Journal of Medicinal Plants Studies
www.PlantsJournal.com

ISSN (E): 2320-3862
ISSN (P): 2394-0530
NAAS Rating 2017: 3.53
JMPS 2017; 5(2): 276-281

Received: 08-01-2017
Accepted: 09-02-2017

Ravi Shankar Singh
Department of Botany,
Guru Ghasidas Vishwavidyalaya,
Bilaspur, Chhattisgarh, India

Sushil Kumar Shahi
Department of Botany,
Guru Ghasidas Vishwavidyalaya,
Bilaspur, Chhattisgarh, India

Correspondence
Sushil Kumar Shahi
Department of Botany,
Guru Ghasidas Vishwavidyalaya,
Bilaspur, Chhattisgarh, India

Diversity of medicinal plants of Ratanpur region of Bilaspur district (Chhattisgarh)

Ravi Shankar Singh and Sushil Kumar Shahi

Abstract
Forest has been the source of invaluable medicinal plants. These medicinal plants have the potential to provide a green health alternative. Ratanpur is located in the Bilaspur district of Chhattisgarh. The forest of Ratanpur region has a rich diversity of medicinal plants. It is surrounded by forest and hills. The present paper deals with the diversity of medicinal plants of Ratanpur region. A total of 118 medicinal plant species belonging to 101 genera under 45 families recorded from the forest of Ratanpur region. Out of these 54 were herbs, 21 were shrubs, 31 were tree and 12 were climber species. Euphorbiaceae is the most dominant family during present investigation. All plants are enumerated with Botanical names followed by vernacular names, family, habit, plant part used and medicinal uses. Different part of these plants has been widely used to cure various ailments by local inhabitants in their daily life.

Keywords: Diversity, medicinal plants, Ratanpur

1. Introduction
Plants having active chemical compounds with any of its part like root, stem, leaves, bark, fruit and seed, which produces definite curing properties in the treatment of various diseases is regarded as Medicinal plants [1]. In India rural peoples widely utilized medicinal plants in different ailments. Rural people as well as urban people utilizing plants as medicinal purpose since long ago [2]. Medicinal plants plays important role in healthcare system in India. Day by day human population more dependent upon plant based medicine due to less side effects, much efficacy and safe mode for utilization. According to the World Health Organization (WHO) approximately 80% of the population of the world still depends upon herbal medicines [3]. Due to easy availability, less side effects and sometimes only source of healthcare the demand of medicinal plant is increasing. India is the home to a great 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 [4]. India having great diversity of plants because it is situated at the tri-junction of the Afro tropical, Indo-Malayan and Palae arctic realms. India having a variety of ecosystems such as forests, grasslands, wetlands, desert, coastal and marine ecosystems which harbour and sustain high biodiversity and contribute to human well-being. Chhattisgarh is an herbal state with enriched diversity of the plant species. 44% of its geographic area covered with forest [5]. Bilaspur is a second largest city of Chhattisgarh state. Present research is carried out in Ratanpur region of Bilaspur district because there is no systematic account of medicinal plants of this region is available till date. Ratanpur is a historical place of Chhattisgarh. Ratanpur region of Bilaspur district has rich diversity of medicinal plant. It is very necessary to proper documentation of flora for proper conservation and utilization of forest wealth. Present paper deals with the diversity of medicinally plants of Ratanpur region of Bilaspur.

2. Material and methods
Ratanpur lies between $22^0 30' 51.20''$ N-$22^0 26' 71.58''$ N and $82^0 16' 66.18''$ E- $82^0 13' 14.28''$ E. Frequent field trips were arranged in order to collect the plant specimens. Plant explorations were carried out in different seasons of the year at some selected sites in Ratanpur region of Bilaspur district. The study includes an extensive and thorough field survey. Extensive collection of plants from January 2015 to December 2016. The plant specimens were freshly collected in the polythene bags. Plant specimens were dried with in wooden press. Further Herbarium sheets were prepared of these plant specimens according to the methods suggested

by Jain & Rao [6]. Herbarium sheets were deposited in Herbarium of Department of Botany, Guru Ghasidas Vishwavidyalaya. Photographic documentation of each medicinal plant was also done at fields. These specimens were identified with the help of available litreture [7-9]. Medicinal properties of the plant species have been described with the help of available litreture [10-12].

3. Result and Discussion

On the basis of extensive collection of medicinal plants from Ratanpur region of Bilaspur district it is resulted that 118 plant species belongs to 101 genera under 45 families of angiosperm were recorded from the forest of Ratanpur. Collected medicinal plants showed different habits that is herb, shrubs, climber & trees. All the reported plant species described with botanical name followed by local name, family, part used and their medicinal use have been summarized in Table 1. Plant species and Genera of different family have been showed in Table 2.Family wise distribution of reported plant is given in the Fig 1. Most of the family (29) were represented by only one species (Monospecific family). However, the families represented maximum number of medicinal plants are in the following order Euphorbiaceae (9 Species) > Caesalpiniaceae and Convolvulaceae (8 Species in each) > Mimosaceae and Fabaceae (7 species in each) > Asteraceae (6 species) > Amaranthaceae and Acanthaceae (5 species in each) > Verbenaceae and Capparaceae (4 species in each). Habit wise distribution of collected medicinal plants have been showed in Fig 2. It is noted that due to anthropogenic activities pressure increases on forest and forest products hence day by day forest area decreases. So far proper conservation planning is required to preserve the floral wealth of Ratanpur region. Proper identification of the medicinal and aromatic plant has a vital role in the utilization of this natural wealth and conservation of biodiversity in the state.

Table 1: Medicinal plants of the Ratanpur region.

S. N	Botanical name	Vernacular name	Family	Habit	Plant part used	Uses
1	*Abutilon indicum* (L.) Sweet	Kanghi	Malvaceae	Herb	Fruit	Diuretic, Laxative, Toothache
2	*Acacia catechu* (L.f.) Willd.	Khair	Mimosaceae	Tree	Leaf	Diarrhoea, Skin diseases, Toothache
3	*Acacia leucophloea* (Roxb.) Willd.	Rounjha	Mimosaceae	Tree	Bark	Diuretic, Purgative, Wound healing
4	*Acacia nilotica* (L.) Willd. Ex Delile subsp. Indica (Benth)Brenan	Babool	Mimosaceae	Tree	Leaf, Stem, Bark	Toothache, Wound healing
5	*Acalypha indica* L.	Khokali	Euphorbiaceae	Herb	Whole plant	Digestive disorder, Burn, Laxative
6	*Achyranthus aspera* L.	Chirchitta	Amaranthaceae	Herb	Whole plant	Purgative, Diuretic
7	*Adhatoda vasika* Medic.	Adusa	Acanthaceae	Shrub	Roots, leaves	Cough, Bronchitis, Jaundice
8	*Ageratum conyzoides* L.	Mahakaua	Asteraceae	Herb	Root, leaves	Cuts, Sores
9	*Ailanthus excelsa* Roxb.	Mahaneem	Simaroubaceae	Tree	Bark, Seed	Astringent, Blood dysentery
10	*Alangium salvifolium* (L.f.) Wang	Akol	Alangianaceae	Shrub	Leaves	Fever and rheumatic pains
11	*Albizzia procera* (Roxb.) Benth.	Safedsiris	Mimosaceae	Tree	Leaves, bark	Astringent, piles, diarrhoea
12	*Alternanthara sessilis* (L.) R.Br. ex DC.	Bala	Amaranthaceae	Herb	Whole plant	Galactogogue, Cholagogue
13	*Amaranthus spinosus* L.	Kantilli chaulai	Amaranthaceae	Herb	Root, leaves	Laxative, Menorrhagia, Gonorrhea, Night blindness
14	*Andrographis paniculata* (Burm.f.) Wall. Ex Nees	Chirayta	Acanthaceae	Herb	Leaves	Fever, Malaria
15	*Annona squamosa* L.	Sitaphal	Annonaceae	Shrub	Roots, leaves, fruit	Insecticide
16	*Antigonon leptopus* Hook. & Arn.	Bella	Polygonaceae	Climber	Whole plant	Stimulant, Cough
17	*Barleria prionitis* L.	Haldi bel	Acanthaceae	Herb	Leaves,bark	Cough, Toothache
18	*Bauhinia racemosa* Lamk.	Amta	Caesalpiniaceae	Shrub	Bark	Diarrhea
19	*Biophytum sensitivum* (L.) DC	Lajalu	Oxalidaceae	Herb	Root, leaves, seeds	Diuretic, Wounds, Cuts, Sores
20	*Boerhavvia diffusa* L.	Punarnava	Nyctaginaceae	Herb	Whole plant	Jaundice and Skin diseases
21	*Bombax ceiba* L.	Semal	Bombacaceae	Tree	Root, bark, gum	Stimulent, Tonic, Impotency
22	*Butea monosperma*(Lam) O. Ktze	Palash	Fabaceae	Tree	Seeds	Diarrhea and dysentery
23	*Caesalpinia bonduc* (L.) Roxb.	Kantala	Caesalpiniaceae	Shrub	Leaves, seed	Burn, Inflammation, Digestive
24	*Caesalpinia decapetala*(Roth) Alston	Chilati	Caesalpiniaceae	Shrub	Leaves, seed	Liver tonic, Skin disease
25	*Calotropis gigantia* (L.) R.Br. ex Ait	Aak	Asclepiadaceae	Shrub	Root, bark	Dysentery, Swelling, Boils, Scorpion bite
26	*Calotropis procera* (Ait.) R. Br	Madar	Asclepiadaceae	Shrub	Root, bark	Ring worm, Laxative, Joint pain
27	*Canna indicum* L.	Canna	Cannanaceae	Herb	Whole plant	Diarrhoea, Diuretic, Swelling, Ring worm
28	*Cardiospermum halicacabum* L.	Kanphuti	Sapindaceae	Climber	Leaf juice	Rheumatism, Earache
29	*Cassia fistula* L.	Amaltash	Caesalpiniaceae	Tree	Pulp, bark	Purgative, Antiviral, Fever

30	*Cassia occidentalis* L.	Senna	Caesalpiniaceae	Herb	Root, seed	Bronchitis, Cough, Asthma, wounds
31	*Cassia tora* L.	Charota	Caesalpiniaceae	Herb	Plant juice	Anti-parasitic to ringworm
32	*Catharanthus pusillus* (Murr.) G. Don	Sada bahar	Apocynaceae	Herb	Leaves	Antidiabetic, Emetic
33	*Celosia argentea* L.	Survali	Amaranthaceae	Herb	Seeds	Blood diseases, Mouth sores
34	*Chromolaena odorata (L.)* R.M.King & H.Rob.	Bagh dhoka	Asteraceae	Shrub	Whole plant	Skin diseases, Fever, Allergy
35	*Chrozophora rottleri* (Geis.) A. Juss.	Suryavanti	Euphorbiaceae	Herb	Stem, leaves	Laxative, Stomach pain, Dysentery
36	*Cleome chelidonii* L.f	Hurhur	Capparaceae	Herb	Leaves, flower	Ear trouble, Antiseptic, Boil, Wound
37	*Cleome gynandra* L.	Safed Hurhur	Capparaceae	Herb	Leaves, flower	Purgative, Urinary problem
38	*Cleome viscosa* L.	Hurhur	Capparaceae	Herb	Leaves, Flower	Joint pains, Carminative, Swellings
39	*Clerodendrum serratum* (L.) Moon	Arni	Verbenaceae	Shrub	Root, Leaves	Fever, Ophthalmic
40	*Clistanthus collinus* Benth. Ex Hook. F.	Karra	Euphorbiaceae	Tree	Leaves, Root, Fruit	Violent gastro-intestinal irritant
41	*Clitoria ternatea* L.	Aparajita	Fabaceae	Climber	Root, Seed	Purgative, Diuretic
42	*Coccinia grandis* (L.) Voigt.	Ban kundru	Cucurbitaceae	Climber	Leaves	Skin diseases, Diabetes
43	*Combretum roxburghii* Spreng.	Bellora	Combretaceae	Climber	Leaves	Skin diseases
44	*Costus speciosus* (Keonig.) J.E.Smith	Keo-kanda	Zingiberaceae	Herb	Rhizome	Burning, Skin disease. Bronchitis, Fever
45	*Crateava religiosa* Hook & Frost.	Varuna	Capparaceae	Shrub	Bark	Kidney stone, Fever, Gastric irritation
46	*Croton Bonplandianum* Baillon.	Van tulsa	Euphorbiaceae	Herb	Leaves, seed	Cough, Eczema,cuts ,Wounds
47	*Cryptostegia grandiflora*	Dudhi bel	Asclepiadaceae	Climber	Stem ,leaves	Stomachache, Intestinal worms
48	*Cuscuta reflexa* Roxb.	Amarbel	Convolvulaceae	Climber	Stem	Jaundice
49	*Cyperus rotundus*L.	Nagarmotha	Cyperaceae	Herb	Whole plant	Diarrhea, Anorexia, Blood disorder
50	*Datura metal* L.	Kala dhatura	Solanaceae	Shrub	Leaves, root	Fever, Wounds, Sores
51	*Datura stramonium* L.	Safed dhatura	Solanaceae	Shrub	Leaves, root	Boils, Asthma
52	*Delbergia sisoo* Roxb.	Sisoo	Fabaceae	Tree	Leaves,fruit	Leucoderma, Vitiligo
53	*Delonix regia* (Bojer ex Hook.) Rafin.	Gulmohar	Caesalpiniaceae	Tree	Leaves, Bark, Stem	Constipation, Arthritis, Diarrhoea
54	*Euphorbia hirta* L.	Dudhi	Euphorbiaceae	Herb	Plant juice	Worms, Cough, Asthma
55	*Evolvulus alsinoides* (L.) L.	Shankhpuspi	Convolvulaceae	Herb	Whole plant	Nervous debility, Memory loss
56	*Evolvulus nummalaris* (L.) L.	Vishnukrantha	Convolvulaceae	Herb	Whole plant	Dysentery, Heart burn
57	*Flacourtia indica* (Burm.f.) Merr.	Kakai	Salicaceae	Tree	Gum, Fruits	Jaundice, Enlarged spleen
58	*Gloriosa superba* L.	Kalihari	Liliaceae	Herb	Root	Leprosy, Snake bite
59	*Gomphrena celosioides* Mart.	kharki	Amaranthaceae	Herb	Whole plant	Ring worms, Skin diseases
60	*Gossypium hirsutum* L.	Kapsa	Malvaceae	Shrub	Flower, Leaves	Skin burn, Weakness
61	*Helicteres isora* L.	Marodphalli	Sterculiaceae	Shrub	Fruits, Bark	Diabetes , Stomach infections, Amoebicdysentery
62	*Heliotropium indicum* L.	Hathisund	Boraginaceae	Herb	Leaves	Diuretic, Boils
63	*Hibiscus subdarifa* L.	Patwa	Malvaceae	Herb	Leaves, Whole plant	Stomach infections
64	*Hygrophila auriculata* (Schum.) Heine	Gokula kanti	Acanthaceae	Herb	Leaves	Gonorrhoea , Urinary infections
65	*Hyptis suaveolans* (L.) Poit.	Van tulsi	Lamiaceae	Herb	Whole plant	Parasitical cutaneous diseases
66	*Ipomoea aquatica* Forssk.	Sag	Convolvulaceae	Climber	Leaves	Emetic, Purgative, Gonorrhea, Increase lactation
67	*Ipomoea cairica* (L.) Sweet	Neeli bel	Convolvulaceae	Climber	Leaves	Rheumatism, Inflammations
68	*Ipomoea carnea* ssp. fistulosa	Behaya	Convolvulaceae	Climber	Leaves, Stem juice	Joint pains, Leucoderma, Anti inflammatory
69	*Ipomoea hederifolia* L.	Lal pungli	Convolvulaceae	Climber	Leaves	Purgative, Constipation
70	*Ipomoea quamoclit* L.	Kamlata	Convolvulaceae	Climber	Plant juice	Piles, Dysentery,
71	*Jatropha curcas* L.	Ratan jot	Euphorbiaceae	Shrub	Plant juice	Eczema, Scabies, Ring worms
72	*Jatropha gossypifolia* L.	Lal bagranda	Euphorbiaceae	Herb	Whole plant	Analgesic, Wounds
73	*Kalanchoe pinnata* (Lam.) Pers.	Amar poi	Crassulaceae	Herb	Whole plant	Kidney stones, Insecticidal, Cough tonic
74	*Lagascea mollis* Cav.	Jharwad	Asteraceae	Herb	Leaf paste	Cuts, Wounds, Ear problems

75	*Lagerstromia indica* L.	Zarul	Lythraceae	Tree	Fruit, Seed	Diabetes, Obesity
76	*Lantana camara* L.	Ghaneri	Verbenaceae	Shrub	Whole plant	Carminative, Antiseptic
77	*Lawsonia inermis* L.	Mehndi	Lythraceae	Shrub	Leaves	Baldness, Liver disorders, Skin disease
78	*Leonatis nepetifolia* (L.) R. Br.	Bada guma	Lamiaceae	Herb	Whole plant,Leaves, fruit	Paralysis, Skin disease, Joint pain
79	*Mangifera indica* L.	Aam	Anacardiaceae	Tree	Fruit	Astringent, Anthelmintic
80	*Martynia annua* L.	Baghnakha	Martyniaceae	Herb	Juice, Leaves, Fruits	Epilepsy, Sore throat
81	*Melilotus alba* Desr.	Jungeli methi	Fabaceae	Herb	Whole plant	Dysentery, Cough, Asthma
82	*Mentha arvensis* L.	Pudina	Lamiaceae	Herb	Leaves	Acid reflux, Flatulence, Acne, Stomachache
83	*Mimosa pudica* L.	Chui mui	Mimosaceae	Herb	Root , Leaves, Seed	Allergy, Asthama, Baldness
84	*Mimusops elengi* Roxb.	Maul shri	Sapotaceae	Tree	Leaves, Fruits	Astringent, Diuretic, Fever
85	*Mirabilis jalapa* L.	Guli gulal	Nyctaginaceae	Herb	Root, Leaves	Purgative, Boils
86	*Moringa oleifera* Lam.	Sahjan	Moraceae	Tree	Fruits	Digestive, Stomach disorders
87	*Morus alba* L.	Shahtoot	Moraceae	Tree	Fruits, Leaves	Dizziness, Tinnitis, Weakness
88	*Murraya koenigii* (L.) Spreng.	Mithi neem	Rutaceae	Tree	Leaves	Insecticidal
89	*Nymphoides indica* (L.) Kuntze.	Kumudini	Menyanthaceae	Herb	Leaf juice	Fever, Dysentery
90	*Pergularia daemia* (Forsk.) Chiov.	Utran	Asclepiadaceae	Climber	Leaf juice	Rheumatic swellings, Asthma
91	*Phyllanthus amarus* Schum & Thorne.	Bhui amla	Euphorbiaceae	Herb	Whole plant	Jaundice, Liver disorder,
92	*Pithecellobium dulce* (Roxb.) Benth.	Ganga imli	Mimosaceae	Tree	Fruits	Stomach pain, Ringworms
93	*Plumbago zeylanica* L.	Chitrak	Plumbaginaceae	Herb	Plant juice	Dyspepsia, Paralyses, Piles
94	*Polygonum barbatum* L.	Packurmul	Polygonaceae	Herb	Root, Seed	Colic, Astringent
95	*Pongamia pinnata* (L.) Pierre	Karanj	Fabaceae	Tree	Bark ,Seed	Piles,Ulcer
96	*Ricinus communis* L.	Arand	Euphorbiaceae	Shrub	Seed oil	Purgative
97	*Rungia repens* L.	Kharmor	Acanthaceae	Herb	Whole plant, root	Anti-inflammatory
98	*Samanea saman* (Jacq.)Merr.	Gulabi siris	Mimosaceae	Tree	Root paste	Diarrhoea, Cough, Intestinal ailments
99	*Schleichora oleosa* (Lour.)Oken	Kusum	Sapindaceae	Tree	Fruit	Cough, Skin disease
100	*Semecarpus anacardium* L. f.	Bhelwa	Anacardiaceae	Tree	Seed	Nervous debility
101	*Sesbania sesban* (L.) Merr.	Jayanti	Fabaceae	Shrub	Bark, Seed	Astringent,Diarrhoea
102	*Shorea robusta* Gaertn. F.	Sarai	Dipterocarpaceae	Tree	Resin	Astringent, Dysentery
103	*Solanum torvum* Swartz.	Bhurat	Solanaceae	Shrub	Plant juice, leaves	Sedative, Digestive, Diuretic
104	*Solanum xanthocarpum* Schrad & Wendl.	Bhatkataiya	Solanaceae	Herb	Leaves, Root	Respiratory disorders, Snake bite
105	*Sonchus arvensis* auct.	Dudhi	Asteraceae	Herb	Leaf juice	Asthma, Cough, Anti inflammatory
106	*Sphaeranthus indicus*L.	Mundi	Asteraceae	Herb	Leaf juice	Liver, Gastric disorders
107	*Spilanthes paniculata* Wall. Ex DC.	Akarkara	Asteraceae	Herb	Flowers	Anaesthetic , Toothache
108	*Sterculia urens* Roxb.	Kulloo	Sterculiaceae	Tree	Gum	Leucoderma, Peptic ulcer
109	*Syzygium cumini* (L.) Skeels	Jamun	Myrtaceae	Tree	Bark, Leaf juice, Fruits	Diarrhoea, Dysentery
110	*Tamarindus indica* L.	Imli	Caesalpiniaceae	Tree	Fruit,Seeds	Cough, Cold
111	*Tectona grandis* L.f.	Sagaon	Verbenaceae	Tree	Bark extract	Leucorrhoea
112	*Tephrosia purpurea* (L.) Persoon	Sarponkha	Fabaceae	Herb	Root juice	Dyspepsia, Chronic diarrhoea
113	*Terminalia alata* Heyne ex Roth	Saja	Combretaceae	Tree	Bark	Cough, Cold
114	*Terminalia arjuna* (Roxb.) Wight & Arn.	Arjun	Combretaceae	Tree	Bark	Heart disease
115	*Typha angustifolia* L.	Hathighas	Typhaceae	Herb	Rhizome	Astringent, Diuretic
116	*Urena lobata* L.	Banokra	Malvaceae	Herb	Leaves	Dry cough, Rheumatism
117	*Vitex negundo* L.	Nirgundi	Verbenaceae	Shrub	Leaves, Stem	Toothache, Dysentery, Skin disease
118	*Ziziphus mauritiana* Lam.	Ber	Rhamnaceae	Tree	Bark	Blood purifier

Table 2: No. of Species and Genera of different families.

Family	Plant species	Genera
Acanthaceae	5	5
Alangiaceae	1	1
Amaranthaceae	5	5
Anacardiaceae	2	2
Annonaceae	1	1
Apocynaceae	1	1
Asclepiadaceae	4	3
Asteraceae	6	6
Bombacaceae	1	1
Boraginaceae	1	1
Caesalpiniaceae	8	5
Cannanaceae	1	1
Capparaceae	4	2
Combretaceae	3	2
Convolvulaceae	8	3
Crassulaceae	1	1
Cucurbitaceae	1	1
Cyperaceae	1	1
Dipterocarpaceae	1	1
Euphorbiaceae	9	8
Fabaceae	7	7
Lamiaceae	3	3
Liliaceae	1	1
Lythraceae	2	2
Malvaceae	4	4
Martyniaceae	1	1
Menyanthaceae	1	1
Mimosaceae	7	5
Moraceae	2	2
Myrtaceae	1	1
Nyctaginaceae	2	2
Oxalidaceae	1	1
Plumbaginaceae	1	1
Polygonaceae	2	2
Rhamnaceae	1	1
Rutaceae	1	1
Salicaceae	1	1
Sapindaceae	2	2
Sapotaceae	1	1
Simaroubaceae	1	1
Solanaceae	4	2
Sterculiaceae	2	2
Typhaceae	1	1
Verbenaceae	4	4
Zingiberaceae	1	1

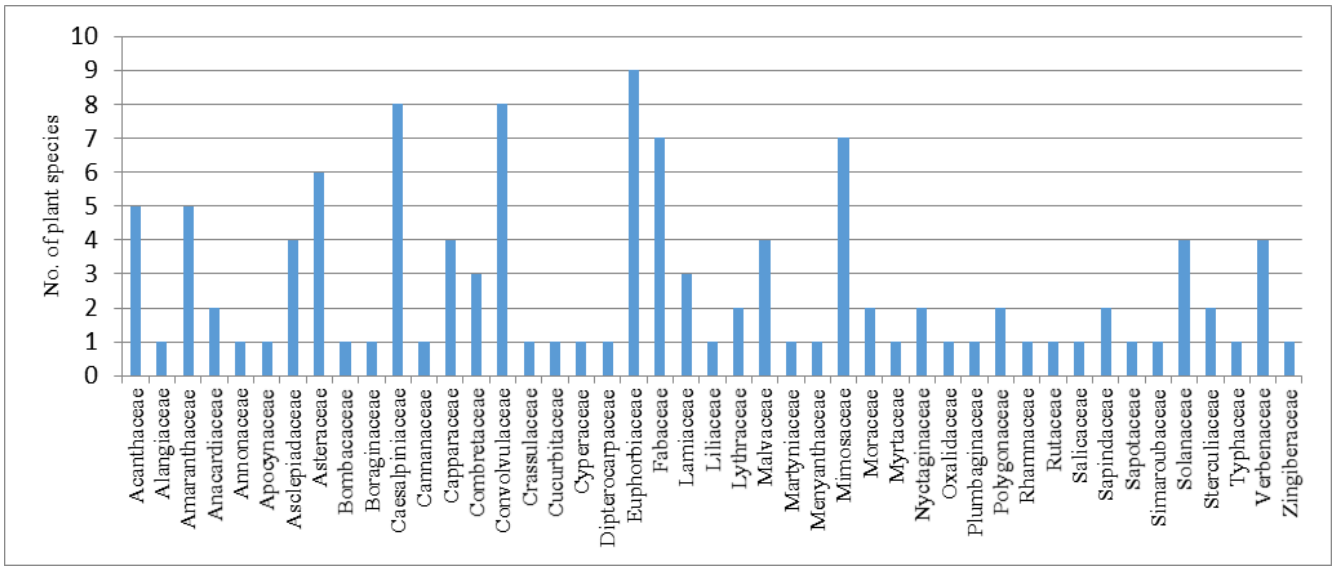

Fig 1: No. of plant species belonging to different families.

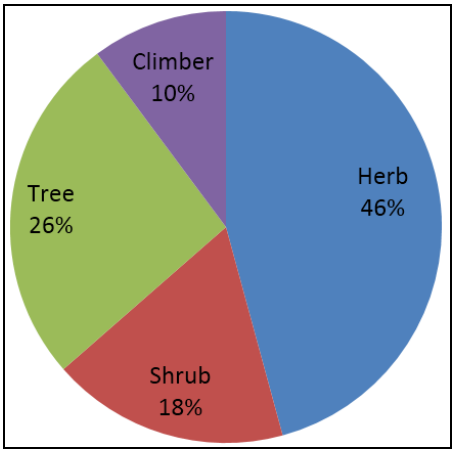

Fig 2: Habit wise distribution of medicinal plants of Ratanpur region.

4. Acknowledgement
The authors are thankful to Head, department of Botany, Guru Ghasidas Vishwavidyalaya for encouragement and providing basic facilities during present investigation. Thanks are also extended to research scholars of Bio resource tech Lab of department of botany, Guru Ghasidas Vishwavidyalaya for their kind help during field trips.

5. References

1. Adhikari BS, Babu MM, Saklani PL, Rawat GS. Medicinal plants diversity and their conservation status in wildlife institute of India (WII) campus, Dehradun. Ethnobotanical Leaflets 2010; 14:46-83.
2. Patel DK. Medicinal plants in G.G.V Campus, Bilaspur, Chhattisgarh in central India, International journal of medicinal Aromatic plants 2012; 2(2):293-300.
3. Sandhya S, Sai Kumar P, Vinod KR, Banji D, Kumar K.Plant as potent anti-diabetic and wound healing agents a review. Hygeia, Journal of Drugs and Medicines 2011; 3:11–19.
4. Schippmann U, Leaman DJ, Cunningham AB. Impact of cultivation and Gathering of Medicinal Plants on Biodiversity: Global Trends and Issues. In (FAO). Biodiversity and the ecosystem approach in agriculture, forestry and fisheries. Satellite event on the occasion of the ninth regular session of the commission on genetic resources for food and agriculture. Rome. 2002, 12-13 October.
5. Sinha MK. Medicinal plants in Bhupdeopur forest, Raigarh Chhattisgarh in central India. International journal of medicinal aromatic plants. 2014; 4(1):6-15.
6. Jain SK, Rao RR. Handbook of Field and Herbarium Methods. Goyal Offsets, New Delhi, India. 1976.
7. Panigrahi G, Murthi SK. Flora of Bilaspur. Botanical survey of India, Calcutta. 1989, 1.
8. Verma DM, Pant PC, Hanfi MI. Flora of Durg, Rajnandgaon and Raipur. Botanical survey of India, Calcutta, 1985.
9. Verma DM, Balakrishnan NP, Dixit RD. Flora of Madhya Pradesh. Botanical Survey of India, Calcutta, 1993, 1.
10. Pullaiah T. Encyclopedia of world Medicinal Plants. Regency publication, patel Nagar, New Delhi, 2006, 2.
11. Kirtikar KR, Basu BD. Indian Medicinal Plants. Lalit Mohan, Allahabad, India. 1984, 1–4.
12. Jain SK. Dictionary of Indian Folk Medicine and Ethnobotany. A reference manual of man-plant relationships, ethnic groups and ethnobotanists in India. Deep Publications, New Delhi, India. 1991.