boraginaceae, Celastraceae, Lamiaceae, Menispermaceae, Myrtaceae, Nyctaginaceae, Phyllanthaceae, Poaceae, Sapindaceae, Sterculiaceae and Vitaceae (2) (Fig. 2). The plant parts (leaf, root, bark, seed, fruit, shoot, flower, whole plants, gum, rhizome, floss and latex) use in traditional knowledge in Dang's district (Fig. 3). Here, all plants of botanical name, local name, plant parts, habitat and their utilization have given in Table 1.

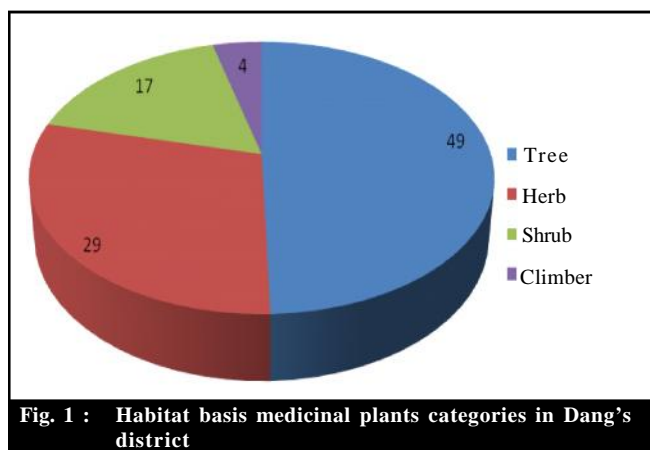


Fig. 1 : Habitat basis medicinal plants categories in Dang's district

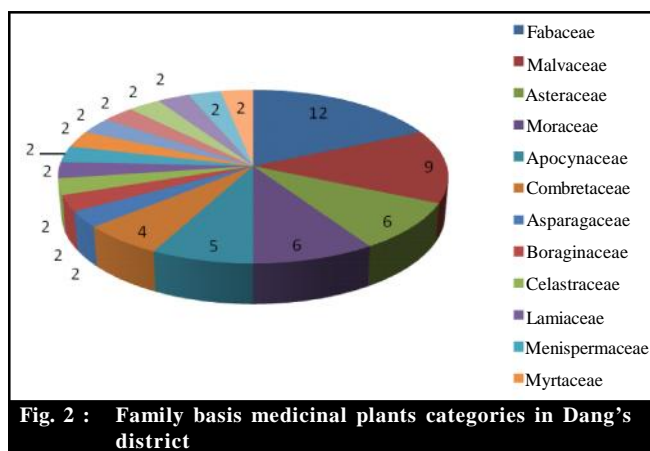


Fig. 2 : Family basis medicinal plants categories in Dang's district

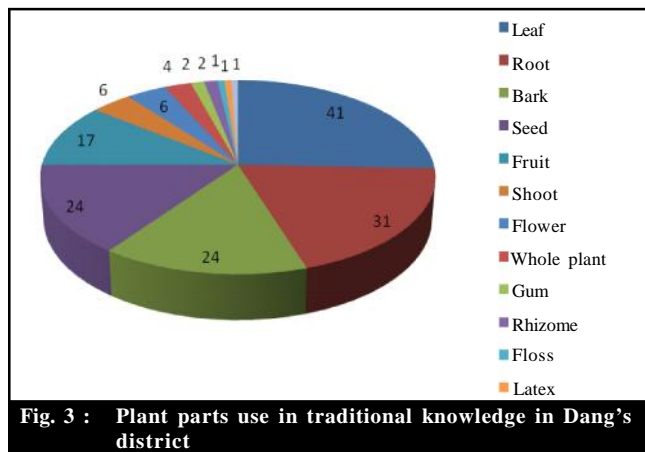


Fig. 3 : Plant parts use in traditional knowledge in Dang's district

Most of medicinal plants, even today, are collected from wild. The continued commercial exploitation of these plants has resulted in regarding the population of many species in their natural habitat. Vacuum is likely to occur in the supply of raw plant materials that are used extensively by the pharmaceutical industry as well as the traditional practitioners (Maske *et al.*, 2011; Kumar, 2014 and Kumar *et al.*, 2014a).

Consequently, cultivation of these plants is urgently needed to ensure their availability to the industry as well as to people associated with traditional system of medicine. If timely steps are not taken for their conservation, cultivation and mass propagation, they may be lost from the natural vegetation forever. *In situ* conservation of these resources alone cannot meet the ever increasing demand of pharmaceutical industry (Singh and Gautam, 1997; Kumar, 2014; Nizar *et al.*, 2015; Kumar, 2015b). It is, therefore, inevitable to develop cultural practices and propagate these plants in suitable agroclimatic regions.

Commercial cultivation will put a check on the continued exploitation from wild sources and serve as an effective means to conserve the rare floristic wealth and genetic diversity. It is necessary to initiate systematic cultivation of medicinal plants in order to conserve biodiversity and protect endangered species. In the pharmaceutical industry, where the active medicinal principle cannot be synthesized economically, the product must be obtained from the cultivation of plants. Systematic conservation and large scale cultivation of the concerned medicinal plants are thus of great importance. Efforts are also required to suggest appropriate cropping patterns for the incorporation of these plants into the conventional agricultural and forestry cropping systems. Initiatives have

Table 1 : The species of ethno-medicinal plants recorded under five forest ranges in Dang's district at south Gujarat

Sr. No.	Scientific name	Local name	Family	Habitat	Parts used	Use
1.	<i>Abrus precatorius</i> L.	Chanothi	Fabaceae	S	LF	Cough, cold and complain. Fresh as well as dried leaves are used for chewing to relieve throat infections.
2.	<i>Abutilon indicum</i> Link	Khapat,	Malvaceae	H	LF, SD	Crushed and applied on skin diseases like eczema. The seeds are aphrodisiac, used in piles and cough.
3.	<i>Acacia chundra</i> (Roxb. ex Roth) Willd.	Khair	Mimosaceae	T	BK	Morning and evening for three days in stomachache.
4.	<i>Achyranthes aspera</i> L.	Aghedo	Amaranthaceae	H	RT, LF, SD	Mixed with sugar is used in venereal disease, dried leaves are used with honey in chronic cough, bronchitis and asthma. Seeds and leaves are used in hydrophobia and on insect bites.
5.	<i>Aegle marmelos</i> (L.) Corrêa	Bilipatra, Bael	Rutaceae	T	FT, BK	Used in dysentery. Bark is taken thrice a day for one week in intermitted fever.
6.	<i>Ageratum conyzoides</i> L.	Makad Mari	Asteraceae	H	LF	Used to heal wounds and sores. Plant is also used in skin diseases and leprosy
7.	<i>Alangium salviifolium</i>	Ankol	Alangiaceae	T	SD, RT	Used as accrue for boil. Root bark is used in jaundice. Roots are also used in the treatment of snake bite.
8.	<i>Amaranthus spinosus</i> L.	Kantali bhaji	Amaranthaceae	H	LF, RT	Used for removing kidney stone. Leaves and roots are used as diuretic.
9.	<i>Ampelocissus latifolia</i> (Roxb.) Planch.	Jangli Drakash	Vitaceae	C	LF, RT	Uses in case of guinea worm infection. Paste of root is used externally on stomache and also used in snake bite and heal wounds.
10.	<i>Anogeissus latifolia</i> (Roxb. ex DC.) Wall. ex Guill. and Perr.	Dhavda	Combretaceae	T	BK, GM	Used in liver complaints. Gum is nutritive tonic.
11.	<i>Asparagus racemosus</i> Willd.	Satawari	Asparagaceae	S	RT	Decoction of root power supposedling facilitates conceptions in cattle as well as human, also given in ulcers and heamorrhoids. Dried roots are burn and fumes are inhaled under a blanket for curing fever.
12.	<i>Azadirachta indica</i> A.Juss.	Limdo	Meliaceae	T	LF, FL	Fresh juice of leaves with salt is used in interstitial worms and applied externally skin disease. Fresh flowers are consumed raw or crushed against sun stroke and fever.
13.	<i>Bambusa arundinacea</i> (Retz.) Willd.	Kanti vans	Poaceae	T	ST	The tender shoots are used to prevent nausea and vomiting.
14.	<i>Bauhinia purpurea</i> (L.) Benth	Kanchnar	Fabaceae	T	LF	Mature leaves used to wrap "Bidi" locally.
15.	<i>Bauhinia racemosa</i> (L.) Benth	Asitro	Fabaceae	T	LF	Mature leaves used to wrap "Bidi" locally.
16.	<i>Boerhavia diffusa</i> L. nom. cons.	Punarnava	Nyctaginaceae	H	RT	Used to cure fever, urinary troubles and asthma. Roots extract is diuretic and used especially on oedema of limbs.
17.	<i>Bombax ceiba</i>	Shimal	Malvaceae	T	Floss, RT	Floss is commonly collected and used to stuff pillows and cushions. Roots of young plants are considered to be tonic.
18.	<i>Butea monosperma</i>	Palas	Nyctaginaceae	T	FL, SD, BK, RT	Mixed of flowers and seeds are used two times a day as vermicide. The bark decoction is used once a day for month in piles. The extract of root of one or two years old plants are orally given to improve eye sight.
19.	<i>Cardiospermum halicacabum</i> L.	Kagdodio	Sapindaceae	H	LF, SD, RT	The leaves, roots and seeds used for lung diseases and rheumatism.
20.	<i>Carissa carandas</i> L.	Karanvada	Apocynaceae	S	FT	Unripe fruits are pickled and Fruits are eaten.
21.	<i>Casearia elliptica</i> Willd.	Tondrum	Salicaceae	T	FT, RT	The fruit is used as a fish poison. Decoction of root is used in piles.

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22.	<i>Cassia fistula</i> L.	Gamalo	Fabaceae	T	FT, BK	The sweet pulp of the fruit is used in skin diseases. The pulp is used two times a day for three days as a laxative in fever. Bark is used on sore throat.
23.	<i>Cassia tora</i> L.	Kunvadio	Leguminosae	H	LF	Tender leaves and young seedling eaten as spinach. Decoction of leaves is used to wash painful eye and to cure cutaneous inflammation.
24.	<i>Cassine glauca</i> (Rottb.) Kuntze	Bhut jad	Celastraceae	T	LF, BK, ST	Paste of leaves externally applied to cure and to give relief in stomach pains. Bark is poisonous and used for killing fish. Myth that a frantic animal gets redacted if tied to this tree or post made from the stem.
25.	<i>Celastrus paniculatus</i> Willd.	Malkangni	Celastraceae	S	SD	The seed oil is used in rheumatism and paralysis.
26.	<i>Chlorophytum tuberosum</i> (Roxb.) Baker	Safed musli	Asparagaceae	H	TU	Root tuber are boiled and given for mentally deranged person. The tuber is boiled with milk in case of impotency and weakness.
27.	<i>Cissampelos pareira</i> L.	Pahadvel	Menispermaceae	S	RT	The decoction of root is used three times a day for one week in diarrhea and in case of urinary trouble for fifteen days.
28.	<i>Cissus repanda</i> (Wight and Arn.) Vahl	Gandovelo	Vitaceae	C	RT, ST	During summer the local people suck juice of the stem. Crushed root is applied on scorpion sting to relieve pains.
29.	<i>Clematis triloba</i> B. Heyne ex Roth	Tripankhyo Velo	Ranunculaceae	C	LF, RT	Decoction of leaves is used three times a day for one two-three months till the diseases is cured. The leaves paste is applied two-three day for one month in leprosy and also used in snake bite.
30.	<i>Cleome viscosa</i> L.	Pili-talavni	Capparaceae	H	LF	Juice of leaves is used in curing ear pain and also applied on boils. The paste is applied as counter irritant.
31.	<i>Cocculus hirsutus</i> (L.) Theob.	Vevgi novelo	Menispermaceae	H	LF, RT	Decoction of leaves used externally in sunstroke. Paste of root is externally used in rheumatism.
32.	<i>Corchorus aestuans</i> L.	Chhunch	Malvaceae	H	SD	Seed powder is used in fever.
33.	<i>Corchorus capsularis</i> L.	Bor chhunch	Malvaceae	S	LF, ST	Leaves boiled with flour of any pulses used as vegetable. Fibers are obtained from stem.
34.	<i>Cordia dichotoma</i> G. Forst.	Gunda	Boraginaceae	T	BK	Gargling in throat infection.
35.	<i>Curculigo orchioides</i> Gaertn.	Kali musli	Hypoxidaceae	H	RT	Used as tonic and for general debility. Also used in jaundice, piles, asthma and diarrhea. Poultice of root is applied in skin diseases.
36.	<i>Cyperus rotundus</i> L.	Chiro	Cyperaceae	H	RHZ	Decoction of rhizome given in sun stroke.
37.	<i>Dendrocalamus strictus</i>	Malvel vans	Poaceae	S	ST	Young shoot apex are delicious and use as vegetable and also pickled. From the hollow internodes a white substance is obtained (vans kapur) used in T.B. The siliceous material from the culms is used two times a day for one month as tonic and astringent.
38.	<i>Derris indica</i> (Lamk.) Bennet.	Karanj	Fabaceae	T	RT, SD	The roots are used as fish poison. The seed oil is used in rheumatism.
39.	<i>Dioscorea bulbifera</i> L.	Kanak	Dioscoreaceae	H	RT	Underground tuberous roots are eaten with salt after boiling and keeping them in running water over night. Paste of the root is used in piles and syphilis.
40.	<i>Diospyros melanoxylon</i> Roxb.	Timbru, Timru	Ebenaceae	T	LF, FT	Used foe "Bidi". The fruits are powdered and taken three times a day for five days in stomach disorders.
41.	<i>Diplocyclos palmatus</i> (L.) C. Jeffrey	Shivlingi	Cucurbitaceae	H	SD	People makes seeds garlands offered to lord Shiva on Mahashivratri. Two seeds are given every day for fifteen days to the ladies who do not conceive for a long time.
42.	<i>Eclipta alba</i>	Bhangro	Asteraceae	H	LF	The leaves are used to colour the hair black, plant used for spleen, problems bronchitis, asthma and leucoderma. Juice of the leaves used in tattooing.

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43.	<i>Embelia officinalis</i> (New name <i>Phyllanthus emblica</i> L.)	Avala	Phyllanthaceae	T	FT	Fruits are rich source of vitamin "C" and a main ingredient of Chyavanprash, Trifala etc. Whole fruits are presented in sugar syrup fruits are used in preparation of hair oil, which has hair darkening properties. Dry fruits used in dysentery, asthma and bronchitis.
44.	<i>Ensete superbum</i> Roxb.	Jangli Ked	Musaceae	H	ST	The tender shoot apex is eaten raw. White kernel in honey given to children against epidemics like chickenpox and measles.
45.	<i>Eucalyptus globulus</i> Labill.	Nilgiri	Myrtaceae	T	LF	Leaf chewed to treat the sourness of throat. Leaf paste is also applied to the forehead to relieve headaches.
46.	<i>Eulophia dabia</i>	Salak mishri	Orchidaceae	H	RHZ	Rhizome of the plant is given in weakness. It is considered highly energetic in nature.
47.	<i>Ficus arnottiana</i> Miq.	Khadak Payar	Moraceae	T	BK, FR	Decoction of bark is used in skin diseases. Ripe fruits are edible.
48.	<i>Ficus asperrima</i> Roxb.	Karvati	Moraceae	T	LF	Decoction of leaves given in vomiting.
49.	<i>Ficus benghalensis</i> L.	Bargad	Moraceae	T	LF	Milky juice from leaves applied externally to relieve pains, seers and ulcers.
50.	<i>Ficus hispida</i> L.f.	Gobha	Moraceae	T	FT	Cooked raw fruits considered an important medicine for impotency.
51.	<i>Ficus racemosa</i> L.	Umaro	Moraceae	T	RT, FT, latex	Decoction of root given in dysentery. Fruits are used as an aphrodisiac and edible. The latex is used to make milk into curd.
52.	<i>Ficus religiosa</i> L.	Pipdo	Moraceae	T	LF, FR	Leaf juice considered very useful to cure skin diseases. The fruits are also considered cooling.
53.	<i>Garuga pinnata</i> Roxb.	Kakad	Bursaceae	T	LF, BK	Decoction of leaves with honey is used in asthma. Bark is considered to be aphrodisiac. Probably contain high percentage of vitamin "C". Length and thumb thickness is cut from the tree and blown from one end and the extract oozing out is used for injuries in the eyes.
54.	<i>Gloriosa superba</i> L.	Dudhio Vaccnag	Colchicaceae	H	RT, SD	The paste of seeds and roots is applied on skin diseases. Roots are highly poisonous. If natural water flowing through root is ingested then it causes abdominal oedema.
55.	<i>Grewia tiliaefolia</i> L.	Dhaman	Malvaceae	T	LF, BK, FT	Decoction of leaves used for washing hairs. Bark decoction used in dysentery. The paste of inner bark and leaves is applied on bone fractures stem fibers are used to prepare rough cords. Fruits are edible.
56.	<i>Helicteris isora</i> Linn	Mavdasingi, Nedasingi	Sterculiaceae	T	SD	The seed power is used thrice a day for one week in the treatment of dysentery and stomach pain.
57.	<i>Hemidesmus indicus</i> (L.) R.Br.	Anant Mool Upalsarri	Apocynaceae	H	RT	The decoction of root is used as blood purifier and in skin diseases. Also given in anemic condition. The root is sweet, cooling aphrodisiac and used to cure leprosy.
58.	<i>Holarrhena antidysenterica</i> (Linn) Wall.	Indrajav	Apocynaceae	T	BK, SD	Bark and seeds are used to cure dysentery. Bark used in snake bite.
59.	<i>Holoptelea Integrifolia</i> (Roxb).	Kanazo	Ulmaceae	T	LF, BK	Leaves are used for killing fish. Power bark is used applied I rheumatism and on swelling. Seeds kernel is edible.
60.	<i>Hygrophila auriculata</i> Schumach.	Kantasherio	Acanthaceae	S	LF, RT, SD	Decoction of leaves and roots is used as diuretic in treatment of dropsy. Leaves externally used on rheumatism and seeds used on venereal diseases. Good in bronchial disorder.
61.	<i>Jasminum pubescens</i> (Retz.) Willd.	Jungli Chameli	Oleaceae	S	LF	Leaves of the plant are used in poultices for ulcers.
62.	<i>Kydia calycina</i> Roxb.	Varang	Malvaceae	T	LF	Paste of leaves is applied on the body for relieving lumbago and rheumatism. Chewed in deficiency of saliva.

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63.	<i>Lansea coromandelica</i>	Moyno	Anacardiaceae	T	BK, FT	Paste of bark is applied to heal boils, swelling and wounds. The fruits are also powder and used for healing wounds.
64.	<i>Launaea procumbens</i> Roxb. L..	Moti Bhonpatri	Labiataeae	H	LF, RT	The leaves juice is applied in conjunctivitis. The root decoction used in urinary troubles.
65.	<i>Leucas aspera</i>	Kubo	Lamiaceae	H	LF	Decoction of leaves is taken during fever. Whole plant is used as an insect repellent.
66.	<i>Madhuca longifolia</i> (J.Konig) J.F.Macbr.	Mahudo	Sapotaceae	T	FT, SD, BK	Fruits are edible and use in making bread and also country liquor is made from it. The seed oil known as "Dodiu" is used in cooking and for making soaps. Bark is crushed and used in bone fracture.
67.	<i>Mallotus philippensis</i> (Lam.) Muell.Arg.	Kapilo	Euphorbiaceae	T	FT	Red dye is procured from the fruits. It is used to give relief in colic pain. The powdery coat of fruit mixed with "gur" is used once in the morning as purgative and anthelmintic.
68.	<i>Martynia annua</i> L.	Viklo	Martyniaceae	H	LF	The leaves are given in epilepsy applied to neck. The juice is used as a gargle for sore throat.
69.	<i>Mitragyna parvifolia</i> (Roxb.) Korth	Kadam	Rubiaceae	T	BK, RT	The stem bark and root decoction is taken twice a day for one week in fever.
70.	<i>Mucuna pruriens</i> (L.) DC.	Kavach	Fabaceae	H	SD	Seeds used in native medicine as good tonic and aphrodisiac.
71.	<i>Ougeinia Oojeinensis</i> (Roxb) Hochr.	Tanachh	Fabaceae	T	LF, BK	Leaves used as fodder. Bark decoction is used for fish hunting. Red sap from bark is applied to heal wounds. Bark powder is used to cure diarrhea.
72.	<i>Phyllanthus fraternus</i> Webster	Moti bhonyamli	Phyllanthaceae	H	LF	Good galactagogue for cattle.
73.	<i>Piliostigma malabaricum</i> (Roxb.) Benth.	Chamol	Caesalpinioideae	T	LF	Leaves are sour in taste and used as vegetable. Paste of leaves is used to cure swellings.
74.	<i>Plumbago zeylanica</i> L.	Chitrak	Plumbaginaceae	S	RT	The root paste is applied on abscess.
75.	<i>Psoralea corylifolia</i> L.	Avachi Bavachi	Fabaceae	S	LF, SD	Leaves used as fodder. The seeds are used in skin diseases (leucoderma) and for restoring hairs, also used for broken knees of horses.
76.	<i>Pterocarpus marsupium</i> Roxb.	Biyo	Fabaceae	T	WP, FL	Heart wood is used in diabetes. The Gum "Kino" is used in stomach disorders. Flowers are considered to increase vitality.
77.	<i>Pueraria tuberosa</i> (Willd.) DC.	Vidari Kand	Fabaceae	H	RT	Root powder is applied to reduce swellings.
78.	<i>Schleichera oleosa</i>	Kusum	Sapindaceae	T	SD	The oil extracted from seeds is used in animal leg swelling, also used for the cure of itch (Makassar oil) and rheumatism. It produces superior quality of lac.
79.	<i>Sida alba</i> L.	Safed Bala	Malvaceae	S	LF, RT	Decoction of leaves is used in high fever as coolant. Decoction of root bark is used in irritability of the bladder in gonorrhea.
80.	<i>Sphaeranthus indicus</i> L.	Gorakh Mundi	Asteraceae	H	WP	Past of whole plant is used in small pox. The plant has sharp bitter taste, laxative and tonic used in insanity, increases the appetite, cools brain and gives luster to the eyes.
81.	<i>Sterculia urens</i> Roxb.	Kadayo	Sterculiaceae	T	SD, GM	Seeds are considered to be a brain tonic. The Gum "Kateera" is obtained from trunk and used to cure gonorrhea and syphilis.
82.	<i>Syzygium cumini</i> (L.) Skeels.	Jambu	Myrtaceae	T	LF, FT, SD, BK	Leaves used as fodder. Fruits are edible. The seed powder is administered orally thrice a day for 3-4 months in diabetes. The fresh bark juice mixed with milk is taken trice a day for four days in diarrhea of children.

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83.	<i>Tamarindus indica</i> L.	Khati Amla	Fabaceae	T	LF, SD, BK	Leaves are applied on inflammation. Seeds are taken after food for the cure of acidity. The bark is used for loss of sensation in paralysis.
84.	<i>Tectona grandis</i> L.f.	Sag	Verbenaceae	T	LF	The leaves are used for making "Ghonghada" used as umbrella in rainy season.
85.	<i>Tephrosia purpurea</i> (L.) Pers.	Sarpankho	Fabaceae	S	RT	Decoction of root given in feminine venereal diseases.
86.	<i>Terminalia arjuna</i> (Roxb.) Wight and Arn.	Arjun sadad	Combretaceae	T	BK	Decoction of bark mixed with flour is used for rat killing. Bark ash with coconut oil applied on burning wounds.
87.	<i>Terminalia bellerica</i>	Baheda	Combretaceae	T	FT, SD	The fruit powder is used as tonic and laxative. It is used in piles and dyspepsia. Fruits are used in cough and asthma. Kernel of seed is edible.
88.	<i>Terminalia tomentosa</i>	Sadad	Combretaceae	T	BK	The stem bark powder is used twice a day for two weeks as cardiac tonic and as diuretic.
89.	<i>Thespesia populnea</i> (L.) Sol. ex Corrêa	Indian Tulip Tree	Malvaceae	T	BK, FT, SD	The cooked fruit crushed in coconut oil provides a salve that is applied to the hair to kill lice. The bark, root, leaves, flowers and fruits are used to treat a range of ailments, including skin problems, dysentery, liver and gall bladder problems, urethritis, gonorrhoea, and high blood pressure.
90.	<i>Trichodesma amplexicaule</i> Roth	Undhafuli	Boraginaceae	H	WP	The plant decoction is taken twice a day for one week in fever.
91.	<i>Tridax procumbens</i> L.	Pill-Bhangaro	Asteraceae	S	LF	Fresh leaves juice applied on fresh wound.
92.	<i>Triumfetta rhomboidea</i> Jacq.	Zipto	Malvaceae	S	RT	Roots are chewed in stomatitis. Root decoction is also used in chronic fever.
93.	<i>Ventilago denticulata</i> Willd.	Asaivel	Rhamnaceae	C	RT	The decoction of root bark is taken thrice a day for 15 days in case of debility.
94.	<i>Vernonia cinevaria</i>	Sahdevi	Asteraceae	S	FL, RT	Flower juice is used for conjunctivitis. Juice of roots is used to dissolve kidney ton.
95.	<i>Vitex negundo</i> L.	Nagod	Lamiaceae	T	LF	The leaves are mixed with cow gung and massaged in backache. Bullocks shoulder wounds are also cured by the paste made with Loranthus and Cucuta.
96.	<i>Woodfordia fruticosa</i> (L.) Kurz	Dhaty	Lythraceae	S	LF, FL	The leaf paste used in skin diseases. The leaf juice is in applied in conjunctivitis. The dried flowers are astringent and used in dysentery.
97.	<i>Wrightia tinctoria</i> (Roxb.) R.Br.	Chikni Kudi	Apocynaceae	T	BK	Bark is considered to be a tonic and given in menstrual disorders. Latex and bark decoction is used to promote lactation. Bark and seeds are used to care dysentery and diarrhea.
98.	<i>Wrightia tomentosa</i> Roem. and Schult.	Runchadi	Apocynaceae	T	BK	Decoction of bark is given to cattle as galactagogue.
99.	<i>Xanthium strumarium</i> L.	Gadariyi	Asteraceae	H	WP	The whole plant is used as laxative to improve appetite, voice and complexion.

Note : S=Shrub, H=Herb, T=Trees, LF=Leaves, RT=Roots, SD=Seeds, BK=Bark, RHZ=Rhizomes, WP=Whole plant, TU=Tuber, St=Shoot and FL=flower, GM- Gum/Resin.

already been taken by various agencies involved in conservation activities. A National Board of Medicinal Plants has been set up; one of whose activities is conservation. The Ministry of Environment and Forestry is funding an All-India co-ordinated project on conservation of endangered plant species (Raghupati, 2001). Cultivation of this type of plants could only be

promoted if there is a continuous demand for the raw materials.

There are 99 major medicinal plants that can be cultivated in five forest ranges in Dang's district of south Gujarat and have established demand for their raw material or active principles in the international trade. It is also necessary to develop genetically superior planting

material for assured uniformity and desired quality and resort to organized cultivation to ensure the supply of raw material at growers end.

Conclusion :

From the present study, it is evident that the Dang's district of southern Gujarat tribers depends upon the wild plant resources for their personal medical care; in order to supplement their requirements, it is suggested that the potential medicinal plants could be cultivated in their backyards/kitchen gardens. It is hoped that the information gathered from the indigenous community will provide further lead in developing new herbal formulation.

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