Int. J. Curr. Res. Biosci. Plant Biol. 2016, 3(5): 120-126

EXCELLENT PUBLISHERS

International Journal of Current Research in Biosciences and Plant Biology

ISSN: 2349-8080 (Online) • Volume 3 • Number 5 (May-2016)

Journal homepage: www.ijcrbp.com

Original Research Article

doi: http://dx.doi.org/10.20546/ijcrbp.2016.305.019

Ethnobotany in Relation to Health Security in District Bastar of Chhattisgarh State, India

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Abstract

In present study ethnobotany in relation to health security was investigated in 20 villages of Bastar district. Information regarding the plants used as a medicine was collected by gathering information with the help of questionnaire and by conducting personal interview with the knowledgeable person of the villages. Four hundred tribals (twenty from each village) were selected for the collection of information through interview. The name of medicinal plant, vernacular name and its method of use against the disease were noted by making dialect in their own language. In present study documentation of 118 plants belonging to 47 families were given by the tribals of the village regarding the use against 39 types of health ailments. All the five prominent tribals of the Bastar had a great similarity regarding the use of plants as a medicine; difference was occurred in terms of drug preparation and its administration. This vital knowledge of tribal health security was documented.

Article Info

Accepted: 04 April 2016
Available Online: 06 May 2016

Keywords

Ethnobotany
Folk healers
Indigenous knowledge
Medicinal plants
Tribal people

Introduction

Chhattisgarh has a rich and varied flora due to its diversified topography and variable climatic condition. About 20-25 tribes are living in isolated or in combination in four different zones like Central, Eastern, Western, Northern and Southern zones respectively. The Gonds constitute the largest tribe amongst the other tribes of the state. District Bastar is located in the southern zone of Chhattisgarh. Gonds, Bhatara, Muriya, Mariya and Halba are the main tribes of Bastar and they have unique identification in the country. Bastar is a tribal district where about 70% of the total population is tribals and which constitutes 26.76% of the total tribal population of the Chhattisgarh state.

Forests are not only the source of major and minor forest products but it also provides and fulfils the basic needs and demands directly and indirectly in life pattern of tribals. They also use an enormous range of wild plants and have developed a unique understanding of the forest resources and passed on these traditions of medicinal remedies and knowledge by word of mouth from one generation to other generation. They also have the key to understanding, utilizing and conserving the plant resources. The storage of ethnobotanical traditional knowledge of plants and animals origin in memory is really a God gift for a resource person in each tribal group. Each tribal group has different ethnobotanical knowledge than its neighbors, which is either acculturated or lost with the knowledgeable person of that tribe.

The Traditional and primitive folk healing practices among tribals of Bastar normally involve medicine derived from plants and animals available within local

agro climatic zones. Different studies have conducted by scientists on folk healing practices in different districts of Chhattisgarh. It is evident that folk-logic including cultural, biological, historical, religious, and environmental factors that significantly influence the folk therapy. The concepts of illness and healing are not universal. They vary from culture to culture. One third population of Chhattisgarh is tribal. They have their own value system and cultural interpretation of disease and treatment. They have a very different understanding of why people get sick, and how they can be treated. The Traditional healers of Bastar have been treating and rendering miraculous cure to thousands of patients annually. They claim to treat most complicated patients of bone fracture who have been refused by the hospitals in different cities. The ailments like infertility, cancer, malaria, diabetes, skin diseases are not beyond their expertise.

Plants knowledge amassed by experimentation over millennia and passed on orally from generation to generation (Schultes and Reis, 1995). One important current concern of ethnobotanical research is the potential use of plants as medicine, a knowledge that is often exclusive to the specific communities and linked to the local flora. As repeatedly emphasized in different contexts, the importance of plants in our lives, in addition to being a source of food, is their therapeutic potential; every culture in the world developed its own practices of treating the disease. The fund of knowledge developed over the millennia by thousands of ethnic groups, is largely unrecorded and faces the danger of becoming extinct. Our urgent concern is to preserve, refine and use this information for a more effective management of health.

The present investigation entitled "Ethnobotany in relation to health security of district Bastar of Chhattisgarh state" is the task to investigate the existing traditional knowledge of local tribal communities, forest villagers inhabiting in the areas of district Bastar of Chhattisgarh state.

Materials and methods

Study area

The district of Bastar is located in the southern part of Chhattisgarh state, situated at the height of 2000M above plateau MSL. In Chhattisgarh, state Bastar district is surrounded by Kanker district in the north Maharashtra state in the west Dantewada district in the south and Orissa state in the east. The total forest area of the Bastar is 7112 sq km, which is more than the 75% of total area of the district. Out of the total population, more than 70% are tribals like Gonds, Abujhmaria, Dardamaria, Muriya, Doriya, Dhruva, Bhatra, and Halba.

Field study

The present work involves various steps including field study in which questionnaire was filled by the tribal people and personal interview was organized, collection of plant specimen, preparation of herbarium and identification of plants with the help of flora was done. The study was conducted in the year 2006-2008. The methodology of the present work was adopted from some of the earlier workers like Jain, (1987, 1988), Masih, (1990) and Jain and Singh (1997). The methods of ethno-biological studies summarized by Roy (1989) were also consulted in the present study. The ethno-biological information was obtained from Baidyas, Sirhas, Gunias, knowledgeable person, experienced people, medicine men, and heads and local inhabitants of the village, who have knowledge of plants for health and livelihood security. Ethnobotanical survey in relation to health security was conducted in 20 villages of Bastar district and information was collected from 400 tribal people belonging to 8 different categories on the spot/ during the transit visit. The documentation of the information given by folk healers and Baidyas was documented under 10 headings. The Baidyas and folk healers of the area were interviewed individually for collection of information regarding the preparation of drug and its administration against diseases. Information was documented disease wise use of plant/plant parts for the preparation of drug. The cost of the treatment per episode/per disease was also noted.

Results

The In present study of ethno botany in relation to health security of Bastar district. Information regarding the plants used as a medicine was collected. Tribals have revealed an information of 118 plants belonging to 47 families of dicotyledons like Rutaceae, Combretaceae, Anacardiaceae, Labiatae, Malvaceae, Leguminosae, Myrtaceae, Moraceae, Asclepiadaceae, Apocynacae, Euphorbiaceae, Sterculiaceae, Solanaceae, Scrophulariaceae, Convolvulaceae, Amaranthaceae, Acanthaceae, Vitaceae, Oleaceae, Costaceae, Lythraceae, Plumbaginaceae, Meliaceae, Sapotaceae, Verbenaceae, Nyctaginaceae, Alangiaceae, Menispermaceae, Ebenaceae, Rubiaceae, Celastraceae, Hypoxidaceae,

Rhamnaceae and 05 families of monocotyledons like Liliaceae, Zingiberaceae, Dioscoreaceae, Araceae and Poaceae (Table 1). These plants were used to treat 39 ailments by the local people.

Amongst the noted plants 37 were herbs, 27 were shrubs, 36 were trees, 17 were climbers and 1 was parasitic plant (Table 1 and Fig. 1). More than one part of the plant was found to be used as a medicine. The roots of 36 plants, stem of 14 plants, leaves of 40 plants, bark of 29 plants, seeds of 19 plants, fruits of 16 plants, flowers of 13 plants, rhizomes of 4 plants, fruit pulp of 4 plants, leaf pulp of 2 plants, and 22 whole plants were observed to be used as medicine (Table 1, Fig. 2). The medicine was prepared from different parts of the plants and used as a raw or in dry state or powder or mixture or liquid or in paste.

Table 1. Medicinal plants used by the tribals of district Bastar for health security, investigated during the year 2006-2008.

S. No.	Name of disease/ ailment	Botanical name of the plant	Vernacular name of the plant	Family	Habit	Plant part used
1	Body ache	*Aegle marmelos* Correa.	Mahka	Rutaceae	Tree	Fruit pulp, bark
		Diospyros montana Roxb.	Musduda /Bistendu	Ebenaceae	Tree	Fruit, seed, root bark
2	Chest pain	*Terminalia arjuna* Roxb.	Kahua	Combretaceae	Tree	Fruit, bark, leaves
		Leucas aspera, Will.	Kurma	Labiatae	Shrub	Whole plant
3	Cough and cold	*Argemone mexicana*, Linn.	Pilikateri	Papaveraceae	Herb	Flower
		Ziziphus jujube Linn.	Ber	Rhamnaceae	Tree	Seed, fruit
		Adhatoda vasica (Linn.) Nees.	Adusa	Acanthaceae	Shrub	Leaves
		Ocimum sanctum Linn.	Tulasi	Labiatae	Shrub	Whole plant
4	Cuts and wounds	*Aloe vera* Linn.	Ghritkumari	Liliaceae	Herb	Pulp
		Semicarpus anacardium Linn.	Bhelwa	Acanthaceae	Tree	Root bark, fruit
		Abutilon indicum Link.	Kanghi	Malvaceae	Shrub	Root
		Mucuna pruriens Baker non. D.C.	Kewanch	Leguminosae	Climber	Root , leaves
5	Diabetes (sugar)	*Anogeissuss latifolia* Wall.	Dhawra	Combretaceae	Tree	Seed, bark
		Syzygium cuminii Linn.	Jamun	Myrtaceae	Tree	Fruit, flower
		Ficus glomerata Linn.	Dumarchhali or Toyaa	Moraceae	Tree	Fruit, Leaves, bark
		Gymnema sylvestre (Retz).	Gudmar	Asclepiadaceae	Climber	Whole plant
6	Delivery problem	*Acorus calamus* Linn.	Bach	Araceae	Herb	Rhizome
		Blepharis permumsubsessile D.C.	Rasnajadi	Sterculiaceae	Herb	Root
7	Dysentery	*Phyllanthus niruri* Linn.	Bhuiaonla	Euphorbiaceae	Herb	Whole plant
		Holarrhaena antidysenterica Well.	Kudai	Apocynaceae	Tree	Leaves, fruit, flower, stem bark
		Helicteres isora Linn.	Aaithi/ Marofalli	Sterculiaceae	Shrub	Fruit, bark, seed
		Emblica officinalis Gaertn.	Aonla	Euphorbiaceae	Tree	Fruit pulp, seed, leaves
		Blepharis permumsubsessile D.C.	Rasnajadi	Sterculiaceae	Herb	Rhizome, whole plant
8	Ear ache	*Terminalia chebula* Retz.	Harra	Combretaceae	Tree	Fruit, bark, leaves
		Ficus religiosa Linn.	Bad	Moraceae	Tree	Fruit, seed, leaves
		Datura alba Nees.	Dhatura	Solanaceae	Shrub	Seeds, leaves
		Ricinus communis Linn.	Andi	Euphorbiaceae	Tree	Root, seed, leaves
9.	Epilepsy (Mirgi)	*Aegle marmelos* Correa.	Bel	Rutaceae	Tree	Fruit, bark, root bark
		Asparagus racemosus Wild.	Chedavari	Liliaceae	Climber	Root
		Gloriosa superba Linn.	JhagrinPhul	Liliaceae	Climber	Root, leaves
		Bacopa monnieri Linn.	Brahmi	Scrophulariaceae	Herb	Whole plant
		Evolvulus alsinoides Linn.	Sankhpushpi	Convolvulaceae	Herb	Whole plant
10	Eye problems	*Amaranthus virdis* L.	Choulaibhaji	Amaranthaceae	Herb	Leaf
		Aloe vera, Linn.	Ghritkumari	Liliaceae	Herb	Leaf pulp
11	Eczema	*Helicteres isora*, Linn.	Atanjadi	Sterculiaceae	Shrub	Leaves, stem
		Pueraria tuberosa Roxb.	BhuiKumhara	Leguminosae	climber	Tuber, leaves
12	Fever	*Acorus calamus* Linn.	Bach	Araceae	Herb	Rhizome
		Tinospora cordifolia Willd.	Giloy	Menispermaceae	Shrub	Stem, stem bark
		Eranthemum pullchellum L.	Ban tulsi	Acanthaceae	shrub	Whole plant
		Adhatoda zeylanica Medik.	Adusa	Acanthaceae	Shrub	Leaves, root
		Andrographis paniculata (Burm.f.) Nees.	Bhuileem	Acanthaceae	Herb	Whole plant

S. No.	Name of disease/ ailment	Botanical name of the plant	Vernacular name of the plant	Family	Habit	Plant part used
13	Fracture	*Hemidesmus indicus* (Linn.) Schult.	Anantmool	Asclepiadaceae	Shrub	Stem, leaves, root
		Cissus quardangularis (L.)Wall.	Hadjod	Vitaceae	Shrub	Stem
		Nyctanthes arbortristis Linn.	Harsinghar	Oleaceae	Shrub	Stem
14	Giddiness (Murcha)	*Ocimum basilicum* Linn.	Tulsi	Lebiatae	Herb	Leaves, root, seed
15	Head-ache	*Costus speciosus* Retz.	Keo-kand	Costaceae	Herb	Root
16	Hydrocoel	*Curcuma amada* Roxb.	JangaliHaldi	Zingiberaceae	Herb	Rhizome
		Semicarpus anacardium Linn.	Bhelva	Anacardiaceae	Tree	Root ,bark, seed
		Ricinus communis Linn.	Andi	Euphorbiaceae	Tree	Root, seed, leaves
17	Irregular menses	*Wooodfordia fruticosa* Salisb.	Dhavai	Lythraceae	Shrub	Flower, stem, bark
		Hibiscus rosa-sinensis Linn.	Gudhal	Malvaceae	Shrub	Flower, leaf
18	Itching	*Plumbago zeylanica* Linn.	Chitawari, Chitrak	Plumbaginaceae	Shrub	Flower, leaves, root
		Vitex negundo Linn.	Nirgundi	Verbenaceae	Shrub	Root, leaves
19	Jaundice	*Raphanus sativus* Linn.	Mooli	Brassicaceae	Herb	Leaves
		Cuscuta reflexa Roxb.	Amarbel	Convolvulaceae	Climber	Whole plant
		Phyllanthus niruri Linn.	Bhuiaonla	Euphorbiaceae	Herb	Whole plant
		Crotalaria sericea Retz.	Bansan	Leguminosae	Shrub	Whole plant
		Lawsonia alba Linn.	Mahendi	Lythraceae	Shrub	Leaves
		Melia azadirach Linn.	Mahaneem	Meliaceae	Tree	Bark, seed
		Achyranthes aspera Linn.	Chirchita	Amaranthaceae	Herb	Whole plant
		Buchanania lanzan Roxb.	Char	Anacardiaceae	Tree	Bark, fruit
		Terminalia arjuna Roxb.	Kahava	Combretaceae	Tree	Bark
		Tephrosia purpurea Pers.	Sarponkha	Asteraceae	Herb	Leaves, whole plant
		Madhuca latifolia Roxb.	Mahua	Sapotaceae	Tree	Bark, flower
20	Joint Pain	*Asparagus racemosus* Wild.	Chedavari	Liliaceae	Climber	Tuber
		Vitex negundo Linn.	Nirgundi	Verbenaceae	Herb	Root leaves
		Pongamia pinnata (Linn.)	Karanji	Leguminosae	Tree	Seed, bark
		Costus speciosus Retz.	Keo-kand	Costaceae	Herb	Rhizome
21	Kidney stone	*Boerhaavia diffusa* Linn.	Pathribaji	Nyctaginaceae	Herb	Root
		Mycrotyloma uniflorum Lam.	Kulthi	Leguminosae	Climber	Whole pant, seed
22	Leucorrhoea	*Butea monosperma* Lam.	Palas	Leguminaceae	Tree	Flower, root bark
		Punica granatum Linn.	Anar	Lythraceae	Shrub	Flower
		Smilax macrophylla Roxb.	Ramdatoon	Liliaceae	Climber	Leaves, stem
23	Malaria	*Andrographis paniculata* Burm.f.	Bhuineem	Acanthaceae	Herb	Whole plant
		Tinospora cordifolia Willd.	Giloy	Menispermaceae	Shrub	Stem, stem bark
		Azadiricta indica A.Juss	Leem	Meliaceae	Tree	Bark, leaves
24	Male impotency	*Alangium salviifolium* (L. f)	Thelkajari	Alangiaceae	Herb	Whole plant
		Peucedanum agpurense C.B.Clarke.	Tejraj	Apiaceae	Herb	Whole plant
25	Milk secretion	*Hemidesmus indicus* Linn.	Anantmool	Asclepiadaceae	Shrub	Root, leaves, stem
		Asparagus racemosus Wild.	Satawri	Liliaceae	Climber	Root
		Euphorbia hirta L.	Doodhi	Euphorbiaceae	Herb	Whole plant
26	Onset of pregnancy	*Acorus calamus* Linn.	Bach	Araceae	Herb	Root
27	Painful menses and Excessive blood discharge	*Aegle marmelos* (Linn.) Corr.	Bel	Rutaceae	Tree	Fruit pulp, leaves
		Asparagus racemosus Wild.	Satavari	Liliaceae	Climber	Root
		Gloriosa superba Linn.	Jhagrinphul	Liliaceae	Climber	Root, leaves
28	Paralysis	*Spilanthes oleracea* Linn.	Akarkara	Asteraceae	Herb	Whole plant
		Bauhinia retusa Roxb.	Sehra	Leguminosae	Tree	Flower, bark
		Albizzia lebbek Benth.	Siris	Leguminosae	Tree	Fruit, stem bark
29	Piles	*Wendlandia exserta* D.C.	Tilai	Rubiaceae	Tree	Root and stem bark
		Ficus benghalensis Linn.	Bargad	Moraceae	Tree	Tree, fruit
		Butea monosperma Lam.	Palas	Leguminosae	Tree	Flower, bark
		Lannea grandis Dennst Engler.	Modga	Anacardiaceae	Tree	Bark
		Gardenia turgida, Roxb.	Fatera	Rubiaceae	Tree	Bark, flower
		Amorphophallus paeonifolius Dennst.	Zimikanda	Araceae	Herb	Tuber

S. No.	Name of disease/ ailment	Botanical name of the plant	Vernacular name of the plant	Family	Habit	Plant part used
30	Respiratory disorder (Dama)	*Emblica officinalis* Gaertn. *Cuscuta reflexa* Roxb.	Aonla Amarbel	Euphorbiaceae Convolvulaceae	Tree Parasite	Fruit pulp Whole plant
31	Stomatch pain	*Ficus religiosa* Linn.	Pipal	Moraceae	Tree	Leaves, fruit
32	Swelling	*Vitex negundo* Linn.	Nirgundi	Verbenaceae	Shrub	Leaves
33	Snake bite	*Andrographis paniculata* Burm.f. *Rauvolfia serpentina* (L.) Benth. *Abrus precatorius* Linn. *Vetiveria zizanioides* (Linn.) Nash. *Gloriosa superba* Linn.	Bhuileem Bhuikurva Gunji Khasgass Jhagrahin	Acanthaceae Apocynaceae Leguminosae Gramineae Liliaceae	Herb Herb Shrub Herb Herb	Whole plant Root, stem Seed, seed Leaves, root Flower, root
34	Scorpion bite	*Rubia cordifolia* Linn. *Celastrus paniculata* Willd.	Manjita Peng	Rubiaceae Celastraceae	Climber shrub	Leaf Seed, stem
35	Sexual disease	*Peucedanumn agpurense*, C.B.Clarke. *Curculigo orchioides* Gaertn. *Chlorophytum tuberosum* Baker.	Tejraj Kalimusli Kavrakanda / Safedmusli	Apiaceae Hypoxidaceae Sterculiaceae	Herb Herb Herb	Leaves Root Root
36	Tooth ache and pyorrhea	*Smilax macrophyla* Roxb. *Dioscorea daemona* Roxb. *Tephrosia purpurea* Pers.	Ramdaton Koliyapad Sarponkh	Liliaceae Dioscoreaceae Leguminosae	Climber Climber Shrub	Stem, leaves Stem, leaves Root, bark
37	Tuberculosis	*Semicarpus anacardium* Linn.	Bhelva	Anacardiaceae	Tree	Root, bark, seed
38	Weakness	*Costus speciosus* Retz. *Asparagus racemosus* Wild.	Keo-kand Satavari	Costaceae Liliaceae	Herb Climber	Root Root
39	Worms	*Calotropis procera* Alt. *Holarrhena antidysenterica* Well *Mucuna pruriens* Baker non,D.C	Madar Kurai Kevanch	Asclepiadaceae Apocynaceae Leguminosae	Shrub Tree Climber	Leaves, root Seed, bark, leaves Seeds, leaves

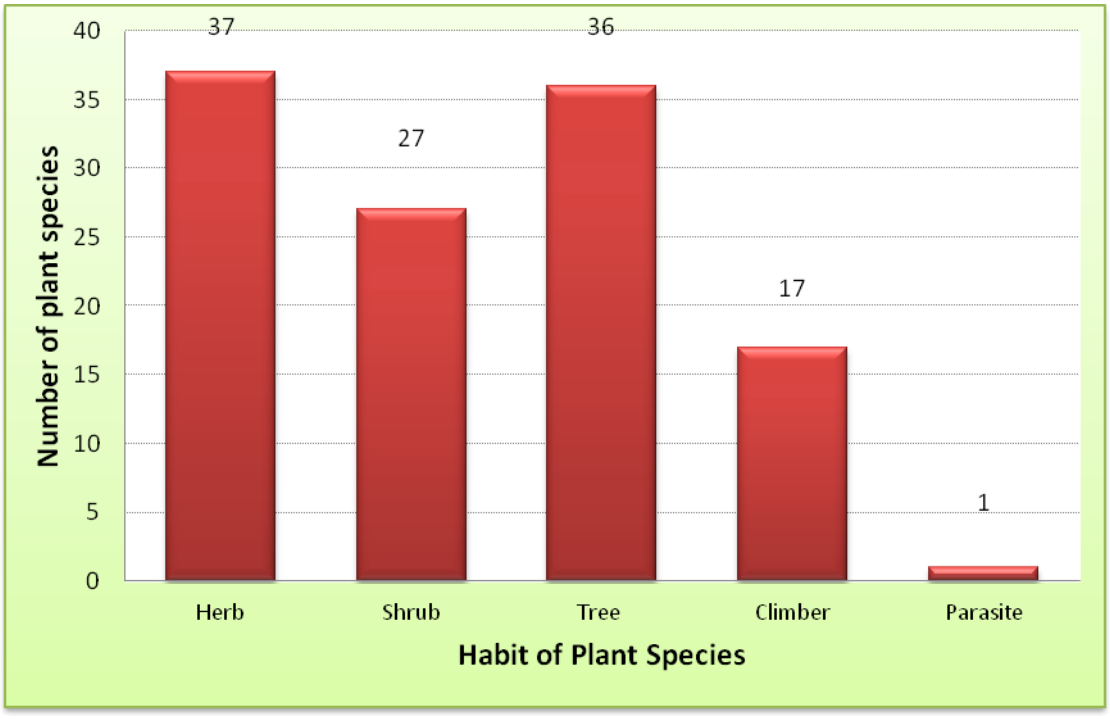

Fig. 1: Habit of plants used by the tribals of Bastar for health security.

Maximum number of plants used as a medicine by tribals belongs to family Liliaceae. There were eleven plants found to be used for jaundice, seven for piles, five each for dysentery and snake bite, four plants each for joint pain ear ach, cough, cold, cuts and wounds, three plants each for diabetes, malaria, and milk secretion. paralysis, toothache worms and two plants each for fracture, body ach, chest pain, male impotency, weakness, respiratory diseases, eczema (Bemchi), etching, scorpion bite while one plant each was noted for diseases like tuberculosis

swelling, stomach pain, white discharge, weakness, easy delivery, eye problem, and kidney stone. Roots were found to be used use for curing body ache, eye problem, cuts and wounds, dysentery, ear ache, epilepsy, easy delivery, fever, head-ache, hydrocoel, itching, kidney stone, milk secretion, onset of pregnancy, stem for dysentery, fracture, rhizomes for joint pain and dysentery. More than one plants or combination of two or three plants were also found to be used by the tribals against various diseases to provide health security (Table 1).

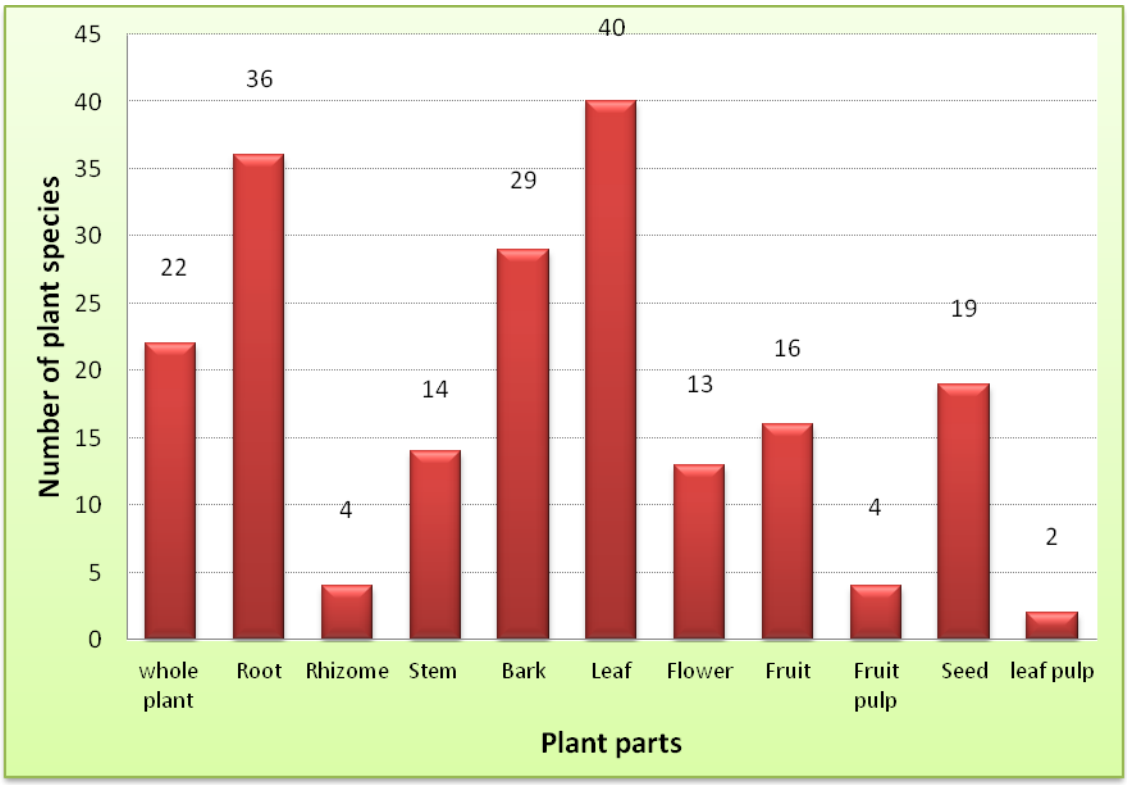

Fig. 2: Plant parts used by the tribals of Bastar for health security.

Discussion

The documentation of drug preparation confirmed that 118 plants individually or in combination of two or three were found to treat 39 diseases prevalent in Bastar district, during the present study (Lalramnghinghlova and Jha (1998) described more the 200 ethnomedicinal plant for their efficacy to cure diseases in Mizoram. Folk use of 128 plants at Madi valley of Chitwan district, Nepal was studied by Bishokarma et al. (2002), while in district Bastar 115 medicinal plants of health security was found to be used by the tribals. Kumar et al. (2007) and Biswas et al. (2003) reported that about 163 species of plants were used as wound healing plants in Indian system of medicine such as Ayurveda, Siddha, Unani and folk medicine. Of these only four plants like *Aloe vera*, *Semicarpus anacardium*, *Abutilon indicum* and *Mucuna pruriens* were found to be used by tribals of Bastar in wound healing. The tribal people of western Madhya Pradesh of India were found to use 13 plants for the treatment of jaundice (Samvatsar and Diwanji, 2000), while 11 plants were found to be used by the tribals of Bastar. The leaves of the plant *Phyllanthus niruri* is combined with white goat milk and taken in empty stomach in three doses for effective treatment of Jaundice and liver diseases and also enhances the appetite (Sankaranarayanan, 2008) similar reporting's were made during the present study in Bastar. Sometimes patient cannot open his /her mouth, the extract of plant is administered through nostril or eyes or applied liberally to the head (Anandan and Veluchamy, 1986; Anuradha et al., 1986). Majority of young generation do not know many plants and their medicinal values. Only few younger are following the medicinal practices and traditional knowledge in Nepal (Joshi and Edington, 1990; Shrestha and Dhillion, 2003). Similar condition was reported in the Bastar (Srivastava et al., 1999). Information that is related to women health problems *viz.*, urinary infections, bleeding and pregnancy are difficult to acquire and treat. Such curative information is kept with secret, with the belief that the medicines would lose their effectiveness if revealed to other people (Bhat

and Jacobs, 1995). Present study revealed such type of situation in district Bastar, therefore scientific cultivation, conservation and sustainable use of plant species by ethnic communities would be highly advantageous for socio economic growth, in conservation of rare and endangered plants species and the indigenous knowledge for the future generations.

The drug preparation methods were very old and traditional. Most of the drugs were found to be prepared either by making fine powder in pastel and mortal or paste or decoction or extract from plants were noted to be use directly. In some of the drugs it was noted that they mix other ingredients like honey, milk, curd, ghee, butter milk, jaggery, sugar, molasses, camphor, oil, etc. and their use of similar ingredients in administration of ethnomedicine (Sudhakar Reddy et al., 2008). In view of the importance of traditional medicine which provides health services to 75-80% of the world population, increased demand of herbal drugs by the pharmceauticals and depleting natural plant resources, it is high time to document the medicinal utility of less known plants available in remote areas of the country (Zaidi and Crow, 2005). In this way documentation of this vanishing tribal knowledge is worthful.

Conflict of interest statement

Authors declare that they have no conflict of interest.

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How to cite this article:
Sinha, M. K., Kanungo, V. K., Naik, M. L., 2016. Ethnobotany in relation to health security in district Bastar of Chhattisgarh State. Int. J. Curr. Res. Biosci. Plant Biol. 3(5), 120-126.
doi: http://dx.doi.org/10.20546/ijcrbp.2016.305.019