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Ethno Medicinal Plants Use by Two Sympatric Tribes of Central India

Mithlesh Kumar Maravi, Bhairo Prasad Ahirvar and Shivaji Chaudhry

Department of Environmental Science, Indira Gandhi National Tribal University, Amarkantak-484 886, Madhya Pradesh, India

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Abstract Forest is inseparable part of life and livelihood of the tribes, in the present study two large and sympatric tribal groups were compared for their knowledge in terms of medicinal plants used. In order to assess their rich knowledge in terms of the medicinal plants a targeted questionnaire was prepared. In the twin Central Indian states of Madhya Pradesh and Chhattisgarh 7 Gond and 4 Baiga villages were surveyed. The paper highlights the rich traditional knowledge of the tribes; we report 100 species of medicinal plants being used by both the tribes living in Central India. Baiga tribes used 59 species belonging to 55 genus and 35 plant families while Gond tribe used 10 species belonging to 10 genus and 10 plant families. Gond tribes used 6 different plant parts out of which root 33%, seed 50%, fruit 50%, bark 33%, tuber 17%, flower 17%. Baiga tribes used 10 different plant parts the contribution of each part are root 2%, bark 1%, leaf 90%, rhizome 30%, whole plant 40%, seed 10%, fruit 50%, tuber 20%, prop root 10%, inflorescence 2%. This point to fact that the Baiga tribes are more knowledgeable in terms of medicinal plants use than Gond. This study did not share similarities with respect to plant species being used by different tribes when compared to the works of earlier authors.

Keywords *Medicinal Plants; Tribes; Gond; Baiga; Madhya Pradesh; Chhattisgarh*

1. Introduction

Ethno-medicinal studies are important as they have evolved through series of trial and error, such plant hold key for development of new drugs (Flaster, 1996, Cox, 2000). The age old tribal knowledge of plants is an important aspect of ethno botanical research (Shukla *et al.*, 2010). In India 85% of the rural population depending on wild varieties of plants for treatment of various ailments and diseases (Fransworth, 1994; Jain, 1994). India is rich in its biodiversity and cultural diversity it contains 3 biodiversity hotspots (Meyers *et al.,* 1999). Tribal life in India is in tune with nature and its resources, In India there are 645 different tribal groups and out of which 46 are found in Madhya Pradesh (Anonymous, 2012). Most of the ethno botanical work in central India is based on listing and use of medicinal plants (Gupta *et al.*, 2009; Arjariya and Chaurasiya, 2009; Bondya *et al.*, 2009; Gupta *et al.,* 2010; Shukla *et al*., 2010; Shrivastava *et al*., 2012; Lachure, 2012). Mostly Gond and Baiga tribes of

Amarkantak region depend on forest product and Ethno medicinal plants. Most of these tribes are economically weaker section and cannot afford the high prices of modern healthcare and therefore the ethnomedicinal practices play an important role in their life. The Achanakmar-Amarkantak Biosphere Reserve (AABR) is inhabited by a number of tribal like Baiga, Gond, Bharia, Bhil, Oraon, Kol, Korku, Muria etc. Bondya *et al.*, 2006. The plant resources used in traditional systems of treatment for various ailments by the tribal and non-tribal residents of the area form the backbone of local practitioners like Kabiraj, Pahan, Vaidraj etc. (Bondya *et al.*, 2009). In Amarkantak region there has been a number of studies on the documentation of ethno medicinal plants, but only few studies are related to use of medicinal plants by Gond (Gupta et *al.*, 2009; Gupta *et al.*, 2010, Arjariya and Chaurasia, 2009; Pradhan *et al.*, 2015) and Baiga tribes (Kapale, 2012; Malviya *et al.*, 2012; Srivastava and Kumar, 2014; Kiruba *et al.*, 2014; Sandya and Sandya, 2015). Recently there has been study both the tribe together but it failed to compare the ethnic knowledge (Bramhe, 2016). It is interesting to note that these tribes have been using these medical practices since time immemorial (Ekka, 2013) and we attempted to know the differences between these two sympatric tribes under similar ecological conditions in terms of the medicinal plants used.

2. Methodology

The data were collected using a free prior informed consent questionnaire as mentioned in the research cooperative webpage (www.researchcooperative.org). Data were collected from mainly from farmers and forest collectors and local herbal practitioners. A total of 80 respondents were targeted in 11 different villages (Figure 1). Out of them 7 were Gond village and remaining of them were inhabited by Baiga tribes (Table 1). Plants were identified using the field guides such as: Flowers of the Himalaya (Polunin and Stainton, 1984), A Tree Spotters :Jungle tree field guides of Central India (Krishen, 2014), Common Indian wild Flowers (Khemikar, 2000), Wild edible fruit plants of Eastern India (Mahapatra and Panda, 2009) and Taxonomic book such as Flora of Madhya Pradesh (Roy *et al.*, 1992). Care was taken to collect the plants both in digital format by photography and herbarium specimens were prepared and deposited in IGNTU. Emphasis was given to plant identification, parts used and disease cured with the same. Comparative study was done in terms of taxonomic diversity, parts used and number of disease/ailments cured (Table 2). The survey was carried out during August 2014-October 2015.

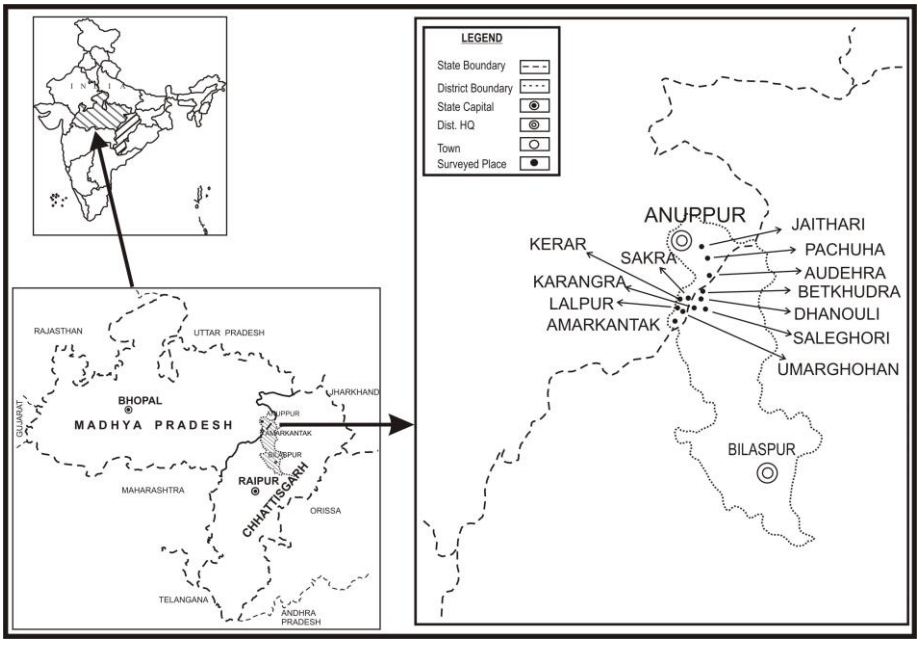

Figure 1: *Study area map*

Table 1: *The study villages with their corresponding tribes*

S. No.	Village	Tribe	District	State
1	Audhera	Gond	Anuppur	Madhya Pradesh
2	Jaithari	Gond	Anuppur	Madhya Pradesh
3	Kirar	Gond	Anuppur	Madhya Pradesh
4	Lalpur	Gond	Anuppur	Madhya Pradesh
5	Pachua	Gond	Anuppur	Madhya Pradesh
6	Sakra	Gond	Anuppur	Madhya Pradesh
7	Umargohan	Gond	Anuppur	Madhya Pradesh
8	Betkhudra	Baiga	Bilaspur	Chhattisgarh
9	Dhanauli	Baiga	Bilaspur	Chhattisgarh
10	Karangra	Baiga	Bilaspur	Chhattisgarh
11	Saleghori	Baiga	Bilaspur	Chhattisgarh

Table 2: *Medicinal plants used by Gond and Baiga tribes in study area*

S. No.	Species	Local name	Family	Parts used	Disease	Tribe
1	*Abelmoschus moschatus*	Charmukhi	Malvaceae	Root	Malaria, Itching, Lice, Hair loss, Jaundice, Body pain	Baiga, Gond
2	*Achyranthus aspera*	Chirchita	Amaranthaceae	Root	Asthma, cough	Gond
3	*Adina cordifolia*	Haldu	Rubiaceae	Bark	Wounds, Malaria, Ulcer	Baiga
4	*Ageratum conyzoides*	Kubbi	Asteraceae	Leaf	Wound	Baiga
5	*Aloe vera*	Guarpatha	Xanthorrhoeaceae	Leaf	Asthma, Peptic ulcers, Warts, Burns, Pimples	Baiga, Gond
6	*Alstonia scholaris*	Kuraya	Apocynaceae	Bark	Asthma, tuberculosis, Stomachache, Fever, Cough, Itching	Baiga
7	*Amorphophallus paeoniifolius*	Suran Kanda	Araceae	Rhizome	Rejuvenation, Piles	Baiga
8	*Amplocissus latifolia*	Amrola	Vitaceae	Root	Bone Fracture	Baiga
9	*Andrographis paniculata*	Kalmegh	Acanthaceae	Leaf	Fever, Malaria, Liver problems	Baiga
10	*Anogeissus latifolia*	Dhawa	Combretaceae	Bark	Cough	Baiga
11	*Argemone mexicana*	Pili	Papaveraceae	Root	Malaria, Jaundice	Baiga, Gond
12	*Asparagus recemosa*	Jogilati	Asparagaceae	Tuber	Delivery convalescence, Joint pain, Infertility, Epilepsy	Baiga, Gond
13	*Azadirachta indica*	Neem	Meliaceae	Roots, Fruits	Malaria, Itching, Lice, Hair loss, Jaundice, Body pain	Baiga, Gond
14	*Bauhinia vahlii*	Mohlain	Fabaceae	Root	Delivery convalescence	Baiga
15	*Begonia picta*	Patharchata	Begoniaceae	Whole plant	Headache, Eye wash	Baiga

16	*Biophytum sensitivum*	Lajvanti	Oxalidaceae	Root, Leaf	Itching	Baiga
17	*Bombyx ceiba*	Semar	Malvaceae	Root	Weakness	Baiga
18	*Boswellia serrata*	Salhey	Burseracaeae	Bark	Cuts especially by iron	Baiga
19	*Brassica campestris*	Sarso	Brassicaceae	Seed	Skin disease, Ear cleaning	Gond
20	*Butea monosperma*	Chula	Fabaceae	Seed	Herpes, Skin Disease, Jaundice, Vomiting	Baiga, Gond
21	*Caesalpinia decapetala*	Kirkich	Fabaceae	Seed	Wounds	Baiga
22	*Calotropis procera*	Aakwan	Acanthaceae	Root	Bone Fracture	Baiga, Gond
23	*Canavalia gladiatum*	Ban Semi	Fabaceae	Root	Body pain, Diarrhoea	Baiga
24	*Canna indica*	Bajranti	Cannaceae	Root	Fever, Wounds	Baiga
25	*Capsicum annum*	Mirchi	Solanaceae	Seeds	Cuts especially by iron	Gond
26	*Carica papaya*	Papita	Caricaceae	Fruit	Delivery convalescence, Cough, Digestion	Gond
27	*Carissa spinarum*	Karonda	Apocynaceae	Root	Cardiac disorder	Baiga
28	*Cassia tora*	Chikoda	Fabaceae	Seeds	Cough	Baiga
29	*Catunaregam spinosa*	Mainhar	Rubiaceae	Root	Snake bite	Baiga
30	*Centella asiatica*	Brahmi	Apiaceae	Leaf	Memory loss	Baiga
31	*Cerisciodes turgida*	Kharhar	Rubiaceae	Root	Snake bite, Joint pain, Muscle problems	Baiga
32	*Chlorophytum borivilianum*	Safed musli	Asparagaceae	Tuber	Weakness, Sexual debility	Baiga, Gond
33	*Cissus quadrangularis*	Hadjod	Vitaceae	Roots	Bone fracture	Baiga, Gond
34	*Citrus medica*	Attera	Rutaceae	Fruit	Sunstroke	Baiga
35	*Colocasia esculenta*	Kochai	Araceae	Rhizome	Asthma	Baiga
36	*Cordia macleodii*	Dahiman	Boraginaceae	Bark	Fever, Poisoning, Intoxication	Baiga, Gond
37	*Costus speciosa*	Kevkand	Zingiberaceae	Rhizome	Weakness	Baiga
38	*Cucumis melo*	Indravan	Cucurbitaceae	Fruit, Root	Fever	Baiga
39	*Curcuma longa*	Hardi	Zingiberaceae	Root	Cough	Gond
40	*Cynodon dactylon*	Duub Ghas	Poaceae	Leaf	Vomiting	Baiga, Gond
41	*Cynoglossusm lanceolatum*	Kamraj	Boraginaceae	Root	Eye trouble, Fever	Baiga
42	*Datura metal*	Dhatur	Solanaceae	Root	Heat stroke, Genital problem	Baiga,

						Gond
43	*Dellinia pentagyna*	Kurkut	Dilleniaceae	Bark	Cuts especially by iron	Baiga
44	*Desmodium oojeinense*	Tinsa	Fabaceae	Bark	Bloody stool	Baiga, Gond
45	*Dioscorea hispida*	Kirchi Kanda	Dioscoreaeceae	Tuber	Ulcer, Wound, Canine and Feline bite	Baiga
46	*Dioscorea pentaphylla*	Kaniha Kanda	Dioscoreaeceae	Tuber	Delivery convalescence	Baiga
47	*Diospyros melanoxylon*	Tendu	Ebanaceae	Root	Snake bite, Vomiting	Baiga
48	*Diospyros montana*	Patwan	Ebanaceae	Bark	Jaundice, Vomiting, Dysentery	Gond
49	*Eclipta alba*	Bhringraj	Asteraceae	Leaf	Wound	Baiga
50	*Emblica officinalis*	Amra	Phyllanthaceae	Fruit	Diabetes, fever, Diarrhoea, cough	Baiga, Gond
51	*Euphorbia hirta*	Dudhiya	Euphorbiaceae	Whole plant	Wound	Baiga
52	*Euphorbia hyneana*	Choti Dudhi	Euphorbiaceae	Leaf	Discharge problems	Baiga
53	*Ficus religiosa*	Pepar	Moraceae	Prop root	Chest ache	Baiga
54	*Ficus virens*	Pakhri	Moraceae	Leaf	Stomach ache	Baiga, Gond
55	*Flacourtia indica*	Kakai	Salicaceae	Bark	Delivery convalescence	Gond
56	*Gloriosa superba*	Kalihari	Zingiberaceae	Root	Weakness	Baiga
57	*Gmelina arbrorea*	Kamher	Lamiaceae	Bark	Respiratory problems	Baiga
58	*Grewia hirsuta*	Sakri	Tiliacaeae	Fruits	Weakness	Baiga
59	*Helictres isora*	Chota Ainthi	Malvaceae	Fruits	Stomach problems	Baiga
60	*Indigofera tinctoria*	Birhul	Fabaceae	Leaf	Headache	Baiga
61	*Ipomea balsamina*	Tirraya	Balsaminacae	Leaf	Headache	Baiga
62	*Ipomea batatas*	Ratal Kanda	Convulvulaceae	Tuber	Piles	Gond
63	*Ipomea pres-tirgidis*	Khotlaiyan	Convulvulaceae	Seeds	Toothache	Baiga
64	*Jatropha curcas*	Ratanjot	Euphorbiaceae	Root	Bloody stool, Diarrhoea	Baiga
65	*Leonotis nepetifolia*	Lal Guma	Asteraceae	Inflorosc ence	Wound	Baiga
66	*Linum usitassimum*	Alsi	Linaceae	Seed	Wound	Baiga
67	*Litsea glutinosa*	Maida	Lauraceae	Bark	Boils	Baiga
68	*Madhuca indica*	Mahua	Sapotaceae	Fruit, Flower	Delivery convalescence, Skin cracks, Weakness	Gond
69	*Mangifera indica*	Aam	Anacardiaceae	Bark	Jaundice, Headache, Malaria	Baiga, Gond

70	*Mentha piperata*	Pudina	Apiaceae	Leaf	Indigestion	Baiga, Gond
71	*Moringa oleifera*	Munga	Moringaceae	Bark, Leaf	Jaundice, Headache	Baiga, Gond
72	*Mucuna pruriens*	Kewanch	Fabaceae	Root, Seed	Nervous system problems, Sexual debility and Sun stroke	Baiga
73	*Murraya paniculata*	Hathil	Rutaceae	Leaf	Diarrhoea	Baiga
74	*Musa paradisiaca*	Kela	Musaceae	Leaf	Cough, Diarrhoea	Baiga, Gond
75	*Opuntia stricta*	Naagfani	Cactaceae	Bark	Boils	Baiga
76	*Oxalis corniculata*	Teen Pan	Oxalidaceae	Whole plant	Dyspepsia, Piles, Diarrhoea, Dysentery, Amenhorreae, Hepatitis	Baiga
77	*Paspalum scrobiculatum*	Kodo	Poaceae	Seed	Delivery convalescence	Baiga
78	*Plumbago zeylanica*	Chita Jadi	Plumbaginaceae	Root	Body pain	Baiga
79	*Pongamia pinnata*	Kanji	Fabaceae	Fruit	Itching, Toothache, Rash	Baiga, Gond
80	*Pueraria tuberosa*	Ban Kumdha	Fabaceae	Root	Paralysis, Weakness	Baiga
81	*Punica granatum*	Anar	Lythraceae	Bark	Leucohorrea	Baiga, Gond
82	*Radermachera xylocarpa*	Garur Phal	Bignoniaceae	Fruit	Skin disease, Abdominal disorder	Baiga
83	*Ricinus communis*	Arandi	Euphorbiaceae	Leaf	Burn	Baiga, Gond
84	*Schleichera oleosa*	Kosum	Sapindaceae	Bark	Stomachache, Bloody stools	Baiga, Gond
85	*Semecarpus anacradium*	Bhelva	Anacardiaceae	fruit, seeds	Headache, Diarrhoea, paralysis, Worms, Leg ache, Wound, Piles	Gond
86	*Shorea robusta*	Sarai	Dipterocarpaceae	Bark	Delivery convalescence, Diarrhoea, weakness	Baiga
87	*Sida acuta*	Kharheta	Malvaceae	Leaf	Headache	Baiga
88	*Soymida febrifuga*	Rohina	Meliaceae	Bark	Bleeding, bone fracture, stomachache	Baiga, Gond
89	*Sterculia urens*	Kurlu	Sterculiaceae	Resin	Sunstroke, Diarrhoea	Baiga, Gond
90	*Swertia angustifolia*	Hara Chirayta	Acanthaceae	Whole plant	Indigestion, Dyspepsia, Skin disorder, Fever, Abdominal problem, Cancer, Liver problem	Baiga
91	*Szygium cumini*	Jamun	Myrtaceae	Bark	Jaundice, Gastric problems, Calculus	Baiga, Gond

92	*Terminalia alata*	Saja	Combretaceae	Bark	Diarrhoea	Baiga
93	*Terminalia arjuna*	Kahuva	Combretaceae	Bark	Weakness	Baiga
94	*Terminalia chebula*	Harra	Combretaceae	Fruit	Digestion, Ulcer, Cough, Hiccups, Leprosy, Cardiac disorder, Wound	Baiga, Gond
95	*Thevetia peruviana*	Pila Kaner	Apocynaceae	Leaf	Itching, Pain	Baiga, Gond
96	*Tinospora cordifolia*	Padhin	Menispermaceae	Root	Stomachache, Vomiting, Dysentery, Fever, Snake bite, Headache	Baiga, Gond
97	*Urginea indica*	Van Pyaj	Amaryllidaceae	Tuber	Burn, Swelling, Pregnancy, Vaginal bleeding	Baiga, Gond
98	*Vetivaria zizanoides*	Khas Ghans	Poaceae	Root	Digestion, Urinary problems, Leprosy	Baiga
99	*Woodfordia fruticosa*	Phulchuhi	Lythraceae	Root	Diarrhoea	Baiga
100	*Zizhpiphus mautitiana*	Boir	Rhamnaceae	Leaf	Sunstroke, Urinary problem	Baiga, Gond

3. Results and Discussion

3.1. Baiga Tribe

There are 59 species belonging to 55 genus and 35 families used by Baiga tribes. Srivastava and Kumar (2014) described ethnobotanical plants used by the Baiga tribes in Sonbhadra district of Madhya Pradesh. According to them there were 32 species belonging to 30 genera and 28 plant families used. Ahirwar and Shakya (2015) described 25 species of medicinal plants belonging to 25 genera and 21 families been used by Baiga tribes of Mandla district Madhya Pradesh. Sandya and Sandya (2015) described 25 species belonging to 25 genera and 20 plant families from the Mandla district of Madhya Pradesh. Kiruba *et al.* (2014) studied ethnomedicinal plants used by Baiga tribes of Achanakmar-Amarkantak biosphere reserve. They described 39 species belonging to 35 genera and 31 plant families. Kapale (2012) described 23 species of medicinal plants belonging to 23 genera and 17 families been used by Baiga tribes of Mekal forests of Madhya Pradesh. Malviya *et al.* (2012) described 5 plant species, belonging to 5 genera and 5 plant families used by Baiga tribes.

In our study, the Baiga tribes used 10 different plant parts the contribution of each part are root 2%, bark 1%, leaf 90%, rhizome 30%, whole plant 40%, seed 10%, fruit 50%, tuber 20%, prop root 10%, inflorescence 2%. Mainly the leaf, fruit, whole plant and rhizome were used in the treatment of 48 different kinds of ailments/disease. According to Srivastava and Kumar (2014) different parts used for addressing different ailments were root 31%, leaf 21%, bark 9%, fruit 6%, and flower 3%. According to Ahirwar and Shakya (2015) these tribes used about 10 different plant parts among them leaf 35%, root 18%, seed 10%, bark 10%, gum 8% were used in a majority. According to Kiruba *et al.* (2014) different parts used for addressing different ailments were leaf 26%, fruit 20%, bark 16%, seed 16%, root 10%, flower 4%, stem 2% and whole plant 2%. Analysis by Sandya and Sandya (2015) reveals that the Baiga tribes used 42%, root 19 %, bark 11%, gum 8% seed 5% and latex 5% in Mandla district. In a study around Amarkantak region, Malviya *et al.* (2012) described 3 plant parts including leaf/frond 42%, rhizome 33% and stem 25%.

Plant species analysis with respect to curing a maximum number of ailments and disease reveals that *Swertia angustifolia* 7, *Oxalis corniculata* 6, *Alstonia scholaris* 6, *Mucuna pruriens* 4. Ahirwar and Shakya (2015) described 25 species used for 56 diseases the contributing plants species in this case were *Anogeissus latifolia* 8, *Acacia nilotica* 5, *Aegle marmelos* 5, *Adhatoda vasica* 5, *Acorus calamus* 5, *Asparagus racemosus* 4, *Azadirachta indica* 4, *Barleria prionitis* 4, *Butea monosperma* 4, *Abutilon indicum* 3, *Acyranthus aspera* 3, *Bombyx ceiba* 3, *Buchannia lanzan* 2, *Caesalpinia cristata* 2, *Calotropis procera* 2. Kapale (2012) described 23 species of medicinal plants used in treating 26 diseases among them are *Centella asiatica* 3, *Hedychium coronarium* 2, *Hemidesmus indicus* 2, *Allium wallichii* 2, *Arisaema tortuosum* 2, *Gymnema sylvestre* 2, *Crinum asiaticum* 2, *Rubia cordifolia* 2. Malviya *et al.* (2012) described 5 species of plants which were used in treating 32 disease/ailments; among them are *Adiantum philippense* 9, *Lygodium flexuosum* 7, *Salaginella bryopteris* 6, *Tectaria coadunata* 5, *Drypteris cochleata* 3. Srivastava and Kumar (2014) described the valuable plants according to number of disease/ailments addressed by them as *Butea monosperma* 3, *Dioscorea bulbifera* 2, *Asparagus plumosus* 2, *Butea superba* 2, *Holarrhena floribunda* 2, *Cassia tora* 2, *Solanum nigrum* 2, *Phyllanthus emblica* 2 etc. As per Sandya and Sandya (2015) the number of plants used for treating maximum number of ailments and disease were *Anogeissus latifolia* 8, *Aegle marmelos* 6, *Acorus calamus* 5, *Adhatoda vasica* 4, *Acacia nilotica* 4, *Azadirachta indica* 4, *Boerhavia diffusa* 4, *Abutilon indicum* 3, *Argemone mexicana* 3, *Asparagus racemosus* 3, *Butea monosperma* 3. Kiruba *et al.* (2014) among the most valued medicinal plants described by them according to number of disease cured by them are *Solanum surattense* 2, *Eclipta prostrata* 2, *Ficus benghalensis* 2, *Ficus religiosa* 2 while rest of the species were used to address single ailments. It seems that the species described at present matches with respect to 6 species described by Sandya and Sandya (2015); while 3 species were found matching with Kumar (2014). Our study does match with that of list of (Kapale 2012; Malviya *et al.*, 2012). Malviya *et al.* (2012) described only Pteridophytes while none of the Angiosperms described by Kapale (2012) tally with our list with respect to tribes described.

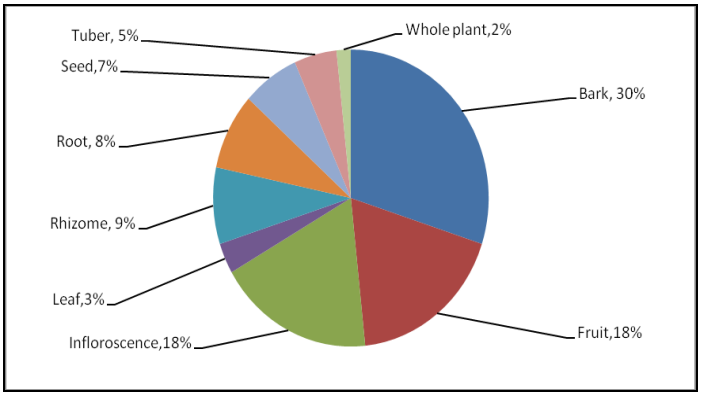

Figure 2: *Plant parts used exclusively by Baiga*

3.2. Gond Tribe

There are total 10 plant species belonging to 10 genus and 10 families used by Gond tribe. Gupta et *al.* (2009) described 38 species of medicinal plants belonging to 35 genera and 27 families from Bhandara district, Maharashtra. In another study on same area and tribe, Gupta *et al.* (2010) described 53 species of medicinal plants belonging to 46 genera and 31 families. Arjariya and Chaurasia (2009) described 58 species of medicinal plants belonging to 54 genera and 35 families. In Saraipali block of Chhattisgarh, Pradhan *et al.* (2015) described 42 species of medicinal plants belonging to 39 genera and 25 families being used by the this tribe.

In our study, the Gond tribes used 6 different plant parts out of which root 33%, seed 50%, fruit 50%, bark 33%, tuber 17%, flower 17%. Mainly the fruit and seed were used, which constituting half of the

parts used (Figure 3), while the bark cure 19 diseases. Gupta et *al.* (2009), described leaves 26%, fruit 21%, root 18%, seeds 11%, stem 13%, whole plant 8% and other part 3%. Further, Gupta *et al.* (2010) describes leaves 35%, root 28%, seeds 19%, fruit 15%, bark 13%, resin, gum, oil and inflorescence, that are also used occasionally which account for 11% of the total. Arjariya and Chaurasia (2009), in their research described 12 plant parts being used most significant among them were leaf 24%, root 19%, bark 18%, seed 13%, fruit 12%.

A total of 19 different types of disease/ailments were addressed by the use of medicinal plants. The plants used in curing the maximum number of ailments are *Semecarpus anacardium* 7, *Carica papaya* 3, *Diospyros montana* 3, *Madhuca indica* 3, *Acaranthes aspera* 2, *Brassica campestris* 2. According to Gupta *et al.* (2009) the Gond tribe used the plants to treat 7 different ailments; *Ficus hispida* was highly valued as it could cure 3 different ailments, while *Oxalis corniculata* 2, *Terminalia chebula* 2 and *Acacia nilotica* 2, while, rest of 34 species could cure single ailment only. Gupta *et al.* (2010) working on the same tribe in same area reports that the medicinal plants could cure 48 disease. Among these plants are *Acacia leucophloea* 4, *Andrographis panciculata* 6, *Phyllanthus indicus* 3, *Vitex negundo* 2, while, rest 49 species was used to address single ailment at a time. Arjariya and Chaurasia (2009) described 58 plants used to address 26 diseases and among them are *Annona squamosa* 7, *Boerhavia diffusa* 6, *Boswellia serrata* 6, *Cassia tora* 6, *Aegle marmelos* 5, *Acacia nilotica* 4, *Acacia catechu* 3, *Aloe vera* 3, *Adhatoda vasica* 3, *Acyranthus aspera* 3, *Abrus precatorius* 3 were the significant contributors. Some diseases, like asthma and cough was treated by root of *Achyranthus aspera* and *Cucuma longa.* Delivery convalescence, cough, digestion, *by Carica papaya*; skin cracks and weakness by *Madhuca indica;* headache, diarrhea, paralysis, worm, leg ache, wounds; piles *by Semecarpus anacardium*.

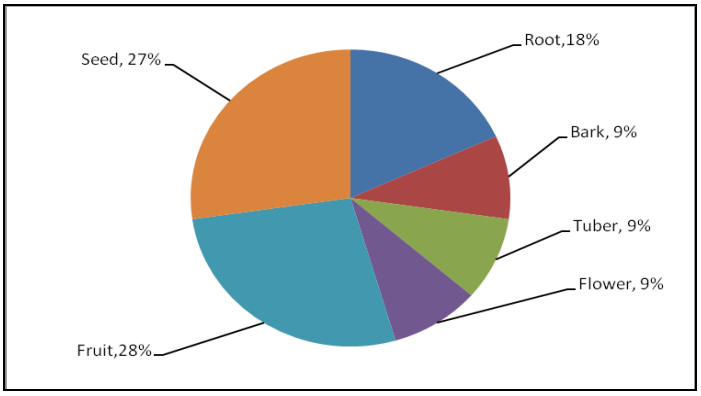

Figure 3: *Plant part exclusively used by Gond*

3.3. Common to Both Tribes

Srivastava 2013 attempted to study both ethnobotany of both tribes in relation to Jaundice describes 17 species of ethnomedicinal plants belonging to 17 genera and 13 plant families used. Bramhe (2016) reported 41 species belonging to 38 genera and 28 plant families, but this study was only limited to plants related to aphrodisiac property. The present study reported total 31 medicinal plant species belonging to 31 genus and 27 plant families used commonly by both tribes. Mainly fruit and root are used for the treatment with respect to plant parts. A total of 7 plant parts were used commonly by both tribes consisting of root 22%, leaf 12%, tuber 42%, fruit 57%, seed 14%, bark 11% and resin 14%. A total of 47 different ailments/disease were addressed using these plants, and the plant species used for addressing maximum ailments were *Terminalia chebula 7*, *Tinospora cordifolia* 6, *Abelmoschus moschatus* 6, *Azadirachta indica* 6, *Aloe vera* 5, *Asparagus racemosus* 4, *Butea monosperma* 4, *Emblica officinalis* 4, *Urginea indica* 4. The present study matches with respect to 26 species, 15 parts and 32 disease and ailments reported by Shukla *et al.*, 2010; Gupta *et al.*, 2010

matches with respect to 14 species, 6 parts and 7 diseases addressed. Bondya *et al.*, 2009 matches with respect to 9 species, 4 parts and 6 diseases addressed. Gupta *et al.* 2009 matches with respect to 4 species, 7 parts and 12 diseases addressed. Lachure (2012) 2009 matches with respect to 2 species, 2 parts and 1 disease addressed.

Baiga tribes used more plants exclusively than their Gond counterparts and same was true in case number of parts that were used. This probably indicates to the fact that Baiga people probably settled in these areas earlier than the latter (Gangwar and Bose, 2013; Singh, 2014), and partly due to fact that Baiga people have remained secluded to other tribes and modern amenity as a result have rich repository of medicinal plant knowledge Anonymous (2012 b).

4. Conclusion

This low level of matching of the species may be partly due to geographical differences and also the vegetation therein. It could be easily observed that Baiga tribes possess rich knowledge of the medicinal plants in this region as they were known to use 59 % of all known species exclusively consisting 10 different plant parts (Figure 2). The Gond tribes used only 10% of all known species exclusively consisting 6 different plant parts (Table 2). This clearly points to the fact that Baiga have good ethno medicinal knowledge than Gond, however there are 31% species that are used in common by both tribes to address various ailments and diseases which points to fact that these tribes share some common interest and probably interdependency as far as forest resources are concerned. Hence we recommend that traditional knowledge of the tribes be documented and also made the part of people's biodiversity register to avoid violation of intellectual property rights at the same time there is need to document pressure on these plants as they are collected from wild. Conservation of these resources needs knowledge about natural availability of these plants and also take-up mass cultivation and *in situ* conservation.

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