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Ethnomedicinal plant diversity of belgahna region, Bilaspur district (Chhattisgarh)

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Abstract
Chhattisgarh state has an enriched diversity of plants. 44% of the total geographical area of the state is covered with forest. The forest of Chhattisgarh falls under two different types of forest i.e. Tropical dry deciduous forest and Tropical moist deciduous forest. It is very necessary to proper identification and documentation of diversity for conservation and sustainable utilization of flora. Since long time there is no ethnomedicinal work on this region. Therefore present studies have been taken to explore the ethnomedicinal plant diversity of Belgahna region. Present paper deals with the ethnomedicinal plants found in Belgahna region. Plants explorations have been done from December 2014 to December 2016. Collection, identification and preservation of specimens have been done as per standard method. A total of 67 species of 65 genera belonging to 40 families of angiosperms has been collected and identified from this region. Fabaceae was found most dominant family during this study. Trees are the dominant growth forms among herbs, shrubs and climbers.

Keywords: ethno medicinal diversity, belgahna, Bilaspur, Chhattisgarh

1. Introduction
India is enriched with variety of medicinal plants and the traditional system is still backbone of rural healthcare system of the country. Charak - samhita (1000 B.C.) was the earliest detailed written account on herbal medicine of India. It records the use of over 340 drugs of plant origin. Plants are the source of food, fodder, fuel, construction material, health care material and medicine [1]. Nearly 70% population of developing country directly depends upon medicinal plants [2]. Plants having medicinal properties against various diseases is regarded as Medicinal plants [3]. Rural people widely used medicinal plants in their daily life. Rural people as well as urban people utilizing plants to cure various ailments since long ago [4]. Medicinal plants plays important role in healthcare system in India. According to the World Health Organization (WHO) approximately 80% of the population of the world still depends upon herbal medicines [5]. Synthetic drugs cause problems of side effects. This has led revival of herbal medicine for various diseases [6]. Demand of herbal medicine is rapidly increasing due to easy availability and less side effects. India harbours a variety of medicinal plant species and ranked seventh among 17 mega diversity countries of the world. It is reported that more than 50000 plant species were used for medicinal purposes world wide of which 13% are flowering plants [7]. Chhattisgarh is an herbal state with enriched diversity of the plant species and provides habitat to significant number of medicinal plants. 44% of its geographic area was covered with forest [8]. Bilaspur is a second largest city of Chhattisgarh state. Present research have been carried out in Belgahna region of Bilaspur district because there is no ethnomedicinal account of plants of this region is available till date. Belgahna region of Bilaspur district has rich diversity of medicinal plant. Present paper deals with the diversity of ethno medicinal plants of Belgahna region of Bilaspur.

2. Material and methods
Belgahna region lies between 22^0 59′ N to 22^0 35′ N and 81^0 98′ E to 81^0 88′ E Latitudes and Longitudes respectively. Belgahna region is a densely forested area. Different sampling sites were selected for proper collection of plant species. Frequent field trips were organized in order to collect the plant species. Field surveys were carried out in different seasons of the year at selected sampling sites of Belgahna region of Bilaspur district. Kenda, Keonchi, Jogisar, Tenganmada, Khodri, Khongsara and Bhanwartonk were the different sampling sites of Belgahna region. The study includes an extensive and thorough field survey. Extensive collection of plant species from Belgahna region was carried out from January 2014 to December 2016. The plant species were freshly collected in the polythene bags. Plant specimens were dried with in wooden press to avoid microbial degradation. Further Herbarium sheets were prepared of these plant specimens according to the standard methods of Jain & Rao [9]. Herbarium sheets were deposited in Herbarium of Department of Botany, Guru Ghasidas Viswavidyalaya. Photography of each medicinal plant was also done at fields. These specimens were identified with the help of available literature [10-12]. Ethno medicinal properties of the plant species have been described with the help of previous literature [13-16].

3. Result and Discussion
On the basis of extensive collection of medicinal plants from Belgahna region of Bilaspur district it is resulted that 67 plant species belongs to 65 genera of 40 families of angiosperm were recorded from the forest of Ratanpur. Collected

medicinal plants showed different habits that is herb, shrub, climber & trees. All the reported plant species described with botanical name followed by family, part used and their medicinal use have been summarized in Table 1. Family Fabaceae was found the most dominant family among all collected plant species. Family Euphorbiaceae, Caesalpiniaceae, Convolvulaceae and Acanthaceae were represented by 3 species respectively. Mimosaceae, Zingiberaceae, Sterculiaceae, Sapindaceae, Combretaceae, Lythraceae, Verbenaceae, Anacardiaceae, Rutaceae, Asteraceae, Meliaceae, Myrtaceae, Apocynaceae and Asclepiadeceae were represented by 2 species respectively. 21 families have Monospecific family represented by 1 species only. Family wise distribution of collected medicinal plants has been showed in fig. 1. Habit wise distribution of collected medicinal plants has been showed in Fig 2. Trees are the primary source of medicinal plants in terms of number of species (32) followed by herbs (21) than climbers (7) and shrubs (6). During the survey Parasitic plant *Loranthus parasiticus* L. also recorded which have medicinal properties. It is noted that due to anthropogenic activities wiz. Over grazing, deforestation, encroachment, illegal mining, urbanization diversity of ethnomedicinal plants of Belgahna region is depleting day by day.

Table 1: Collected plant species, families and ethno medicinal uses of the plant species.

S. No.	Botanical name	Family	Habit	Plant part used	Uses
1	*Moringa oleifera* L.	Moringaceae	Tree	Bark paste	Cuts, Wounds, Anti inflammatory
2	*Biophytum sensitivum* (L.) DC.	Oxalidaceae	Herb	Whole plant, seed	Boils, Blisters, Cuts
3	*Abrus precatorius* L.	Fabaceae	Climber	Leaf, Seed	Leucorrhoea, Rheumatic pain, Abortion
4	*Mitragyna parvifolia* (Roxb.) Korth.	Rubiaceae	Tree	Bark	As contraceptive, Fever, Leucorrhoea, Muscular pain, Stomachache
5	*Acacia catechu* (L.f.) *Willd.*	Mimosaceae	Tree	Bark, Latex	Abortifacient
6	*Plumbago zeylanica* L.	Plumbaginaceae	Herb	Whole plant	Skin disease, Rheumatism
7	*Hyptis suaveolans* (L.)Poit.	Lamiaceae	Shrub	Leaf, Root	Colic disorder, Stomachache
8	*Clitoria ternetea* L.	Fabaceae	Climber	Leaf, stem	Dysentery, Dropsy
9	*Gloriosa superba* L.	Zingiberaceae	Herb	Tuber	Insect bite, Abortion
10	*Dioscoria bulbifera* L.	Dioscoriaceae	Climber	Tuber	Indigestion, Bone fracture, Dysentery
11	*Sterculia urens* Roxb.	Sterculiaceae	Tree	Bark	Expectorant, asthma, cough
12	*Heliotropium indicum* L.	Boraginaceae	Herb	Leaf, whole plant	Carminative
13	*Cardiospermum halicacabum* L.	Sapindaceae	Climber	Whole plant	Emetic, Diabetes
14	*Phyllanthus amarus* Schumach. & Thonn.	Euphorbiaceae	Herb	Whole plant	Fever, Jaundice
15	*Oxalis corniculata* L.	Oxalidaceae	Herb	Leaf juice	Cataract, Conjuctivitis
16	*Helicteres isora* L.	Sterculiaceae	Shrub	Leaf, Bark	Insect bite, Tympany
17	*Schleichera oleosa* (Lour.) Oken.	Sapindaceae	Tree	Bark	Chest pain, Fits
18	*Careya arborea* Roxb.	Lecythidaceae	Tree	Flower	Labour pain
19	*Terminalia arjuna* (Roxb.) Wight & Arn.	Combretaceae	Tree	Fruit powder	Heart ailments, Indigestion, Diabetes
20	*Bauhinia racemosa* Lam.	Caesalpiniaceae	Tree	Bark, Flower	Dysentery
21	*Mimosa pudica* L.	Mimosaceae	Herb	Leaf	Bleeding gums, Cough, Cold
22	*Tephrosia purpurea* (L.) Pers.	Fabaceae	Herb	Seed	Scorpion bite, Cough
23	*Martynia annua* L.	Martyniaceae	Herb	Flower	Boils, Blisters, Wounds
24	*Caesalpinia bonduc* (L.) Roxb.	Ceasalpiniaceae	Shrub	Seed, Leaf	Fever, Rheumatism, Hydrocele
25	*Lawsonia inermis* L.	Lythraceae	Shrub	Leaf powder	Jaundice
26	*Lippia nodiflora* L.	Verbenaceae	Herb	Whole plant	Stomach ache, Pneumonia
27	*Ziziphus mauritiana* Lam.	Rhamnaceae	Tree	Seed, Bark	Snake bite, Fever, Wounds
28	*Ipomoea obscura* (L.) Ker Gawl.	Convolvulaceae	Climber	Leaves	Eye disease
29	*Abelmoschus mannihot* (L.) Medik.	Malvaceae	Herb	Roots	Piles
30	*Ipomoea pes tigridis* L.	Convolvulaceae	Climber	Leaf, Root	Sores, Pimples, Purgative
31	*Crotolaria alata* D. Don.	Fabaceae	Herb	Whole plant	Anti snake venom
32	*Loranthus parasiticus* (L.) Merr.	Loranthaceae	Parasitic plant	Leaves, fruit	Diaphoretic, Carminative, antiseptic
33	*Buchnania lanzan* Spreng.	Anacardiaceae	Tree	Flower, Fruit	Chest pain, Skin disease, Pimples, Diarrhoea, Acne
34	*Ficus religiosa* L.	Moraceae	Tree	Latex, Decoction of inflorescence	v Skin diseases, Abortifacient
35	*Shorea robusta* Gaertn. F.	Dipterocarpeceae	Tree	Bark, Leaves	Gonorrhea
36	*Evolvulus alsinoides* (L.) L.	Convolvulaceae	Herb	Whole plant	Boils, Blisters, Nervous debility, Dysentery, Diarrhoea, Wounds, Fever
37	*Gmelina arborea* Roxb. ex Sm.	Verbenaceae	Tree	Fresh leaves, decoction of roots	Headache, Fever, Diarrhoea, Antidote in scorpion sting
38	*Aegle marmelos* (L.) Correa.	Rutaceae	Tree	Fruit, Leaf	Dysentery, Corneal infection

39	*Diospyros melanoxylon* Roxb.	Ebenaceae	Tree	Fruit, Flower, Bark	Urinary, Heart diseases, Antidysenteric
40	*Ageratum conyzoides* L.	Asteraceae	Herb	Whole plant	Purgative, Carminative, Laxative, Cough, Asthma, Bronchitis, Leprosy
41	*Azadiracta indica* A. Juss.	Meliaceae	Tree	Bark, Leaves	Fever, Insecticidal, Blood purifier
42	*Polyalthia longifolia* (Sonn.) Thwaites.	Annonaceae	Tree	Bark	Diarrhoea, Dysentery, Cooling, Febrifuge
43	*Syzygium cumini* (L.) Skeels.	Myrtaceae	Tree	Fruit, Stem, Bark	Diabetes, Increase appitite, Dysentery, Headache
44	*Hollarrhena antidysenterica* Wall. ex. A. DC.	Apocynaceae	Tree	Seed	Intestinal worms
45	*Eclipta alba* L.	Asteraceae	Herb	Leaf juice	Jaundice, Skin diseases
46	*Cleistanthus collinus* Benth ex. Hook. F.	Euphorbiaceae	Tree	Leaf, fruit	Purgative, Diuretic, Dyspepsia
47	*Psidium guajava* L.	Myrtaceae	Tree	Leaf	Toothache
48	*Limonia acidissima* L.	Rutaceae	Tree	Bark	Indigestion
49	*Cassia fistula* L.	Caesalpiniaceae	Tree	Leaf	Tympany
50	*Semecarpous anacardium* L.	Anacardiaceae	Tree	Bark	Dog bite
51	*Terminalia tomentosa* Willd.	Combretaceae	Tree	Bark	Fractured bone, Haemorrhage, Bronchitis
52	*Costus speciosus* (J.koenig) Sm.	Zingiberaceae	Herb	Young shoot, Rhizome	Cough, cold, asthama, dyspepsia
53	*Curculigo orchiodes* L.	Hypoxidaceae	Herb	Tuber	Aphrodisiac, Fever, Galactogogue, insect bite
54	*Bridelia retusa* (L.) A.Juss	Euphorbiaceae	Tree	Bark extract	Sterlity, Contraceptive
55	*Woodfordia fruiticosa* (L.) Kurz.	Lythraceae	Shrub	Leaf	Blood purifier
56	*Melia azedarach* L.	Meliaceae	Tree	Flowers	Headache, Leprosy, Skin diseases, Nervous disorders
57	*Oxystelma esculentum* Lam.	Asclepiadeceae	Herb	Latex, whole plant	Diuretic, Laxative, Anthelmintic, Leucoderma, Bronchitis
58	*Cynodon dactylon* (L.) Pers.	Poaceae	Herb	Whole plant	Diabetes, Chronic ulcers
59	*Andrographis paniculata* (Burm. F.) Wall. ex. Nees.	Acanthaceae	Herb	Leaf, Root	Fever, Snake bite, Antipyretic, Dyspepsia
60	*Leucena leucocephala* (Lam.) de Wit.	Mimosaceae	Tree	Fruit, bark	Bronchitis, Gonorrhea, Haemorrhagia
61	*Adhatoda vasica* (L.) Nees.	Acanthaceae	Shrub	Leaves	Respiratory diseases, Itch, Cough, Piles, Bleeding gums
62	*Bombax ceiba* L.	Bombacaceae	Tree	Root paste	Boils, Fertility
63	*Butea monosperma* (Lam.) Taub.	Fabaceae	Tree	Gum, Bark extract	Leucorrhoea, Menorrhagia
64	*Hemidesmus indicus* (L.) R. Br.	Asclepiadeceae	Climber	Root, Leaf juice	Jaundice, Fever, Rheumatic pain
65	*Alstonia scholaris* (L.) R. Br.	Apocynaceae	Tree	Stem juice	To increase lactation
66	*Alangium salvifolium* (L.f.)	Alangiaceae	Tree	Root paste	Abortifacient,
67	*Blapharis maderaspatensis* (L.) Heyne ex Roth	Acanthaceae	Herb	Leaf juice	Cuts, Wounds

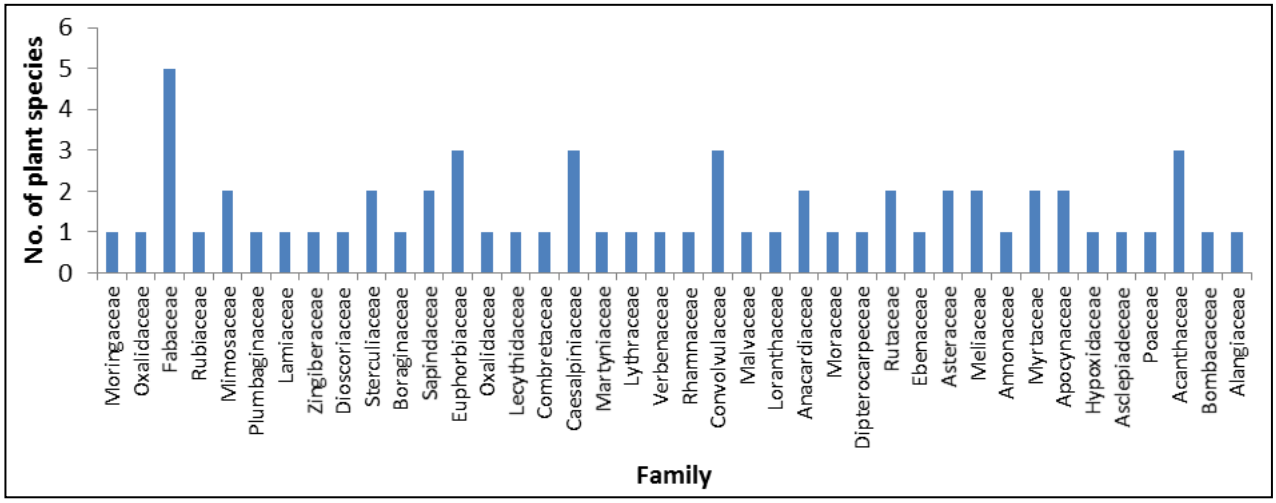

Fig 1: Family wise distribution of plants

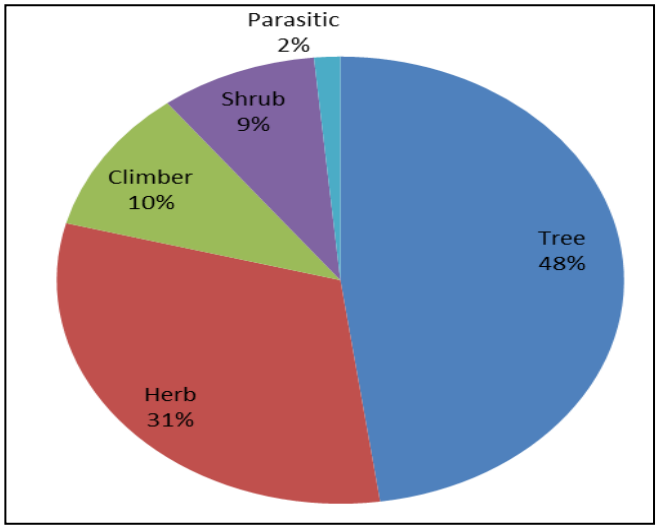

Fig 2: Habit wise distribution of collected medicinal plants

Fig 4: (a) *Martynia annua* L. **(b)** *Gloriosa superba* L. **(c)** *Holarrhena antidysenterica* L. **(d)** *Buchanania lanzan* spreng. **(*e*)** *Abrus precatorius* L.

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