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Validation of Indigenous Knowledge of Yanadi Tribe and Local Villagers of Veyilingalakona- A Sacred Grove Of Andhra Pradesh, India.

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Abstract

Aim:

An ethnomedicinal study was carried out to document the medicinal plants used by ethnic and local villagers around the Veyilingalakona sacred grove located in the eastern ghats of Chittoor District, Andhra Pradesh, India.

Methods:

Ethnobotanical interviews were carried out on medicinal plants used to treat common ailments based on structural questionnaire with the local people and ethnic (Yanadi) traditional medical practitioners.

Results:

To document nearly 72 medicinal plants belonging to 41 families used to treat 36 types of common ailments. Out of 72 plant species the dominant life form is trees (31) followed by herbs (21), shrubs (11), climbers (02), creepers (02) and lianas (01). The ethnic people and local villagers using different plant parts and different forms of the drug. Among them leaf part and powder form and oral form of administration is occupied higher percentage.

Conclusion:

A rich diversity of medicinal plant species are used for treating different ailments in villages around Veyilingalakona sacred grove. The indigenous knowledge of traditional healers of these ethnic groups has been disappearing due to decreasing the number of ancestors as well as followers. Only few people are practicing with little knowledge which was transmitted orally from their elders. Hence the present study had been focused on the documentation of ethnic knowledge of villages around the Veyilingalakona sacred grove.

***Keywords*:** Medicinal plants, Ethnic knowledge, Veyilingalakona sacred grove.

INTRODUCTION

Medicinal plants have been used in traditional health care systems from ancient times. Plants have been used in traditional medicine for several thousand years [1].With the advent of human civilization, many systems of therapy have been developed primarily based on plants. In India, drugs of herbal origin have been used in traditional systems of medicine such as Unani, Ayurveda and Siddha [2]. Ethnic and indigenous people who reside in the forest and villages bordering the forest depend on plant resources; and they possess rich knowledge on medicinal values of plants and their uses [3]. Ethnobotany is a preliminary method of research, suitable for gathering information on the use of plants. It has been proven, time and time again, that the 'quack' medical knowledge handed down by the common people constitutes sources of information useful for scientific research and that many plants utilized exclusively in popular tradition, when exposed under scientific examination, have been found to be useful for different sectors in the industry, therefore science and tradition have a strong connection between them, science in fact has often traditional origin [4]. Since ages man relied on plants as a sole source of medicine. The knowledge has been transmitted orally from generation to generation [5] and most of the traditional knowledge had faded away due to lack of proper documentation and more number of practitioners [6, 7]. The art of herbal healing has very deep roots in Indian culture and folklore. Even today in most of the rural areas, people are depending on local traditional healing systems for their primary health care [8]. Documentation of indigenous knowledge through ethnobotanical studies is an important for the conservation and utilization of biological resources [9].

Sacred groves are segments of landscape containing vegetation and other forms of life and geographical features that are delimited and protected by human societies to keep them in a relatively undisturbed state. It is the expression of the relationship of man with the divine or with nature [10]. The phenomenon of believes in sacred groves is ancient. The tract of virgin forest harbouring rich biodiversity, protected by the local people based on the ground of indigenous cultural and religious believes, and taboos is called sacred grove. They are the repositories of rare and endemic species and can be regarded as the remnant of the primary forest left untouched by the local inhabitants and protected by them due to the belief that the deities reside in these forests [11]. Around 14,000 Sacred groves have been reported from all over India. [12, 13]. A total of 677 sacred groves have been reported from Andhra Pradesh (Seemandhra) among them highest 118 sacred groves are recorded from Chittoor District [14].

The Veyilingalakona sacred grove has been given a serial number of 109 [14]. The area is not explored so far of ethnomedical importance. Hence the present study has been undertaken to document the importance of medicinal plants and dependency of the tribes and local villagers on the wild plants for their daily ailments. Due to Anthropogenic interference, most of the valuable medicinal plants are extincting at high rate. It is an inevitable to conserve the treasure of ethnomedical information for future generation.

Therefore documentation of available traditional knowledge is an utmost important. Less information is available on documentation of ethnobotanical data in sacred groves (Veyilingalakona) particularly in this area is very scanty. Therefore documentation of available traditional knowledge is the most inevitable. Hence the present study was undertaken to document the importance of medicinal plants and dependency of the tribes on the wild plants for their daily ailments.

MATERIAL AND METHODS

Data Collection

For the documentation ethnic knowledge ethnobotanical data was collected between 2012-2014 from ethnic people like yanadi tribals and surrounding villagers of Veyilingalakona sacred grove. A structural questionnaire was used to elicit information from them and methodology used based on the methods available in literature [15] and the information collected on local name of the traditional medicinal plant, diseases treated, parts used, method of preparation, route of administration, ingredients added and other uses of the plant.

Study area

Veyilingala Kona forest area which is a sacred grove is located in Srikalahasti Mandal of Chittoor District, Andhra Pradesh, India (Fig. 1). With the latitude of $13^0$41'28.24"N, longitude of 79^0 42'14.93"E and mean sea level of 140 meters. Veyilingala Kona sacred grove with an waterfall situated on the Sri Veyi Lingala Kona Hills, is far 8 kms away from Srikalahasti. The word Veyilingala Kona means Valley of "Thousand Lingas" and the name of the Kona is acquired from Telugu and its meaning is "Waterfall". 'The Valley of Thousand Lingas'. A single linga inscribed with 1000 miniature lings. Linga forms of rocks are abundant around the waterfalls. On the way to falls two small temples "Kanika" and "Murugeswara" are crossed and reached waterfall by footsteps. The water of the falls is believed to have unique healing properties. Many infections related to the skin can be cured by taking regular bath under the waterfall. According to a local legend, bathing in the waterfall can rid of all earthly sins in order to achieve salvation. Most of the people around the sacred grove and piligrims of Srikalahasthi visited daily this sacred grove to worship the God Lord Shiva.

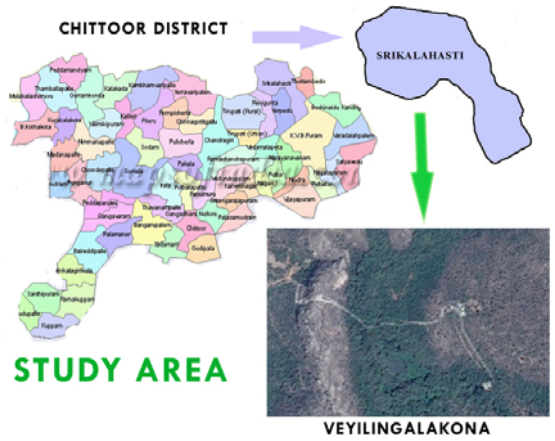

Fig. 1: Birds eye view of study area

Identification of plants

The plant species were collected around sacred grove with the help of practitioners and identified using the Gamble volumes [16] and local floras as well as through comparison with identified specimens deposited in the herbarium of Sri Venkateswara University. The gathered information was documented on data sheets and herbarium sheets with voucher number are preserved in department of Botany, S.V.U. College of sciences, Tirupati.

RESULTS AND DISCUSSION

The study reveals that the ethnic groups and villagers of surrounding people use 72 medicinal plant species belonging to 41 families. The plants were used to treat 36 types of common human ailments (Table 1, Fig. 2). According to the habit of plants- Trees (31) are the most utilized plants followed by Herbs (23), Shrubs (13), Climbers (02), Creepers (02) and lianas (01) (Fig. 3). Different parts of the medicinal plants are using by the traditional practitioners, among them Leaf (42%) are used for the preparation of medicines predominantly followed by Fruit (24%), Whole plant (10%), Root (5%), Root tuber (4%), Seed (4%), Flower (3%), Gum (3%), Stem bark (3%), Latex (1%) and Resin (1%) (Fig. 4). The most prevalent method for form of the drug preparation are Paste (22%) followed by Powder (36%), Capsule (14%), Juice (14%), Decoction (11%), Fumes (2%) and Natural form (1%) (Fig. 5). Preference ranking exercise on plants used against Stomach ulcers followed by Skin disease. 81% remedies are applied through oral route, 18% are applied topically and 01% are inhaled through nose (Fig. 6).

A lot of trial and error based on crude methods of studies, individual sufferings and scarifies, tribals are perfect traditional practitioners. They depend on the plants around them which made them acquire knowledge of economic and medicinal properties of many plants. Consequently they became the storehouse of knowledge of many useful as well as harmful plants. The observations and findings made under present study reveals that the ethnic groups and local people of the area are depend on the natural plant resources surrounding their vicinity and these resources play an important role in their routine life. But, the knowledge of them are dwindling rapidly due to changes towards a more western life style, ignorance and lack of followers. They are not keep records of the knowledge on medicinal plants getting from their ancestors. The endemic plants from this area having medicinal value for the treatment of various ailments. *Pterocarpus santalinus*, *Syzygium alternifolium* are documented here. Previously the medicinal values of these plants are documented in Tirumala and Talakona [17, 18]. But first time we are documenting the medicinal value of an endemic plant *Leucas indica* Var. *nagalapuramiana*.

Apart from the medicinal plants economically important plants like *Typha angustifolia* for making mats and covering roofs of their huts. Gum collecting from *Acacia leucophloea* and *Acacia torta* and edible fruits from *Carissa spinarum* and *Ziziphus xylopyrus* and edible tubers from *Dioscorea pentaphylla* are also using by the tribes.

Table 1: Ethnomedicinal data of Yanadi tribe and surrounding local villagers of Veyilingalakona sacred grove.

S. No	Scientific, Vernacular name and Voucher speciemen No.	Family	Life from and Administration	Part used and Mode of preparation	Uses
1.	*Acalypha alnifolia* Klein ex. Willd. Adavi muripenda, NP 172	Euphorbiaceae	S (Oral)	Leaf (Decoction)	Fever
2.	*Ageratum conyzoides* L. Pumpulla, NP 164	Asteraceae	H (Topical)	Leaf (Paste)	Scores and Wound healing
3.	*Alangium salvifolium* L.f.Oodaga, NP 136	Alangiaceae	T (Oral)	Fruit (Juice)	Laxative
4.	*Allmania nodiflora* (L.) R. Br. Gurugu, NP 162	Amaranthaceae	H (Oral)	Leaf (Decoction)	Digestive problems
5.	*Andrographis alata* Nees. Adavi nelavemu NP 171	Acanthaceae	H (Oral)	Leaf (Decoction)	Fever
6.	*Anisochelus carnosus* (L.f.) Wall. Karpuravalli, NP 122	Lamiaceae	H (Oral)	Leaf (Powder)	Hepatitis
7.	*Bridelia airy-shawii* P.T.V erri karaka, NP 148	Euphorbiaceae	T (Oral)	Root (Powder)	Hepatitis
8.	*Byttneria herbacea* Roxb. Magasirigadda, NP 149	Sterculiaceae	H (Oral)	Root tuber (Powder)	Diarrhoea, Nerve disorders
9.	*Calycopteris floribunda* Lam. Putangiteega, NP 128	Combretaceae	S (Oral)	Fruit (Powder)	Jaundice
10.	*Cansjera rheedii* Gmel. Malli madugu teega, NP 132	Opiliaceae	CR (Oral)	Leaf (Powder)	Diabetes
11.	*Canthium dicoccum* Gaertn. Nalla balasa, NP 113	Rubiaceae	T (Oral)	Fruit (Powder)	Diarrohea
12.	*Capparis sepiaria* L. Nallauppi, NP 114	Capparaceae	CR (Oral)	Whole plant (Juice)	Fever
13.	*Cassia absus* L. Adavi ulava, NP 103	Caesalpiniaceae	S (Topical)	Leaf (Paste)	Bone fractures
14.	*Cassia fistula* L. Semarela, NP 118	Caesalpiniaceae	T (Oral)	Whole plant (Decoction)	Worm infestation
15.	*Cassia mimmosoides* L. Nelaponna, NP 119	Caesalpiniaceae	H (Oral)	Root (Powder)	Stomachache
16.	*Cassia montana* Heyne ex. Roth. Adavi thangedu, NP 123	Caesalpiniaceae	S (Topical)	Leaf (Paste)	Rheumatic pains
17.	*Centella asiatica* L. Saraswathi aku, NP 127	Apiaceae	H (Oral)	Whole plant (Powder)	Leprosy and Diabetes
18.	*Chomelia asiatica* (L.) Kuntz. Kommi, NP 135	Rubiaceae	T (Topical)	Leaf (Paste)	Cuts and boils
19.	*Cissus vitigenea* L. Adavi draksha, NP 144	Vitaceae	CL (Oral)	Leaf (Juice)	Cooling agent
20.	*Clematis gouriana* Roxb. Gourikunthala, NP 154	Ranunculaceae	S (Oral)	Leaf (Powder)	Worm infestation
21.	*Cochlospermum religiosum* (L.) Konda buruga, NP 165	Cochlospermaceae	T (Oral)	Fruit (Juice)	Gonorrhea and Dysentery
22.	*Combretum albidum* G.Don Vedalateega, NP 158	Combretaceae	S (Oral)	Leaf (Powder)	Stomach ulcers
23.	*Commiphora caudata* (Wt.&Arn) Metta mamidi, NP 143	Burseraceae	T (Topical)	Gum (Paste)	Cuts and Boils
24.	*Curculigo orchioides* Gaertn. Nelathadi, NP 152	Hypoxidaceae	H (Oral)	Root (Powder)	Energy stimulant
25.	*Desmodium gangeticum* (L.) DC Kolaponna, NP 155	Fabaceae	H (Oral)	Leaf (Juice)	Cough
26.	*Dioscorea pentaphylla* L. Pendalum, NP 167	Dioscoriaceae	S (Oral)	Root tuber (Powder)	Energy stimulant
27.	*Diospyros melanoxylon* Roxb. Pedda tuniki, NP 147	Ebenaceae	T (Oral)	Flower (Capsule)	Urinary disorders
28.	*Dysophylla myosuroides* Benth. NP 156	Lamiaceae	H (Oral)	Leaf (Capsule)	Blood purifier
29.	*Ehretia buxifolia*. Roxb Bhavana bure, NP 150	Boraginaceae	S (Oral)	Fruit (Paste)	Diarrhoea
30.	*Ficus hispida* L.f. Bembedu, NP 139	Moraceae	T (Topical)	Latex (Natural form)	Wound healing
31.	*Ficus nervosa* Roth. Vonjari, NP 151	Moraceae	T (Oral)	Stem bark (Capsule)	Diabetes
32.	*Ficus tomentosa* Roxb. Pedda juvvi, NP 153	Moraceae	T (Oral)	Fruit (Powder)	Diabetes
33.	*Flacourtia indica* (Burm.f.) Pullelaka, NP 156	Flacourtiaceae	S (Oral)	Fruit (Powder)	Digestive problems
34.	*Gardenia gummifera* L.f. Bikki, NP 168	Rubiaceae	T (Oral)	Gum (Powder)	Skin diseases and Stomach ulcers

S. No	Scientific, Vernacular name and Voucher speciemen No.	Family	Life from and Administration	Part used and Mode of preparation	Uses
35.	*Gardenia latifolia* Ait. Pedda bikki, NP 142	Rubiaceae	T (Oral)	Fruit (Juice)	Fever
36.	*Givotia rottleriformis* Griff. Tella poliki, NP 137	Euphorbiaceae	T (Oral)	Fruit (Powder)	Diabetes
37.	*Glochidion velutinum* Wt. Chinna usiri, NP 157	Euphorbiaceae	T (Oral)	Fruit (Powder)	Diabetes and Fever
38.	*Gloriosa superba* L. Vasa nabhi, NP 161	Colchicaceae	CL (Oral)	Root tuber (Juice)	Joint swellings and Snake bite
39.	*Glycosmis pentaphylla* Corr. Gonji, NP 141	Rutaceae	T (Oral)	Fruit (Powder)	Dandruff
40.	*Gmelina asiatica* L. Nelagummadi, NP 160	Verbenaceae	T (Topical)	Fruit (Powder)	Dandruff
41.	*Grewia flavescens* Juss. Pedda Jani, NP 116	Tiliaceae	T (Oral)	Fruit (Powder)	Diarrohea
42.	*Gymnosporia emarginata* Laws. Goddali cippa, NP 125	Celastraceae	T (Oral)	Leaf (Capsule)	Hepatitis
43.	*Gymnosporia montana* Benth. Chinni, NP 131	Celastraceae	T (Oral)	Leaf (Powder)	Stomach ulcers
44.	*Helecteres isora* L. Nulikaya, NP 121	Sterculiaceae	T (Oral)	Fruit (Paste)	Diarrhoea
45.	*Heliotropium bracteatum* R.Br. Gutta kondi, NP 133	Boraginaceae	H (Oral)	Leaf (Capsule)	Stomach ulcers
46.	*Hiptage benghalensis* L. Madhavilatha, NP 120	Malphigiaceae	L (Oral)	Leaf (Capsule)	Hepatitis
47.	*Hugonia mystax* L. Kakibeera, NP 138	Linaceae	S (Oral)	Root (Decoction)	Snake bite
48.	*Ionidium suffrutocosum* Ging. Ratnapurusha, NP 169	Violaceae	H (Oral)	Flower (Powder)	Increasing male sterility
49.	*Justicia glauca* Rottl. NP 129	Acanthaceae	H (Oral)	Leaf (Juice)	Snake bite
50.	*Lactuca runcinata* DC. NP 109	Asteraceae	H (Oral)	Leaf (Decoction)	Bronchitis
51.	*Lepidagathis cristata* Willd. Nakka pintuka, NP 102	Acanthaceae	H (Topical)	Whole plant (Paste)	Skin diseases
52.	*Leucas indica* (L.) R. Br. Var. nagalapuramiana. Chinna poola tummi, NP 100	Lamiaceae	H (Oral)	Leaf (Juice)	Scorpion sting
53.	*Limnophylla heterophylla* (Roxb.) Benth. Neeti sambrani, NP 107	Scrophulariaceae	H (Oral)	Whole plant (Paste)	Leprosy and Dysentery
54.	*Maba buxifolia* Cl. Tella Alli, NP 134	Ebenaceae	T (Oral)	Leaf (Powder)	Energy stimulant
55.	*Madhuca longifolia* Koen. Ippa, NP 117	Sapotaceae	T (Topical)	Seed (Paste)	Rheumatic pains
56.	*Memecylon umbellatum* Burm.f. Alli, NP 145	Melastomaceae	T (Oral)	Leaf (Capsule)	Diabetes
57.	*Ocimum gratissimum* L. Adavi thulasi, NP 140	Lamiaceae	H (Oral)	Whole plant (Juice)	Cough and cold
58.	*Phaseolus aconitiformis* Jacq. Pilli pesara, NP 106	Fabaceae	H (Topical)	Fruit (Paste)	Skin diseases
59.	*Phyllanthus virgatus* Forst. Gadha usiri, NP 130	Euphorbiaceae	H (Oral)	Leaf (Capsule)	Jaundice
60.	*Polycarpaea aurea* Wt.&Arn. Rathirajuma, NP 146	Caryophyllaceae	H (Oral)	Whole plant (Powder)	Diabetes
61.	*Premna tomentosa* Willd. Narava chettu, NP 115	Verbenaceae	T (Oral)	Stem bark (Decoction)	Stomach disorders
62.	*Pterospermum xylocarpum* (Gaertn.) Chinna thada, NP 111	Sterculiaceae	T (Oral)	Leaf (Powder)	Leucorrhoea
63.	*Randia dumatorum* Lam. Manga, NP 166	Rubiaceae	S (Topical)	Fruit (Paste)	Skin diseases
64.	*Randia malabarica* Lam. Chepagutti, NP 112	Rubiaceae	T (Topical)	Fruit (Paste)	Rheumatic pains
65.	*Shorea tumbuggaia* Roxb. Thambajalari, NP 126	Dipterocarpaceae	T (Oral)	Resin (Capsule)	Stomach ulcers
66.	*Strychnos nux-vomica* L. Mushti, NP 101	Loganiaceae	T (Oral)	Seed (Capsule)	Snake bite and Scorpion sting
67.	*Strychnos potatorum* L.f. Chillaginja, NP 159	Loganiaceae	T (Oral)	Seed (Powder)	Scorpion sting
68.	*Taxillus tomentosus* (Heyne ex.Roth) Tellanoogu, NP 108	Loranthaceae	S (Oral)	Leaf (Paste)	Skin diseases

S. No	Scientific, Vernacular name and Voucher speciemen No.	Family	Life from and Administration	Part used and Mode of preparation	Uses
69.	*Syzygium alternifolium* Walp. Adavi nerudu, NP 163	Myrtaceae	T (Oral)	Fruit (Powder)	Diarrhoea
70.	*Urena lobata* L. Pedda benda, NP 110	Malvaceae	S (Oral)	Leaf (Decoction)	Worm infestation
71.	*Vitex leucoxylon* L.f. Tella vavili, NP 124	Verbenaceae	T (Topical)	Leaf (Paste)	Leprosy and Headache
72.	*Wedelia calendulaceae* Less. Adavi poddutirugudu, NP 105	Asteraceae	H (Inhalation)	Leaf (Fumes)	Cold and cough

Fig. 2: Important medicinal plants documented from Veyilingalakona-A sacred grove

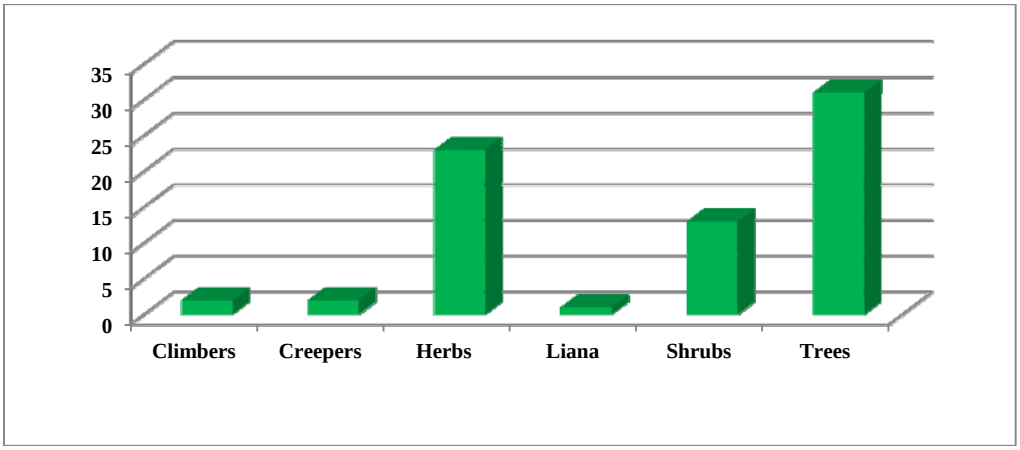

Fig. 3: A graphical representation showing habit of the plants

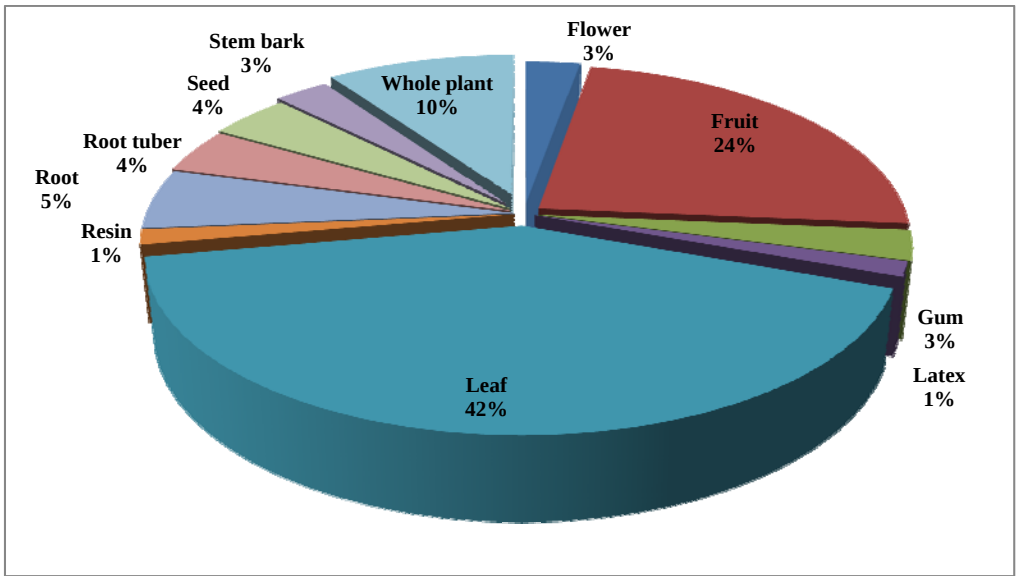

Fig. 4: Percentage of plant parts used for preparation drugs

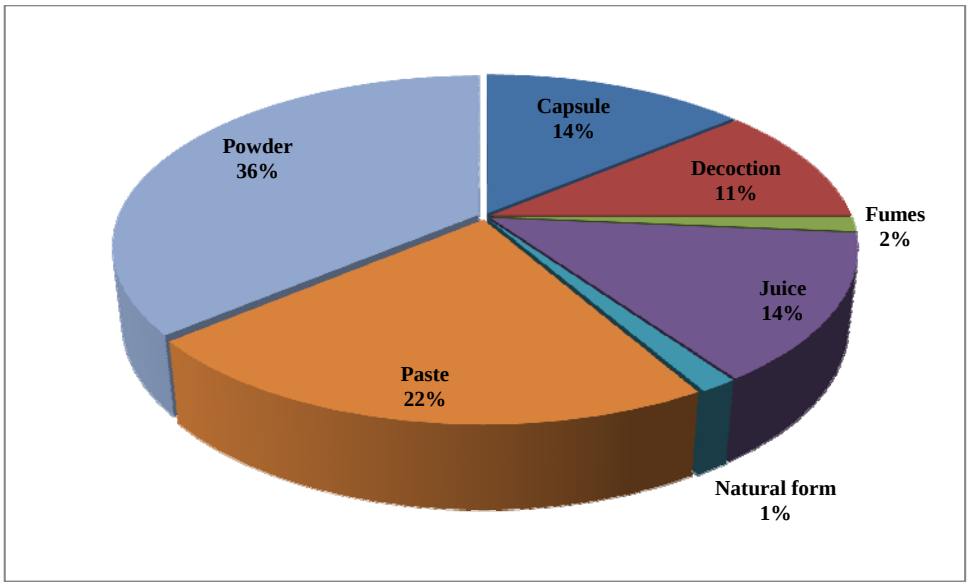

Fig. 5: Percentage of form of the drugs prepared for treatment of ailments

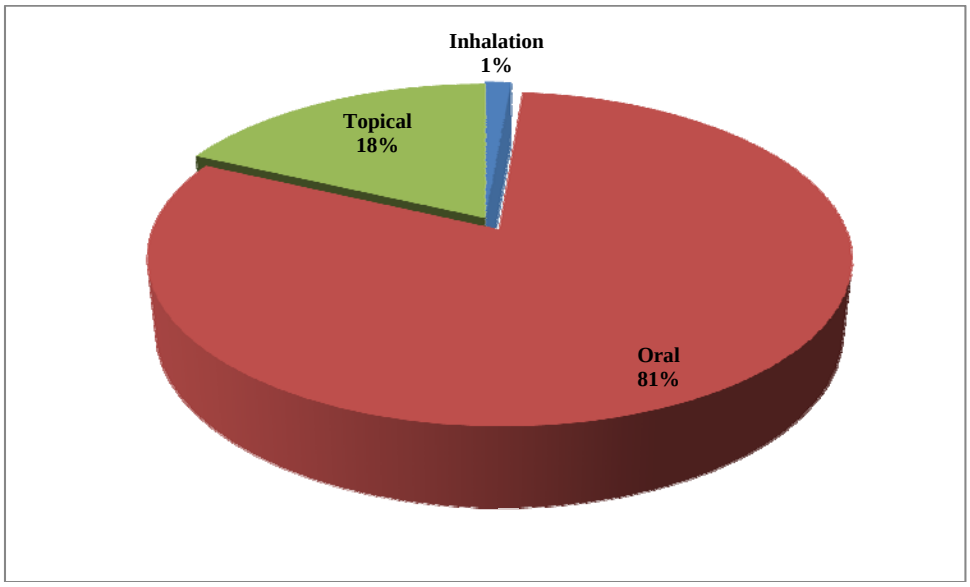

Fig. 6: Percentage of administration of drugs to treat ailments

CONCLUSIONS:

The elderly people of a community have greater knowledge on medicinal plants. But, the youngsters of the study area showed less interest in traditional practices mainly due to less recognition of traditional healers and easy availability of modern medicines. The influx of large number of pilgrims and tourists, celebration of rituals and ceremonies the un-eco-friendly polluted behavior changes the natural identity of this sacred grove. It is high time to take the measures to protect the ecosystem of this sacred grove. The documented information offers the pharmaceutical industries for further research on isolation of chemical constituents which is useful for effective treatment of ailments. Because there is an evidence of the fact that many valuable drugs of our modern medicine have been discovered by knowing that a particular plant was used by the ancient ethnic healers to treat different types of ailments.

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