

# Ethnomedicinal Use of Dominant Herbal Plant Species of Chhattisgarh Plains Zone of Chhattisgarh State India

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**ABSTRACT:** Chhattisgarh is a state in India that is home to more than 2000 species of plants and animals. The state of Chhattisgarh has an almost subtropical humid climate, which is good for supporting rich biodiversity. The state has teak, sal and mixed forests as extreme communities. Based on growth habit, plants are broadly classified into three groups: herbs, shrubs and trees.

Herbs are non-woody plants with soft stem that does not produce woody tissue. They typically have a short lifespan and tend to grow close to the ground.

Herbs include plants like grasses, annual flowers, and many culinary and medicinal herbs. The purpose of present work is documentation of herbal plant diversity & medicinal uses of dominant plant species of Chhattisgarh plains zone. Frequent visits were carried out for sampling of plants in order to record the data regarding the diversity of herbal plants in the study area by random quadrat method. Total 73 plants belonging 15 families and 60 genus were recorded. The present study can potential help in identification of dominant species of herbs in the area and their medicinal use.

**KEYWORDS:** Chhattisgarh plains zone, Herbs, Dominant species, Ethnomedicinal use.

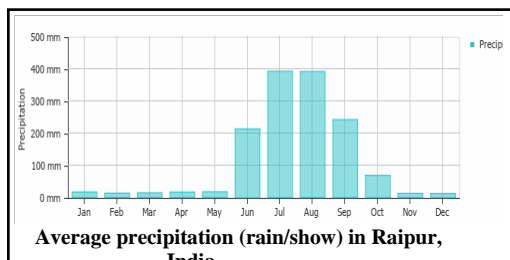
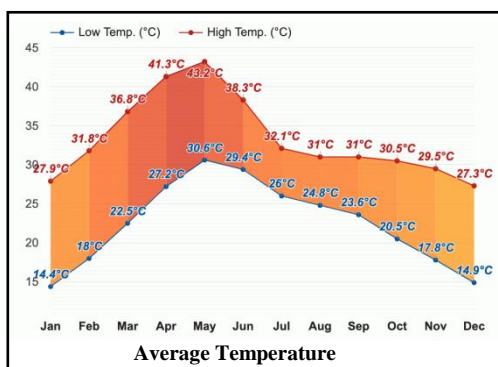
## I. INTRODUCTION

India is one of the recognized mega-diverse countries of the world, nurturing nearly 7-8% of the recorded species of the world. India has a diverse temperature, topography, and habitat, and is noted for having the world's richest flora, with over 18000 blooming plant species. These plant species account for about 7% of all plant species on the planet. Chhattisgarh is a state in India that is home to more than 2000 species of plants and animals. The state of Chhattisgarh has an almost subtropical humid climate, which is good for supporting rich biodiversity. The state has teak, sal and mixed forests as extreme communities. Plants can be

classified into various categories based on different criteria such as lifespan, reproductive structures, ecological characteristics and growth habit. Based on growth habit, plants are broadly classified into three groups: herbs, shrubs and trees.

Herbs are non-woody plants with soft stem that does not produce woody tissue. They typically have a short lifespan and tend to grow close to the ground. Herbs include plants like grasses, annual flowers, and many culinary and medicinal herbs. A significant portion of the world's population employs botanical parts directly as medicinal remedies which do not typically carry the side effects associated with allopathic medicines. [2] Notably, many modern medicines are indirectly derived from medicinal plants. In fact, the use of plants is not just about treating illness. It can help boost the economy by manufacturing medicines to treat illness [34]. The purpose of present work is documentation of herbal plant diversity of Chhattisgarh plains zone. The study can potential help in identification of dominant species of herbs in the area and their medicinal use.

**Study Area:** The present study was carried out in Chhattisgarh plains zone. Which includes Raipur, Bilaspur, Janjgir-Champa, Kabirdham, Rajnandgaon, Durg, Dhamtari, and Mahasamund district. The reason primarily has the tropical climate with short mild winters and extremely hot summers.



**Material and Method :** The study was conducted from January 22 April 23 over the winter summer and monsoon season in the reason. Frequent visits were carried out for sampling of plants in order to record the data regarding the diversity of herbal plants in the study area by random quadrat method. All the species occurring in each quadrat were noted and collected separately and their numerical count was carried out to identify the herbs by using taxonomic key [1-13]. Habit of plant flower colour flowering and routing ecological surroundings and adaptation morphological peculiarities , if present were also recorded and enlisting of collected specimens were also carried out simultaneously.

The collected plant specimens were identified. The scientific name of the plant listed in present work have been consulted with experts and literature followed by citation along with the original references of the valid name. Appropriate identification was done with the help of standard published literature. Collected plant species were maintained in the form of herbarium .The names of the species and number of individual species in each unit area recorded and Importance Value Index were calculated by using the formula:

$$\text{Importance Value Index} = \text{Relative density} + \text{Relative frequency} + \text{Relative abundance.}$$

**Result:** In present study total 73 plants belonging 15 families and 60 genus were recorded . The list of herbal plants found in Chhattisgarh plains zone are being shown in table.

SLNO.	BOTANICAL NAME	IVI
1.	<i>Abelmoschus moschatus</i> Medik.	19.43
2.	<i>Ageranturm conyzoides</i> L.	18.02
3.	<i>Agerantum houstonianum</i> Mill.	21.12
4.	<i>Alternanthera bettzickiana</i> (Regol.) Voss.	17.56
5.	<i>Alternanthera ficoidea</i> (L) P. Beauv.	13.15
6.	<i>Alternanthera sessilis</i> (L) DC	20.26
7.	<i>Alysicarpus valifolius</i> (Schumach.)/. Leonard	14.5
8.	<i>Atysicarpus vaginalis</i> (L) DC.	13.9
9.	<i>Amaranthus spinosus</i> L	13.29
10.	<i>Amaranthus viridis</i> Hook. F.	16.78
11.	<i>Anagallis arvensis</i> L	14.94
12.	<i>Andrographis paniculata</i> Wall.	13.83
13.	<i>Argemone mexicana</i> L	15.62
14.	<i>Artiplex patula</i> L	15.92
15.	<i>Achyranthes aspera</i> L.	14.68
16.	<i>Blumea lacera</i> (Burm. F) DC.	14.66
17.	<i>Brachiaria deflexa</i> (Schumach) Robyns	11.58
18.	<i>Borraavia diffusa</i> L.	15.64
19.	<i>Cardamineflexuosa</i> With.	12.11
20.	<i>Cassia tora</i> (L.) Roxb.	13.49
21.	<i>Commelina benghalensis</i> L.	15.79
22.	<i>Convolvulus piuricaulis</i> L.	21.12
23.	<i>Croton bonplandianum</i> Baill	23.2
24.	<i>Cyanthillium cinereum</i> (L.) H. Rob.	23.58
25.	<i>Cyanotis axillaris</i> Roem. & Schult F.	16.64
26.	<i>Cynodon dactylon</i> (L.) Pers.	49.15

27.	<i>Cyperus compressus L.</i>	28.12
28.	<i>Dactyloctenium aegyptium (L.) Wild</i>	11.58
29.	<i>Datura metal L.</i>	26.12
30.	<i>Desmodium triflorum (L.) DC.</i>	17.7
31.	<i>Desmostachya bipinnata Stapf.</i>	24.95
32.	<i>Echinochloa colona (L) Link.</i>	25.64
33.	<i>Eclipta alba L.</i>	28.21
34.	<i>Eleusine indica (L.) Gaertn</i>	27.21
35.	<i>Eragrostis unioloides (Retz.) Nees. Ex Steud.</i>	20.06
36.	<i>Euphorbia cordifolia C.A. Mey&amp;Boiss</i>	19.65
37.	<i>Euphorbia geniculata Orteg.</i>	25.77
38.	<i>Euphorbia hirta L.</i>	31.63
39.	<i>Euphorbia maculata L.</i>	49.42
40.	<i>Euphorbia nutans Lag.</i>	25.57
41.	<i>Euphorbia prostata</i>	26.34
42.	<i>Evolvulus alsinoides (L.) l</i>	19.15
43.	<i>Evolvulus nummularis (L.) l</i>	32.33
44.	<i>Gnaphalium luteoalbum L.</i>	13.15
45.	<i>Heliotropium indicum L.</i>	18.94
46.	<i>Hydrobia zeylanica (L) Vahl</i>	12.65
47.	<i>Hyptis suaveolens (L.) poit</i>	27.6
48.	<i>Indigofera caerulea Roxb.</i>	29.5
49.	<i>Lapsana communis L.</i>	12.9
50.	<i>Marsilea quadrifolia L</i>	49.13
51.	<i>Medicago denticulata Willd.</i>	29.57
52.	<i>Merremia emarginata (Burm. f.) Hall. F.</i>	22.35
53.	<i>Mitracarpus hirtus (L.) DC.</i>	42.48
54.	<i>Mitracarpus villosus (SW.) DC.</i>	9.85
55.	<i>Oldenlandia diffusa (Wild) Roxb.</i>	19.47
56.	<i>Oxalis corniculata L.</i>	25.94
57.	<i>Parthenium hysterophorus L.</i>	19.98
58.	<i>Phyllanthus niruri L.</i>	34.67
59.	<i>Phyllanthus urinaria L.</i>	29.39
60.	<i>Polygonum aviculare L.</i>	15.51
61.	<i>Polygonum plebeium R. Br.</i>	17.37
62.	<i>Portulaca oleracea L.</i>	29.19
63.	<i>Rungia pectinata (L.) Ness</i>	32.32
64.	<i>Senecio vulgaris L.</i>	11.99
65.	<i>Solanum xanthocarpum Schrad. &amp; H. Wendl</i>	31.21
66.	<i>Sonchus oleraceus L.</i>	30.12
67.	<i>Sphaeranthus indicus L.</i>	24.81
68.	<i>Stellaria media (L) Vill.</i>	15.07
69.	<i>Tribulus terrestris L.</i>	20.07
70.	<i>Tridax procumbens L.</i>	39.12
71.	<i>Verbascum blattaria L.</i>	12.18
72.	<i>Visnaga daucoides Gaertn.</i>	20.96

73.	<i>Xanthium strumariumlo</i>	
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**Dominant Species and their Important Value Index is as follows :**

S.No.	Dominant Species	IVI
01	<i>Euphorbia maculata L.</i>	49.42
02	<i>Cynodondactylon (L.) Pers.</i>	49.15
03	<i>Marsileaquadrifolia L.</i>	49.13
04	<i>Mitracarpushirtus (L.) DC.</i>	42.48
05	<i>Tradaxprocumbens L.</i>	39.12

**Medicinal uses of dominant herbal plants are as follows :**

***Cynodon dactylon.*** : Commonly known as Durva grass in India of family Poaceae. This study highlights chemical constituents, pharmacological and therapeutic effects of *Cynodon dactylon*. The phytochemical analysis showed that *Cynodon dactylon* contained flavanoids, alkaloids, glycosides, terpenoids, triterpenoids steroids, saponins, tannins, resins, phytosterols, reducing sugars, carbohydrates, proteins, volatile oils and fixed oils.

The studies showed that *Cynodon dactylon* possessed central nervous, cardiovascular, antidiabetic, gastrointestinal, antioxidant, immunological, antiallergic, antiinflammatory, antipyretic, analgesic, anticancer, dermatological, diuretic, protective, antimicrobial, antiparasitic, insecticidal and repellent.

***Euphorbia maculata L.*** The member of family Euphorbiaceae There are numerous reports on the bioactive phytochemicals in *E. maculata*, such as polyphenols, tannins, flavonol glycosides, and triterpenoids [29,30, 31, 32].

Also known as isoprenoids, terpenoids are a large class of plant secondary metabolites with more than 50,000 naturally occurring members [33].

In north America is used for the treatment of corneal opacities and warts [25], while in China, it is used to treat blood disorders (e.g., haematuria, haemoptysis, epistaxis, and hemafecia), carbuncles, and wounds [26]. *Euphorbia denticulata* Lam. and *E. macrocarpa* Boiss. & Buhse are also used for wound healing in Turkey [27], and a similar use is reported in Ethiopia for *E. heterophylla L.* and *E. prostrata* Aiton [28].

***Mitracarpus scabrum*** : belongs to the family Rubiaceae, which consists of an annual herbs that have been widely studied for their medicinal benefits. Phytochemical analysis revealed the

presence of phenolics, pyrrolizidine alkaloids and triterpene acid. This is the first report gathering scientific data on antioxidant, enzyme inhibitory activities and phytochemical composition of *M. hirtus* and the obtained results can be used as starting point for further investigation on this traditional medicinal herb. In addition to pharmacological uses, moderate toxicity of *Mitracarpus* species has also been reported.

Ethnomedicinal surveys have shown that *Mitracarpus* species have been used as antioxidant [34], insecticide [35,36], sedative [37], antifungal [38], [39], [40], anti-diabetic, anti-inflammatory [41], antibacterial [42], [43], [44], [45], antileishmanial [46,47], schistosomicidal [48], anti-diarrheal [49], and anticancer [50]. Studies [51, 51] have linked the medicinal uses and pharmacological activities of *Mitracarpus* species to their secondary metabolites in the contents.

***Tridax procumbens*** : The member of family Asteraceae Plant used majorly in Indian traditional medicine. This is rich in alkaloids, steroids, carotenoids, flavonoids (such as catechins, centaurein and bergenins), fatty acids, phytosterols, tannins and minerals. Concoctions of extracts from *T. procumbens* leaves, stem, flower, and roots are used to treat patients suffering from diabetes, arthritis, inflammatory reactions and even applied to open wounds. The medicinal value of extracts has been evident by in vitro/in vivo assay of antioxidant, anti-bacterial, anti-inflammatory, anti-microbial, vasorelaxant, anti-leishmanial and mosquitocidal activities.

#### Discussion and conclusion:

Herbal medicines possessing bioactive chemicals without any side effect and hence they are very much popular. Most of the species are used as anti rheumatic, antibiotic ,for respiratory disorders, skin diseases ,hemorrhoids and as diuretic. In Present paper the medicinal properties of the Abundant and dominant herbal plant species discussed and found that it might be possible as additional source of income for state of Chhattisgarh by making herbal medicine from these plants.

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