

Survey of Medicinally Important Roadside Vegetation of Bhilai Township

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Abstract: The survey report shows that 927 medically important plant species were present at roadside of Bhilai township plant species found in following manner 53% > 27% > 12% > 8% for herb, tree shrubs and climber vegetation at road side of Bhilai township. It was also noted that family Asteraceae and family Fabaceae shows maximum plant species in all categories. It was observed that leaves, root, stem, bark are used for various ailments. Whole part of the plant was used maximum for treatment than leaves, bark, fruit and seed were used as medicine survey indicates that the knowledge of indigenous medicinal plants are not sufficient so, there is urgent need of detailed experiments and investigations.

Keywords: Weed flora, medicinal properties

1. Introduction

Chhattisgarh a nascent state of India was born on November 1st 2001; It lies in the eastern part of India between 17°46' N 24.06N latitude and 80.15 E and 84°51 E longitude. Our forest is 44% of the 56, 44859 km. The state comes under Deccan biogeographically zone with its unique and rich biological resources and various medicinal herbal flora. The rainfall depends on the southwest monsoon and average between 1200 mm. and 1600 m. Bhilai is an industrial city having lush green as compared to other industrial cities of Chhattisgarh because many trees are planted either side of the most of the roadside and open barren land of Bhilai, a two decade age. So Bhilai Nagar is famous for wide diversity of herbal and food trees also. In the written record, the study of herbs dates back over 5000 years to the Sumerian who described well established medicinal uses for plants. Ancient Egyptian medicine of 1000 BC is known to have used wild flora and other plants. Emperor Ashoka made a use of tree plantation on either side of the road. 14th century Emperor Feroz Shah and Tughlak Shah had also made law for tree plantation on both sides of the road.

Several workers studied the medicinal properties of plants via Gangwar *et al.* (2010), Pati and Agrawal (2010), Sinha (2013), Arvind *et al.* (2005), Pandey and Khan (2014), Pandey *et al.* (2014), Pandey and Bhandari (2014) to understand the uses of plant species to cure various ailments. In Bhilai Nagar numerous trees were planted by State Forest Department on both sides of the road and barren area of the city. The existing trees and naturally grown up wild weed flora around these trees are not well documented. It has become a normal sight to see that large trees being cut uprooted or falling victims to termite and fungal attacks. No

one seems to care about them. Therefore the present survey deals the actual status of plant species and their medicinal properties which are very essential to make more sense to monitor this green public wealth.

2. Material and Method

In the present study, Line-transect method was used for sampling, the trees and associated weed plants and shrubs and herbs. Whole city was divided into ten segments. Only angiosperm plants of each unit area had been studied. Collected plants were brought to the laboratory for botanical diagnosis, their detailed information pertaining to the botanical name, Vernacular name, Family name and Medicinal uses etc. The actual plant health status was also recorded. The collected plant specimens were maintained in the form of Herbarium.

3. Finding and Observation

The present study investigated that total 927 plant species were recorded. In which 100 plants have curative properties belonging to 33 families of trees, shrubs including small trees. Herbs and climbers in different study areas of Bhilai Nagar. Survey report shows that 53% of herbs, 27% trees, 12% shrubs & 8% climbers are present in which *Cuscuta reflexa* is a parasitic plant *Tinospora cardifolia* is a Lianas species other climbers are *Asperagus rugosus*, *Abrusciscus precatorius* are commonly found in the area on the basis of plant parts used. It was observed that leaves, roots, stem bark are used for various ailments whole part of the plant is used maximum for treatment than leaves, bark, fruit and seed are used as medicine.

Table 1: Systematic Position and Enumeration of Herbs and their Uses

S. N	Botanical Name	Vernacular Name	Family	Plant Part(S) Used	Treatment
1.	<i>Parthenium hysterophorus</i> Linn.	Gajar ghans	Asteraceae	Leaves, root	Skin problem, allergy
2.	<i>Mimosa pudica</i> (L)	Chui- mui	Fabaceae	Whole plant	Bile & liver problem
3.	<i>Achyranthus aspera</i> Linn	Latjeera	Amaranthaceae	Whole plant	Dissolve stone, piles
4.	<i>Biophytum senivatum</i>		Oxaqlidaceae	Leaves	Diuretic
5.	<i>Euphorbia hirta</i>	Dudhi	Euphorbiaceae	Whole plant	Gynec problem
6.	<i>Merremia tridentata</i>	Parasrani	Fabaceae	Leaves	Epilepsy
7.	<i>Justicia tronquobanensis</i>		Malvaceae		Wound, cancerous
8.	<i>Euphorbia thimifolia</i> wall		Euphorbiaceae	Whole plant	Tonic, ear bleeding
9.	<i>Euphorbia microphila</i>		Euphorbiaceae	Whole plant	Stomach problem
10.	<i>Tridax procumbans</i> (linn)		Asteraceae	Whole plant	wound bleeding
11.	<i>Ocimum Americana.</i> L.	Ban tulsi	Lamiaceae	Whole plant	Scorpion sting, eczema, B.P
12.	<i>Ocimum sanctum.</i> L. mant	Tulsi	Lamiaceae	Whole plant	Fever, malaria, cough, worms, B.P
13.	<i>Sida acuta, Burn</i> (kareta)		Malvaceae	Leaves	Diabetes, dysentery
14.	<i>Sida cardifolia.</i> L.	Bariana	Malvaceae	Leaves	Nerve weakness
15.	<i>Tephrosia purpurea.</i> L.	Sarpankha	Fabaceae	Whole plant	Anemia, fever
16.	<i>Sphaeranthus indicus.</i> L.	Gorakh – mundi	Asteraceae	Leaves, flower	Tooth ache
17.	<i>Sida rhombifolia.</i> L.	Bala	Malvaceae	Whole plant	Cold cough, head ache, inflammation
18.	<i>Phyllanthus niruri</i> webster	Bhumi amla	Euphorbiaceae	Whole plant	jaundice
19.	<i>Hemidesmus indicus</i> R. Br.	Anat mool	Asclapiaceae	Whole plant	Blood purifier, skin disease
20.	<i>Aloevera . 1.</i> Burvi	Ghee kuari	Liliaceae	Whole plant	Increase memory, stomach problem
21.	<i>Eclipta prostrate.</i> L. urban	Bhrangraj	Asteraceae	Whole plant	Cough cold, eczema, epilepsy
22.	<i>Calotropis procera</i> Ait. R. Br.	Oak	Asclapiaceae	Whole plant	Eye disease, head ache
23.	<i>Boerhaavia diffusa.</i> L.	Punarnava	Nyctaginaceae	Whole plant	Insect bite, cuts & wounds, fever
24.	<i>Argemone maxicana.</i> L.	Pili kateri	Papavaraceae	Leaves, stem, root	Diuretic, worms, cuts & healing
25.	<i>Centella asiatica.</i> L. urban	Bhramha	Apocynaceae	Whole plant	Brain tonic, clear vision
26.	<i>Zornia gibosa.</i> L.		Fabaceae	Whole plant	Sedative
27.	<i>Cynodon dactylon.</i> L.	Dube grass	Poaceae	Leaves	Vomiting
28.	<i>Butmea lacera</i> (Burm.)	Cucurmeda	Asteraceae	Leaves	Arthritis
29.	<i>Abutilon indicus.</i> G. don	Kanghi	Malvaceae	Leaves	Cold, cough, indigestion
30.	<i>Bacopa monieni</i> Zinn.	Nir bhranhmi	Scrophulari-aceae	Leaves, root (whole plant)	Brain tonic, nerve improvement
31.	<i>Oxalis corniculata.</i> L.	Teen patiya	Oxalidaceae	Whole plant	Piles, whole plant is good appetizer
32.	<i>Desmodium teifolium.</i> DC.		Fabaceae	Whole plant	Dysentery, stone removal
33.	<i>Rungia parviflora.</i> L.		Acanthaceae	Whole plant	Small pox
34.	<i>Indigofera tinctoria.</i> L.		Fabaceae	Whole plant	Bronchitis, jaundice
35.	<i>Datura alba</i> L.	Datura	Solanaceae	Leaves	Asthma, skin problem
36.	<i>Cleome viscosa</i> Linn		Caparidaceae	Whole plant	Cough, jaundice
37.	<i>Andrographis paniculata</i> (Nees)	Chirayta	Acanthaceae	Leaves	Vermicide, cold, cough
38.	<i>Alternanthera sessilis.</i> L.		Amaranthaceae	Whole plant	Eye- complication
39.	<i>Barlaria primonitis.</i> L.	Kantaphool	Acanthaceae	Leaves	Leucodermia
40.	<i>Vernonia cinerea.</i> L.	Bunjatangi	Asteraceae	Leaves	Fileria, leucoderma
41.	<i>Cyperus escaletus</i> L.	Month	Cyperaceae	Tuber, root	Eye disease, leprosy
42.	<i>Conchus arvensis</i>		Asteraceae	Leaves	Cuts & wounds
43.	<i>Eleusine coracava.</i> L.		Poaceae	Whole plant	Grain is acrid tonic, leprosy
44.	<i>Hiptis sauevolens.</i> L.	Bantulsa	Labiaceatae	Whole plant	Pain
45.	<i>Convolvulus piuricaulis.</i> L.	Shankh pushpi	Convolvulaceae	Whole plant	Pain, inflammation, memory
46.	<i>Amorphophallus campanulatus</i> Linn	Suran kanda	Araceae	rhizome	Increase metabolic rate
47.	<i>Xanthium strumarium</i> Linn	Gokhra	Asteraceae	Whole part of plant	Tooth ache, head ache, malaria

Table 2: Systematic Position and Enumeration of Shrubs and their uses

S. No	Botanical Name	Vernacular Name	Family	Plant Part Used	Treatment
1.	<i>Thevatia nerifolia</i>	Kaner	Apocynaceae	Whole plant	dysentery
2.	<i>Acacia nilotica</i> . L. Del.	Babool	Fabaceae	Twig, bark	Twig commonly used tooth brush, piles
3.	<i>Zizyphus mauritiana</i> Lam.	Ber	Rhumanaceae	Whole plant (except root)	Head ache, dysentery
4.	<i>Solanum nigrum</i> .L.	Makoi	Solanaceae	Whole plant	Constipation, jaundice, piles
5.	<i>Nerium oleander</i> . L.	Karber, kaner	Apocynaceae	Fruit & leaves	Cuts & wounds, leucoderma
6.	<i>Vitex negundo</i> . L.	Nirgundi	Verbenaceae		Cold cough, indigestion
7.	<i>Jatropha gossupifolia</i> . L.	Ratanjot	Euphorbiaceae	Seed	Abdominal pain, nerve disorder
8.	<i>Thespesia lampus</i> L.	Kapas	Malvaceae	Fruit, leaves	Swelling, arthritis
9.	<i>Bougavilia septabilis</i>	Kagaj phool	Nyctaginaceae	Leaves, flower	Diabetes
10.	<i>Anvona squamosa</i>	Sitaphal	Anacandaceae	Seed, leaves, bark, fruit	Snake bite, abortion, tooth ach
11.	<i>Lantana camera</i> Linn	Ghneri, chotra	Verbenaceae	Whole plant	bronchitis
12.	<i>Acacia Arabica</i> L.	Subabool	Fabaceae climber	Whole plant	Tooth cleaner, cough, piles
13.	<i>Cissus quadrianularis</i>	Hadjod	Vitaceae	Whole plant	Bone fracture, animal bite
14.	<i>Tinospora cardifolia</i> (wild) Miers	Giloe	Menspermaceae	Leaves, twig	Heart problem, fever
15.	<i>Asperagus racemosus</i> (wild)	Satawar	Liliaceae	Root (tuber)	Root juice is energetic
16.	<i>Clitoria ternatea</i> . L.	Aparajita	Fabaceae	Whole plant	Mental illness, spleen enlargement
17.	<i>Cuscuta reflexa</i> (Roxb.)	Amarbel	Cuscutaceae	Whole plant	Heart problem, echezema
18.	<i>Hemidesmus indicus</i> (L.)R.Br.	Anant mul	asclapidiaceae	Whole plant	Blood purifier, skin problem, cough

Table 3: Systematic Position and Enumeration of Trees and their uses

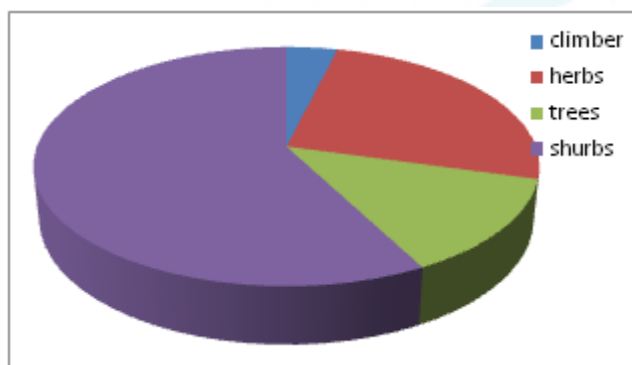
SN	Botanical Name	Vernacular Name	Family	Plant Part Used	Treatment
1.	<i>Butea monospora</i> , Lam Taub	Tesu, Parsa, Palas	Fabaceae	Leaves, bark, flower, fruit, seed	Abortion, leucoderma, fertility
2.	<i>Embllica officinals</i> Gaerth	Amla, Aawla	Euphorbiceae	Leaves, bark, fruit	Anemia, bleeding, indigestion
3.	<i>Ficus racemosa</i> . L.	Dumar/Gular	Moraceae	Leaves, bark, fruit, seed	Diabeties,
4.	<i>Ficus religiosa</i> . L.	Peepal	Moraceae	Leaves, bark, fruit, root	Teeth problem, headache, asthma
5.	<i>Ficus benyhalensis</i> . L.	Bargad/ Vat	Moraceae	Leaves, bark, fruit, root	Haie fall,
6.	<i>Mangifera indica</i> . L.	Aam, aama	Anacandaceae	Fruit, inflorescence, flower, leaves, bark,	Cough, diabetes, tonic.
7.	<i>Albezia Lebbeck</i> L.	Siris	Fabaceae	Twig, fruit	Bleeding gum
8.	<i>Dalberzia sissoo</i> REXB.	Shisham	Fabaceae	leaves	Lepracy fever
9.	<i>Maduca indica</i> Gmel.	Mahua	Sapotaceae	leaves	Rideif pain
10.	<i>Pongamia pinnuta</i> . L.	Karanj	Fabaceae	bark	Skin problems
11.	<i>Bahunia purpurea</i> .L.	Khairwal	fabaceae	Bark, leaves	Ulcer
12.	<i>Delonix regia</i> Boj. R.	Gulmohar	Fabaceae	Bark, leaves	Dismenorhoea
13.	<i>Syzygium cumini</i> skeel.	Badi jamun	Myrtaceae	Seed, fruit, leaves	Diabetes, Diorrhoea, Ulcer
14.	<i>Sanaka indica</i> (Roxb)	Ashok	Fabaceae	Fruit, bark, flower	Uterine affection, leucoderma,
15.	<i>Eucalyptus globulas</i> Labill	Nilgiri	Myrtaceae	Fruit, seed, leaves, bark	Cold & cough
16.	<i>Aegle marmelos</i> corrc	Bel	Rataceae	Fruit, leaves	Jaundice, ambiacsis, BP
17.	<i>Moringaq olerifera</i> Lamk.	Munga	Moringaceae	Fruit, leaves, flower, root, bark	Sickle cell anemia, BP
18.	<i>Terminalia arjuna</i> Roxb.	Kahua	Combretaceae	Bark	Control high BP, cardiac disease, Asthma
19.	<i>Cassia fistula</i> .L.	Amaltas	Fabaceae	Fruit, bark, leaves	Tonsils, cough, constipation
20.	<i>Terminalia bellirica</i> (gaerth) Rox.	Baheda	Combretaceae	Seed, fruit, bark	Cold, cough, eye disease, asthma, tonic
21.	<i>Terminalia chebula</i> Rez	Harra	Combretaceae	Leaves, seed, fruit	Cold, cough, asthma
22.	<i>Azadirachta indica</i> A. Juss	Neem	Meliaceae	Fruit, seed, bark	Small pox, skin
23.	<i>Terminalia indica</i> (Linn)	Imli	Fabaceae	Whole plant	SCA, cough, pitta problem

Table 4: Showing Name of Study Sites for survey of Diversity in Bhilai

S.No.	Area
Ax 1	Sec 9, Sec 10 Chowk, Boriya Gate
Ax 2	Sec 1, Sec 2, Sec 4, Sec 5
Ax 3	Sec 6, Sec 7, Sec 8
Ax 4	Garage Road, Hudco Area, Forest Avenue
Ax 5	Central Avenue
Ax 6	Borsi Area
Ax 7	Garage Road,
Ax 8	Suniti Udyan, Sec 2 Garden
Ax 9	Upper Land Of Bridge Area
Ax 10	Supela & Power House Area

Table 5: Distribution of plan Medicinal Plant species according to habitat type

8%	Climber
53%	Herb
27%	Tree
12%	Shrubs

**Graph 1:** Distribution of plant species according to habitat type

The data of plant species were collected different sites of Bhilai Nagar. The names of study site shown in Table-1. The collected plant species were documented & their medicinal uses against ailments are shown in Table-2. The name of plant species are arranged in alphabetically manner followed by their vernacular names, plants part used against diseases are also recorded family Asteraceae and family Fabaceae shows maximum plant species in all categories other families.

Observation indicates that out of 927 plant species 10% trees are unhealthy, shrub & herb groups are comparatively healthy trees are infected by fungal & insect infection or wilting dying or many other physiological disorder 2.2% of plant trees species are found to be climax stage because they complete their life cycle successfully. 3% of trees are injured by advertisement hording & unpleenth nailing which damage the conducting tissues of plant & finally plant species die.

4. Discussion

During the survey period hundred medicinal plants including weed flora of road side are identified for the treatment of various ailments. Considering previous studies & present survey indicates that such types of Ethno-medicinal diversity of the plants may be useful for mankind. According to Gangwar *et.al* villagers & tribes still use medicinal herbs for

treatment of common ailments like cold, cough, fever, headache, body ache, constipation, dysentery etc. but civilian are not relay the herbal therapy without suggestion of experts. Hence there is an urgent need of detailed experiments & investigations of the indigenous knowledge about medicinal plants and therapies which were being passed orally from generation to generation.

For the conservation of this green wealth we implement some rules such as:-

- To identified the name of trees & families & labeled it.
- For protection non-palatable plant grown around the large trees, wires & fencing are common protective options.
- Prohibit cutting, trimming or firing.
- All trees on the road side should be monitored at least monthly basis.

According to R. Dangi to form a tree committee & govern the trees and coordinate with Forest department to help conserve them. Best committee should be rewarded with tax rebates for entire neighborhood. Perhaps this measure could help to sustain the green wealth of Bhilai-Nagar.

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References

- [1] Arvind, "Are Red listed spp. Threatened; A comparative analysis of red listed and non-red listed plant species in the western ghat", India current sci. 88, pp. 2- 25, 2005.
- [2] Ashok Panigrahi, "Glossary of useful and economically important plant", New central book agency (P.) Ltd. 2000.
- [3] B . Pandey, S . Devtare, and V. Vaishnav, "Antimicrobial activity of some medically important plants", Indian j. Sc Res, 4(1), pp. 43-47, 2014.
- [4] B .Pandey, S. Khan and S. Singh, "A study of antimicrobial activity of some spices", Int . Curr. Microbio. App. Sci., 3 (3), pp.220-224, 2014.
- [5] Jan Gangwar, "Ethenomedicinal plant diversity in kuman, Himalaya of Utrtraxhand India. Natures & Sci." 8 (5), pp. 132-138, 2010.
- [6] M. K..Sinha, "Threat assessment of medicinal plants of Korea district in Chhattisgarh(India)",. 2013.
- [7] P . Pandey, A. Bhandari and B. Pandey, "Ecological status of weed flora found in Bhilai nagar", Indian J. Sc Res. 4(1), pp. 120- 155, 2014.
- [8] S.C. Agrawal and R. N. Pati, "Folk medicine folk weather & medicinal plants of Chhattisgarh". Sarup. Book publication Pvt. Ltd. 2010.