

Study on medicinal plants with special reference to family Asteraceae, Fabaceae and Solanaceae in G.G.V-Campus, Bilaspur (C. G.) in central India.

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Abstract

Present study deals with the study on important Medicinal plants diversity and documentation in G. G. V. – (A Central University) Bilaspur (C. G.). Many of the Medicinal plants have been recorded. Out of them a total number 36 species belonging to the family Asteraceae, Fabaceae and Solanaceae were listed. 10 species of Asteraceae, 17 species of family Fabaceae and 09 species of Solanaceae were observed. Highest percentage distribution of the plants shown by the family Fabaceae, whereas among three targeted families Solanaceae registered minimum % distribution in the university campus. After survey of area Medicinal plants were collected and categorized based on their related family and further scientific informations like Botanical name, Family, Habit, Parts used, Phyto-chemicals, Use and Propagation were noticed following literatures. The recorded data on Medicinal flora are listed in Tables and discussed furthermore.

Keywords: Field observation, Medicinal plants, Phyto – chemicals, Plant diversity.

INTRODUCTION

Plants are a major source for their multifold significance for human beings. Plants play important role not only in maintaining life system on the earth but also as a source of economically important products. On the basis of geographical area and climatic condition plants survive to their specific habitat. Medicinal plants are the plants with potential capacity for treatment of varied diseases and are using by peoples from past (Rawat and Choudhury 1998).

Knowledge on the Medicinal plants provides a new way for modern drugs development (Brahman, 2000). It is estimated that around of 80 % peoples from the world utilize the plants as a source of medicine for different diseases (Kamboj, 2000). Diversity of the species on earth regulates the complexity and interaction between nature and species (Mohammed *et al*, 2000).

Destruction of natural habitat by human activities or by nature, Overexploitation, Continuous excess utilization etc. causes threats to biological species. Hence Biological species are continuously losing from nature over the world (Gaur,1982). Most medicinal plants collected from wild some are cultivated and many were threatened by overgrazing and habitat degradation etc. (WHO, 1993)

For sustainable management of Medicinal plants there is an immediate need for powerful efforts to conserve them. Orientation of peoples towards biodiversity conservation is important for protection of the species (Mishra *et al*, 2003).

Due to low cost, no side effect and easily availability of the Medicinal plants their utilization is increasing day by day. Many diseases can be treated using Medicinal plants. Tribals of the

Chhattisgarh having rich traditional knowledge on Medicinal plants. Around 2500 species of plants are used as a source of Herbal medicine (Pei, 2001). Medicinal plants utilization in the treatment of different diseases studied by Ambasta (1986).

Plants are a major source of medicines used in traditional medicine for the treatment of many diseases (Bako *et al.*, 2005). India is also one among the 12-mega biodiversity centers in the world including around 47,000 plant species. India is well known as a rich center of plant diversity among the world. Medicinal plants diversity is also remarkable as in the country more than 8000 Medicinal plants species are utilized for the treatment of various diseases.

Ethno-botany focus on the knowledge of traditional use of the Medicinal plants by local peoples (Hodges and Bennett, 2006). On the basis of report that diseases and disorders are increasing caused by synthetic drugs which focuses on utilization of traditional medicine (Ghule and Patil, 2001). In the term of Medicinal plants utilization India is a leading country over the world. Around 2000 Plant species are used in ayurvedic medicine system in India.

Chhattisgarh is an Herbal state with enriched diversity of the biological species. Bilaspur is located in South-Western part of the state with presence of many valuable plants including Medicinal plants. This paper is an attempt to document the Medicinal plants in the campus with special reference to the family Asteraceae, Fabaceae and Solanaceae individually.

MATERIALS AND METHODS

Current research is based on periodic extensive and intensive survey on the campus during 2009-2010. The aim of study was to evaluate and listing of the Medicinal plants of three families like Asteraceae, Fabaceae and Solanaceae.

Field observations were made for collection of data on floral diversity on Medicinal plants in university campus around 700 acres.

Observations were done inside and outside of the Medicinal plants gardens over the campus for collection of the Medicinal plants. Recorded Medicinal plants were identified and listed following

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literatures such as including flora/Encyclopaedia like De. L. C. (2005), Sharma R. (2003), Trivedi P. C. (2006) and Pullaiah, T. (2006).

RESULTS AND DISCUSSION

Findings of the present study are listed in Table -01, 02 and 03. On the basis of field observations taxonomically it is resulted that within the wide group of Medicinal plants there are 36 Medicinal plants are categorized based on their family such as Asteraceae (10), Fabaceae (17) and Solanaceae (09) were found in the campus.

Medicinal plants showed their variations in habitat as Herbs, Shrubs, and Trees etc. 10 plants of herbaceous in nature observed for family Asteraceae, 09 for Solanaceae whereas out of 17 species of family Fabaceae 07 Herbs, 01 Shrub and 07 Tree species has been occurred. 02 plants of Herbaceous and Climbing nature were also observed in the family Fabaceae.

To overcome of above findings Medicinal plants are randomly distributed in the campus. Highest % distribution showed by the members of the family Fabaceae in second position the Asteraceae members are recorded. Family Solanaceae showed their minimum presence in the campus over thee studied families.

Herbaceous plants are main components among Shrubs and Trees etc. in the study area. All the studied Medicinal plants are propagated by their Seeds. Only one plan species *Stevia rebaudiana* (Bert.) Bertoni. (Asteraceae) showed their propagation by stem cutting.

The current study revealed that many of the observed plant species are of great significance for the curing different diseases. This documentation of Medicinal plants can play a remarkable role not only for knowledge on Medicinal plants but also for their further conservation.

Table 1. Medicinal plants of family Asteraceae, Fabaceae and Solanaceae in G. G. V. (A Central university) Campus, Bilaspur (C. G.) India.

S. No.	Botanical Name	Common/ Local Name	Family	Habit	Useful parts	Phyto-chemicals	Major Use	Propagation
1	<i>Abrus precatorius</i> Linn.	Ratti, Gunja	Fabaceae	Herb/Climber	Root, Seed	Abrol, Alkaloids, Abrin, Abrine,	Purgative, Permanent birth control, Analgesic, Anthelmintic, Urinestimulant, Leucoderma	Seed
2	<i>Acacia catechu</i> (L.F.) Willd.	Khair	Fabaceae	Tree	Leaf, Stem Bark,	Catechin, Catechutanic Acid, Tannin,	Toothache, Headache, Diarrhoea, Cough, Digestive, Skin disease,	Seed
3	<i>Acacia nilotica</i> (L.) Willd.	Babool	Fabaceae	Tree	Leaf, Stem Bark,	Polyphenolic compounds,	Toothache, Dysentery, Antiseptic for wounds	Seed
4	<i>Aegaratum conyzoides</i>	Goatweed,	Asteraceae	Herb	Leaf,	Eugenol, Flavone-s, Ageatochromene,	Treatment of cut and sores, Piles, Wound healing	Seed
5	<i>Albizia leebek</i> Benth.	Siris	Fabaceae	Tree	Leaf, Seed,	Saponin, Tannin,	Antidote, Saponin for snake position, Skin disease, Asthma, Piles, Diarrhoea	Seed
6	<i>Anacyclus pyrethrum</i> Linn.	Akarkara	Asteraceae	Herb	Root, Flower	Essential oil-Cineol, Triterpenes, Camphor, b- Sitosterol,	Dental pain, Tonsillitis, Diarrhoea, Sexual weakness	Seed
7	<i>Blumea lacera</i> (Burm. F.) DC.	Kakronda	Asteraceae	Herb	Leaf	Camphor, Flavonoids, Sesquiterpenoids,	Bleeding control, Burning, Diuretic	Seed
8	<i>Bauhinia variegata</i> Linn.	Kachnar	Fabaceae	Herb	Leaf, Seed	Sigmasterol, b – Sitosterol,	Diarrhoea, Skin diseases, Diabetes, Inflammations, Piles, Worm	Seed
9	<i>Butea monosperma</i> (Lamk.) Taub.	Palas	Fabaceae	Tree	Bark, Leaf, Flower, Seed, Gum,	Butrin, Palssonin, Glycocides, b - Sitosterol,	Urinary disorder, Worms, Diabetes, Inflammation, Skin diseases	Seed
10	<i>Caesalpinia crista</i> Linn.	Fever nut	Fabaceae	Shrub	Leaf, Seed	d-Caesalpin,	Burn, Inflammation, Digestive, Stomachie, Livertonie, Skin disease,	Seed
11	<i>Capsicum annum</i> Linn.	Mirch	Solanaceae	Herb	Fruit	Capsicin, Capsaicin,	Vitamin A and C, Carminative, Stimulator	Seed
12	<i>Cassia fistula</i> Linn.	Amaltas	Fabaceae	Tree	Pulp, Seed, Bark	Anthroquinon, Tannin,	Purgative, Antiviral, Tonic, Boil, Ringworm	Seed
13	<i>Cassia alata</i> Linn.	Dadmari	Fabaceae	Herb	Leaf, Seed	Anthroquinone,	Asthma, skin	Seed

						b- Sitosterol,	diseases, Ringworm, Antidote	
14	<i>Cassia tora</i> Linn.	Charota	Fabaceae	Herb	Leaf, Seed	d-manitol, Anthroquinone, b- Sitosterol,	Dermatiosis, cough and respiratory disease, Laxative, Carminative, Skin disease	Seed
15	<i>Cassia occidentalis</i> Linn.	Senna	Fabaceae	Herb	Root, Seeds, Leaves	Glycocides, Anthroquinone, b- Sitosterol,	Bronchitis, Cough, Asthma, Wounds , Antidote, Skin disease, Fever, Allergy	Seed
16	<i>Clitoria tematea</i> Linn.	Aparajita, Butter fly Pea,	Fabaceae	Herb/Climber	Root, Leaf, Seed,	Anthocyanins, Seroids Triterpenoids, Glycosides,	Tonsillitis, Leucoderma, Cough	Seed
17	<i>Dalbergia sissoo</i> Roxb.	Shisham	Fabaceae	Tree	Leaf, Stem,	Dalberginone, Dalbergin, o-Glycocide, Sissotrin,	Skin disease, Gonorrhoea, Dysentery, Itching,	Seed
18	<i>Datura innoxia</i> Mill.	Dhatura	Solanaceae	Herb	Seed	Alkaloids, Atropine,	Pre-anaesthetic in surgery, in ophthalmology	Seed
19	<i>Datura metal</i> Linn.	Dhatura	Solanaceae	Herb	Leaf, Seed	Scopolamine, Hyoscine, Atropine,	Nacrotic, Asthma, Leprosy	Seed
20	<i>Datura stramonium</i> Linn.	Dhatura	Solanaceae	Herb	Leaf, Seed	Alkaloids, Scopolamine, Hyoscine, Atropine,	Arthritis, Fever, Ulcer, Skin diseases, Cough, Asthma, Muscle pain	Seed
21	<i>Desmodium trifolium</i> Linn.	Nilamparanda	Fabaceae	Herb	Leaf	b-Phenylamine, Trigonelline, Alkaloids,	Antidote, Diuretic, Carminative,, Tonic, Diarrhea, Skin disease, Wounds	Seed
22	<i>Eclipta prostrata</i> Linn.	Bhringraj, White head,	Asteraceae	Herb	Leaf	Sigmasterol, b- Amyrin, Menthol,	Asthma, Hair shampoo, Hair tonic, Anthelmintic	Seed
23	<i>Mimosa pudica</i> Linn.	Chuimui	Fabaceae	Herb	Whole plant	b-Amyrin, b-Sitosterol,	Allergy, Asthma, Ulcer, Bleeding,	Seed
24	<i>Physalis minima</i> Linn.	Wild cape gooseberry	Solanaceae	Herb	Whole plant	Flavonides, Alkaloids, Polyphenols, Sterols,	Burning , Cough, Inflammation, Ulcer,	Seed
25	<i>Pongamia pinnata</i> (L.) Merr.	Karanj	Fabaceae	Tree	Seed	Bitter fatty oil, Karanjin, Pongam oil,	Skin disease, Leucoderma, Carminative, Parasiticide, Bleeding	Seed
26	<i>Solanum indicum</i> Linn.	Wild Brinjal	Solanaceae	Herb	Leaf, Fruit,	Solasodine,	Cough, Fever, Asthma, Carminative,	Seed
27	<i>Solanum nigrum</i> Linn.	Makoi	Solanaceae	Herb	Whole plant	Glycocides, Alkaloids, Solasonine,	Boils, Swelling, Diuretic, Antidiabetic, Laxative, Piles, Urinary disease, Liver disorder,	Seed
28	<i>Solanum xanthocarpum</i> L.	Wild egg plant	Solanaceae	Herb	Whole plant	Solasodine, Solasonine, Carpesterol,	Anti-inflammatory, Stomachic, Diuretic, Asthma, Muscle pain, Antibacterial property	Seed
29	<i>Spilanthes aemella</i> Linn.	Toothache Plant	Asteraceae	Herb	Root, Flower	Spilanthol,	Tooth trouble, Inflammation of jaw, Fever	Seed
30	<i>Stevia rebaudiana</i> (Bert.) Bertoni.	Sweet leaf, Sugar plant,	Asteraceae	Herb	Leaf, Stem,	Terpenes Flavonoids, Glycosides, Stevioside, Steviolbioside, Rebausiosides,	Antimicrobial, Diuretic, Diabetes, High B.P., Cardiotonic, Sugar substitute	Stem cutting
31	<i>Tagetes erecta</i> Linn.	Genda	Asteraceae	Herb	Leaf, Root,	Essential oil, Limonene, Caryophyllene,	Insecticidal prosperity, Muscular pain, Boil, Stomachic, Scorpion bite,	Seed

							Bleeding control, Wound treatment	
32	<i>Tagetes patula</i> Linn.	Genda	Asteraceae	Herb	Leaf, Root,	Essential oil, Limonene, Caryophyllene,	Insecticidal prosperity, Muscular pain, Boil, Stomachic, Scorpion bite, Bleeding control, Wound treatment	Seed
33	<i>Tephrosia purpuria</i> (L.) Pers.	Sarpankha	Fabaceae	Herb	Whole plant	b-Sitosterol, Glycocides, Tephrosin., Purpurin- A, Purpurin- B,	Diarrhoea, Asthma, Ulcer, Laxative, Blood, Urinary problem, Stimulant, Intestinal worm	Seed
34	<i>Tridax procumbans</i> Linn.	Coat button	Asteraceae	Herb	Leaf,	Flavonoids, b- Sitosterol, Luteolin, Campesterol, Sterols,	Blood clotting, Boil, Wound treatment,	Seed
35	<i>Withania somnifera</i> Dunal.	Ashwagandha	Solanaceae	Herb	Leaf , Root	Withanine, Somniferene, Phytosterol,	Ulcer, Female disorder, Nerve problem, Arthritis. Stimulant, Diuretic, Cough	Seed
36	<i>Xanthium strumarium</i> Linn.	Adhasis	Asteraceae	Herb	Root, Fruit	Alkaloids, Sesquiterpene, Xanthanin,	Skin disease, Bleeding, Insect bite, Diuretic, Urinary problem	Seed

Table 2.Family/Habit wise Summary of Medicinal plants in the G. G.V., Bilaspur

Sl. No	Family	Total Plant species	Herb	Shrub	Tree	Herb/Climber
1	Asteraceae	10	10	-	-	-
2	Fabaceae	17	07	01	07	02
3	Solanaceae	09	09	-	-	-
Total Plant Species		36	26	01	07	02

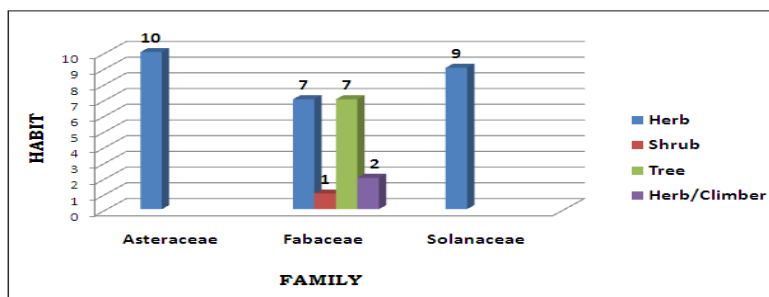
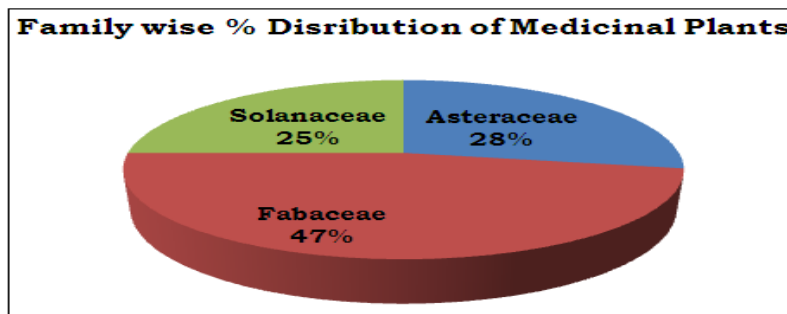


Table 3.Family wise Summary of Medicinal plants in the G. G.V., Bilaspur

S. No	Family	% Distribution of Medicinal Plants
1	Asteraceae	27.78
2	Fabaceae	47.22
3	Solanaceae	25.00
Total		100.00



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