

# Phytosociological Investigation and Medicinally Important Plants of Sanjay -Dubri Tiger Reserve Sidhi, Madhya Pradesh, India

Diwakar Singh<sup>1\*</sup>, A.P. Singh<sup>2</sup>, Vivek Kumar Yadav<sup>3</sup>

<sup>1</sup> Govt. SGS College, Sidhi (M.P.)

Email id- diwakarsinghtyonther@gmail.com

<sup>2</sup> Govt. Model Sc. College, Rewa (M.P.)

<sup>3</sup> Kamla Memorial College, Sidhi (M.P.)

**Abstract** - This paper offers a thorough Phytosociological analysis of the Sanjay-Dubri Tiger Reserve in Madhya Pradesh, India, with an emphasis on the wide variety of plant species that make up this special ecosystem. The researcher has characterized and cataloged a large number of species of plants, including some of great medicinal significance, by means of surveys in the field and data analysis. Traditional healthcare practices in the area have long depended on these medicinally significant plants. The current study, 142 species of higher plants from 119 genera and 48 families has been identified. Upon taxonomic classification of the families, genera, and species, it was seen that the flora was dominated by dicots, with 126 species, while the monocots were represented by 16 species. The results also indicated that the large number of plants was belonged to the family Fabaceae and then Poaceae. The floras identified in this study add to the ecosystem's total area of 139.4 square meters. The research also enlisted the plants on the basis of their economic as well as medicinal importance. Among tree and herbs *Diospyros melanoxylon* and *Shorea robusta* had high frequency, respectively. This study highlights the necessity of conservation and sustainable management for the preservation of biodiversity and cultural heritage while offering insightful information on the various plant species found in the Sanjay-Dubri Tiger Reserve and their therapeutic value.

**Keywords** - Conservation; Ecology; Economic Importance; Flora; Geography; Medicinal Plants.

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## INTRODUCTION

Plant diversity is an important aspect of biodiversity, and in order to support effective planning and sustainable utilization of forest resources, a thorough examination of its component parts, structural traits, and operational mechanisms is required (Noss, 1990). The Food and Agricultural Organization (FAO) considers forests to be important repositories of terrestrial biological diversity. Numerous forest types, including tropical, temperate, and boreal forests, offer a variety of habitats for microbes, plants, and animals (FAO, 2020). For all of recorded time, woods have provided for humans' basic requirements. Developmental efforts and population growth put more strain on forests, which resulted in deforestation and other degradation of forest area. Thus, it becomes crucial to investigate plant diversity in order to comprehend how ecosystems function (Turnbull et al., 2016).

India is separated under 12 bio-geographical provinces, 5 ecological zones, and 3 bioregion domains. It also has a vast range of ecosystems and habitats, such as those found in grasslands, lakes, wetlands, waterways, estuaries, and oceans; also, it has dry regions (Cox and Moore, 1993). With a total land area of 2.4% of the world's, the nation is home to 47,513 plant species, or 11.4% of the world's flora, out of the 0.4 million species that have been successfully identified so far (Singh & Dash, 2014).

Madhya Pradesh is recognized as a prominent region of forested terrain within the country, encompassing an expansive area of approximately 4, 63,452 square kilometers. Many academics have previously conducted in-depth research on Madhya Pradesh botanical features. In 1830, Victor Jacquemont made the first records of the plant in the Madhya Pradesh districts of Sidhi, Rewa, Satna, and Panna. After the BSI explored some of the state's most important areas, it published a

complete flora of the state of Madhya Pradesh that includes 2724 plant species (Singh et al., 2001).

Research on the Umari district's flora in Madhya Pradesh was done by Shahu et al. (2012). 351 plant species in all, divided into 276 genera and 100 families, were identified by the researchers. A floristic survey was carried out in the Madhya Pradesh districts of Rewa, Alirajpur, Sidhi, and Satna (Sikarwar and Tiwari, 2014). Six angiospermic taxa were found and recorded as new additions to the Madhya Pradesh flora as a result of their investigation: *Phyllocephalum phyllolaenum* (DC.) Narayana, *Spilanthes radicans* Jacq., *Physalis angulata* L., *P. lagascae* Roem. & Schult., *P. pruinosa* L., and *Brachiaria mutica* (Forssk.) Stapf.

A detailed description of the angiospermic species present in the Madhya Pradesh district of Sidhi was given by Tiwari (2014). All 941 species, which are spread over 545 genera and are members of 132 families, have been identified by a thorough record. An investigation into the pteridophytic variety in Sanjay National Park was carried out by Singh et al. (2005). Pteridophytes make up the majority of the ground vegetation during the wet season. The "Sidhi" district of Madhya Pradesh and the "Manendragarh-Chirmiri-Bharatpur" district of Chhattisgarh, India, are home to Sanjay National Park, a protected region. The tract is a crucial part of the Sanjay-Dubri Tiger Reserve, covering 2,300 square kilometers (890 square miles) in total (Singh et al., 2005). The present research was conducted to study the biodiversity of medicinally important plants in Sanjay-Dubri Tiger Reserve (M.P.).

## RESEARCH METHODOLOGY

### Field Survey and Identification of Plants

A field survey was carried out at the Sanjay-Dubri Tiger Reserve in Sidhi during the experimental years. Over the course of two years in a row (2021 to 2023), data was collected. All plant species were collected and identified using conventional floras and references, and their identities were then confirmed by consulting regional experts and the Botanical Survey of India's laboratories.

### Examination of Phytosociology

During the two research years (2021 to 2023), three successive seasons of phytosociological research on vegetation were conducted. According to Saxena and Singh (1982), a random selection of quadrats for the herb layer was used to do a quantitative evaluation of the study. Each tree's diameter at breast height (dbh) was noted for each species separately. Curtis and McIntosh's (1950) study protocol involved examining the frequency, density, and abundance of vegetation.

#### (i) Density

Density calculates a species' abundance by dividing the total number of individuals in all quadrates by the total number of quadrates examined. The equation following determines the density calculation:

$$\text{Density} = \frac{\text{Total number of individual of a species in all quadrats}}{\text{Total number of quadrats studied}}$$

#### (ii) Frequency

Raunkiaer (1934) first established the idea of frequency, which is the number of units of sampling in which a specific species of animal is recorded.

$$\text{Frequency (\%)} = \frac{\text{Number of quadrats in which the species occurred}}{\text{Total number of quadrats studied}}$$

#### (iii) Abundance

The study of abundance deals with the measurement of different species' populations within a specific ecological community, expressed as a function of area.

$$\text{Abundance} = \frac{\text{Total number of individual of a species in all quadrats}}{\text{Total number of quadrats in which the species occurred}}$$

#### (iv) Basal Area

The surface area that the stems cover at ground level is referred to as the "basal area" and is used to measure the supremacy of a specific plant species.

$$\text{Basal Area or Dominance} = \pi r^2$$

Where, r (radius) = average diameter/2

#### (v) Importance Value Index (IVI)

By comparing a species' relative values of frequency, density, and dominance to those of other plant species in the community, the IVI metric can be used to evaluate a species' importance within that community. The IVI of each tree species was calculated by;

$$\text{IVI} = \text{Relative density} + \text{Relative frequency} + \text{Relative dom}$$

#### (a) Relative Density

Relative density is a quantitative measure of a species' population size in relation to the total population size of every species in a given area.

$$\text{RD} = \frac{\text{Density of the individual species} \times 100}{\text{Density of all the species}}$$

**(b) Relative Frequency:**

The ratio of the distribution of each species within a certain area to the total number of species found there.

$$RF = \frac{\text{Frequency of the individual species} \times 100}{\text{Frequency of all the species}}$$

**(c) Relative Dominance**

A species' dominance cannot be determined until its basal cover value has been determined.

$$RDM: \frac{\text{Total basal area of the species} \times 100}{\text{Total basal area of all the species}}$$

**RESULTS**

The subtropical climate of the region provides a wealth of floral diversity. There are 142 species of plants of higher elevation from 119 genera and 48 families found within the research zone. Fabaceae has the most species i.e. 20 followed by Poaceae (26), then followed by Rutaceae (7 species), Apocynaceae, Asteraceae, Combretaceae, Convolvulaceae, Malvaceae, Euphorbiaceae, Lamiaceae, Moraceae, Araceae, Asparagaceae, Cucurbitaceae, Cyperaceae, Lythraceae, Rubiaceae, Solanaceae, Anacardiaceae, Dioscoreaceae, Meliaceae, Nyctaginaceae, Oleaceae, Rhamnaceae, Zingiberaceae, Acanthaceae, Amaranthaceae, Annonaceae, Araceae, Aristolochiaceae, Brassicaceae, Burseraceae, Colchicaceae, Dipterocarpaceae, Ebenaceae, Elaeocarpaceae, Getianaceae, Hypoxidaceae, Menispermaceae, Musaceae, Myrtaceae, Papavereaceae, Phyllanthaceae, Polypodiaceae, Santalaceae, Sapotaceae, Verbenaceae and Vitaceae. Table 1. Lists the plants that were collected during the study period in alphabetical order.

**Table 1. List of Identified Plant in Study Region**

| S.No. | Local Name  | Scientific Name                | Families      |
|-------|-------------|--------------------------------|---------------|
| 1     | Kalmegh     | <i>Andrographis paniculata</i> | Acanthaceae   |
| 2     | Van Chaulai | <i>Amaranthus viridis</i>      | Amaranthaceae |
| 3     | Char        | <i>Buchnanan lanzan</i>        | Anacardiaceae |
| 4     | Aam         | <i>Mangifera indica</i>        | Anacardiaceae |
| 5     | Sitaphal    | <i>Annona squamosa</i>         | Annonaceae    |
| 6     | Madaar      | <i>Calotropis gigantia</i>     | Apocynaceae   |
| 7     | Karoda      | <i>Carrisa opaca</i>           | Apocynaceae   |
| 8     | Van Karoda  | <i>Carrisa spinarum</i>        | Apocynaceae   |
| 9     | Gudmaar     | <i>Gymnema sylvestre</i>       | Apocynaceae   |
| 10    | Doodhli     | <i>Hemidesmus indicus</i>      | Apocynaceae   |
| 11    | Antmool     | <i>Tylophora ropundifolia</i>  | Apocynaceae   |

|    |              |                                     |                  |
|----|--------------|-------------------------------------|------------------|
| 12 | Sooran       | <i>Amorphophallus paeoniifolius</i> | Araceae          |
| 13 | Arabi        | <i>Colocasia arabica</i>            | Araceae          |
| 14 | Moneyplant   | <i>Epipremnum aureum</i>            | Araceae          |
| 15 | Chhind       | <i>Phoenix acaulis</i>              | Arecaceae        |
| 16 | Batilaha     | <i>Aristolochia indica</i>          | Aristolochiaceae |
| 17 | Satavar      | <i>Asperagus racemosus</i>          | Asparagaceae     |
| 18 | Safed moosli | <i>Chlorophytum tuberosum</i>       | Asparagaceae     |
| 19 | Jungli Piyaz | <i>Urginea indica</i>               | Asparagaceae     |
| 20 | Gandhela     | <i>Ageratum conyzoides</i>          | Asteraceae       |
| 21 | Ghamira      | <i>Eclipta alba</i>                 | Asteraceae       |
| 22 | Ghamira      | <i>Eclipta prostrata</i>            | Asteraceae       |
| 23 | Gajar Ghaas  | <i>Parthenium hysterophorus</i>     | Asteraceae       |
| 24 | Gorakh mundi | <i>Sphaeranthus indicus</i>         | Asteraceae       |
| 25 | Dhaowaal     | <i>Tridax procumbens</i>            | Asteraceae       |
| 26 | Van rai      | <i>Brassica juncea</i>              | Brassicaceae     |
| 27 | Salai        | <i>Boswellia serrata</i>            | Burseraceae      |

|    |               |                               |                |
|----|---------------|-------------------------------|----------------|
| 28 | Kalihaari     | <i>Gloriosa superba</i>       | Colchicaceae   |
| 29 | Dhawa         | <i>Anogeissus latifolia</i>   | Combretaceae   |
| 30 | Saaja         | <i>Terminalia alata</i>       | Combretaceae   |
| 31 | Kahua         | <i>Terminalia arjuna</i>      | Combretaceae   |
| 32 | Baheda        | <i>Terminalia bellirica</i>   | Combretaceae   |
| 33 | Harad         | <i>Terminalia chebula</i>     | Combretaceae   |
| 34 | Saja          | <i>Terminalia elliptica</i>   | Combretaceae   |
| 35 | Shankh pushpi | <i>convolvulus prostratus</i> | Convolvulaceae |
| 36 | Amarbael      | <i>Cuscuta reflexa</i>        | Convolvulaceae |
| 37 | Sakarkand     | <i>Ipomea batata</i>          | Convolvulaceae |

|    |               |                              |                  |
|----|---------------|------------------------------|------------------|
| 38 | Besharam      | <i>Ipomea carnea</i>         | Convolvulaceae   |
| 39 | Panchpatiya   | <i>Ipomea pestigridis</i>    | Convolvulaceae   |
| 40 | Kundru        | <i>Coccinia grandis</i>      | Cucurbitaceae    |
| 41 | Karella       | <i>Momordica charantia</i>   | Cucurbitaceae    |
| 42 | Padora        | <i>Momordica dioica</i>      | Cucurbitaceae    |
| 43 | Motha Ghaas   | <i>Cyperus rotundus</i>      | Cyperaceae       |
| 44 | Gondila       | <i>Cyprus distans</i>        | Cyperaceae       |
| 45 | Nagarmotha    | <i>Cyprus scariosus</i>      | Cyperaceae       |
| 46 | Khameena      | <i>Dioscoria alata</i>       | Dioscoreaceae    |
| 47 | Suarkand      | <i>Dioscoria pentaphyla</i>  | Dioscoreaceae    |
| 48 | Sarai         | <i>Shorea robusta</i>        | Dipterocarpaceae |
| 49 | Tendu         | <i>Diospyros melanoxylon</i> | Ebenaceae        |
| 50 | Pathar-Chatta | <i>Elgtraria acaulis</i>     | Elaeocarpaceae   |

|    |               |                              |               |
|----|---------------|------------------------------|---------------|
| 51 | Doodhi        | <i>Euphorbia hirta</i>       | Euphorbiaceae |
| 52 | Senhuda       | <i>Euphorbia nerifolia</i>   | Euphorbiaceae |
| 53 | Ratanjot      | <i>Jatropha Curcas</i>       | Euphorbiaceae |
| 54 | Sindori       | <i>Mallotus philippensis</i> | Euphorbiaceae |
| 55 | Lal Ghughuchi | <i>Abrus precatorious</i>    | Fabaceae      |
| 56 | Babool        | <i>Acacia arabica</i>        | Fabaceae      |
| 57 | Khair         | <i>Acacia catechu</i>        | Fabaceae      |
| 58 | Reunja        | <i>Acacia leucophloea</i>    | Fabaceae      |
| 59 | Mahuline      | <i>Bauhinia vahlii</i>       | Fabaceae      |
| 60 | Kachnaar      | <i>Bauhinia variegata</i>    | Fabaceae      |
| 61 | Kathmahula    | <i>Bauhinia racemosa</i>     | Fabaceae      |
| 62 | Palas         | <i>Butea monosperma</i>      | Fabaceae      |
| 63 | Amaltaash     | <i>Cassia fistula</i>        | Fabaceae      |

|    |                     |                                  |              |
|----|---------------------|----------------------------------|--------------|
| 64 | Jungli Chakoda      | <i>Cassia occidentalis</i>       | Fabaceae     |
| 65 | Sheesham            | <i>Dalbergia sisso</i>           | Fabaceae     |
| 66 | Sem                 | <i>Lablab purpureus</i>          | Fabaceae     |
| 67 | Chhui-Mui           | <i>Mimosa pudica</i>             | Fabaceae     |
| 68 | Kevanch             | <i>Mucuna pruriens</i>           | Fabaceae     |
| 69 | Karanj              | <i>Pongamea pinnata</i>          | Fabaceae     |
| 70 | Sami                | <i>Prosopis cineraria</i>        | Fabaceae     |
| 71 | Bilari Kand (Kanda) | <i>Pueraria tuberosa</i>         | Fabaceae     |
| 72 | Chakoda             | <i>Senna tora</i>                | Fabaceae     |
| 73 | Imli                | <i>Tamarindus indica</i>         | Fabaceae     |
| 74 | Jungli Moong        | <i>Vigna trilobata</i>           | Fabaceae     |
| 75 | Bhuini              | <i>canscora decussate</i>        | Getianaceae  |
| 76 | Kali Moosli         | <i>Curculigo orchioides</i>      | Hypoxidaceae |
| 77 | Kala Bans           | <i>colebrookea oppositifolia</i> | Lamiaceae    |

|    |               |                                 |            |
|----|---------------|---------------------------------|------------|
| 78 | Pudina        | <i>Mentha piperita</i>          | Lamiaceae  |
| 79 | Van Tulsa     | <i>Ocimum gratissimum</i>       | Lamiaceae  |
| 80 | Sagaun        | <i>Tectona grandis</i>          | Lamiaceae  |
| 81 | Sedha         | <i>Lagerstroemia parviflora</i> | Lythraceae |
| 82 | Mehandi       | <i>Lawsonia inermis</i>         | Lythraceae |
| 83 | Dhavai        | <i>Woodfordia fruticosa</i>     | Lythraceae |
| 84 | Jangli Bhindi | <i>Abelmoschus ficulneus</i>    | Malvaceae  |
| 85 | Semal         | <i>Bombax ceiba</i>             | Malvaceae  |
| 86 | Bariyari      | <i>Byttneria herbacea</i>       | Malvaceae  |
| 87 | Gudsakri      | <i>Grewia hirsuta</i>           | Malvaceae  |
| 88 | Petua         | <i>Hibiscus sabdariffa</i>      | Malvaceae  |
| 89 | Jangli Kanda  | <i>Ariopsis peltata</i>         | Meliaceae  |

|     |               |                                  |                |
|-----|---------------|----------------------------------|----------------|
| 90  | Neem          | <i>Azadirachta indica</i>        | Meliaceae      |
| 91  | Giloy         | <i>Tinospora cardifolia</i>      | Menispermaceae |
| 92  | Chota Peepal  | <i>Ficus amottiana</i>           | Moraceae       |
| 93  | Bargad        | <i>Ficus benghalensis</i>        | Moraceae       |
| 94  | Peepal        | <i>Ficus religiosa</i>           | Moraceae       |
| 95  | Umer          | <i>Ficus racemosa</i>            | Moraceae       |
| 96  | Kela          | <i>Musa paradisiaca</i>          | Musaceae       |
| 97  | Jamun         | <i>Syzygium cumini</i>           | Myrtaceae      |
| 98  | Punarnawa     | <i>Boerhavia diffusa</i>         | Nyctaginaceae  |
| 99  | Bougainvillea | <i>Bougainvillea glabra</i>      | Nyctaginaceae  |
| 100 | Chameli       | <i>Jasminum officinale</i>       | Oleaceae       |
| 101 | Parijaat      | <i>Nyctanthes arbor- tristis</i> | Oleaceae       |
| 102 | Ghamoy        | <i>Argemone mexicana</i>         | Papavereaceae  |
| 103 | Awla          | <i>Phyllanthus emblica</i>       | Phyllanthaceae |
| 104 | Jhaadu ghaas  | <i>Aristada adscensionis</i>     | Poaceae        |

|     |               |                                 |         |
|-----|---------------|---------------------------------|---------|
| 105 | Katag Bas     | <i>Bambusa arundinacea</i>      | Poaceae |
| 106 | Doob          | <i>Cynodon dactylon</i>         | Poaceae |
| 107 | Makrela Ghaas | <i>Dactyloctenium aegyptium</i> | Poaceae |
| 108 | Lathiya Baans | <i>Dendrocalamus strictus</i>   | Poaceae |
| 109 | Kusa          | <i>Desmostachya bipinnata</i>   | Poaceae |
| 110 | Marbel        | <i>Dichanthium annulatum</i>    | Poaceae |
| 111 | Phulhar       | <i>Digitaria bicorris</i>       | Poaceae |
| 112 | Samai         | <i>Echinochloa colona</i>       | Poaceae |
| 113 | Ghodchara     | <i>Eleusin indica</i>           | Poaceae |
| 114 | Bhurboosi     | <i>Eragrostis tenela</i>        | Poaceae |
| 115 | Choraat       | <i>Heretopogon contorus</i>     | Poaceae |

|     |                   |                                |               |
|-----|-------------------|--------------------------------|---------------|
| 116 | Chheer            | <i>Imperata cylindrica</i>     | Poaceae       |
| 117 | Dinanath          | <i>Pennisatum pedicellatum</i> | Poaceae       |
| 118 | Cons              | <i>Saccharum munja</i>         | Poaceae       |
| 119 | Laptaua           | <i>Setaria verticillata</i>    | Poaceae       |
| 120 | Bhod (Laal Ghaas) | <i>Themeda triandra</i>        | Poaceae       |
| 121 | Chikni Nauri      | <i>Polypogon monspeliensis</i> | Polypodiaceae |
| 122 | Jharberi          | <i>Ziziphus nummularia</i>     | Rhamnaceae    |
| 123 | Barari            | <i>Ziziphus oenopila</i>       | Rhamnaceae    |
| 124 | Haldu             | <i>Haldina cardifolia</i>      | Rubiaceae     |
| 125 | Kaimma            | <i>mitragyna parvifolia</i>    | Rubiaceae     |
| 126 | Kadam             | <i>Neolamarckia cadamba</i>    | Rubiaceae     |
| 127 | Bael              | <i>Aegle marmelos</i>          | Rutaceae      |
| 128 | Bhelma            | <i>Chloroxylon swietebia</i>   | Rutaceae      |



|     |             |                              |               |
|-----|-------------|------------------------------|---------------|
| 129 | Neembu      | <i>Citrus reticulata</i>     | Rutaceae      |
| 130 | Kaintha     | <i>Feronia elephantum</i>    | Rutaceae      |
| 131 | Kaitha      | <i>Limonia acidissima</i>    | Rutaceae      |
| 132 | Meethi Neem | <i>Murraya koenigii</i>      | Rutaceae      |
| 133 | Hatheel     | <i>Murraya paniculata</i>    | Rutaceae      |
| 134 | Chandan     | <i>Santalum album</i>        | Santalaceae   |
| 135 | Mahua       | <i>Madhuca indica</i>        | Sapotaceae    |
| 136 | Rasbhari    | <i>Physalis peruviana</i>    | Solanaceae    |
| 137 | Macoy       | <i>Solanum nigrum</i>        | Solanaceae    |
| 138 | Bhatkaiya   | <i>Solanum virginianum</i>   | Solanaceae    |
| 139 | Gulmehandi  | <i>Lantana camara</i>        | Verbenaceae   |
| 140 | Hadjhod     | <i>Cissus quadrangularis</i> | Vitaceae      |
| 141 | Haldi       | <i>Curcuma longa</i>         | Zingiberaceae |
| 142 | Adrak       | <i>Zingiber officinale</i>   | Zingiberaceae |

Upon taxonomic classification of the families, genera, and species, it was seen that the flora was dominated by dicots, with 126 species, while the monocots were represented by 16 species.

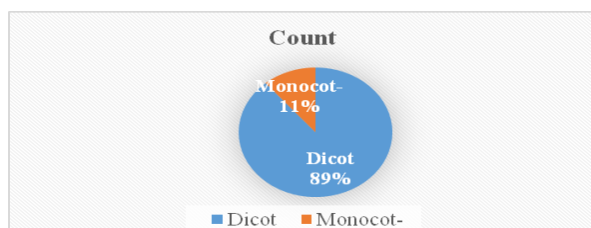


Figure 1. Showing The Count of Monocot and Dicots Found in Survey

Classifying the plant species found in a research area based on their division and life form provides important information about the ecological characteristics and diversity of the community of plants. Therophytes, which comprise 39 species, and Macrophanerophytes, which comprise 51 species, are the most common life forms found in the environment. Chamaephytes, which consist of 10 species, and Geophytes, which consist of 20 species. The co-occurrence of Liana/Climber (9 species) and Epiphytes (1 species) serves as an indication of the presence of species that are adapted to climbing and inhabiting the canopy, hence emphasizing the complex vertical structure of the vegetation.

### Phytosociological Investigation

#### Basal Area

With basal areas ranging from 2.54 m<sup>2</sup> to 4.52 m<sup>2</sup>, some of the important tree species that made a substantial contribution to the ecosystem's base area were *Terminalia arjuna*, *Shorea robusta*, *Tecton grandis*, and *Ficus benghalensis*. The basal area

varied from 0.79 square metres to 2.01 square metres, and climbers such as *Urginea indica*, *Tinospora cardifolia*, and *Mucuna pruriens* had a major influence on it. Additionally, the lower basal portions of a number of herbs, including *Imperata cylindrical*, *Zingiber officinale*, and *Eclipta prostrata*, added to the overall variety of the study area. Table 2. provides detailed information on the average diameter and basal areas.

Table 2. Basal Area Detail of the Study Region

| Sl. No. | Name of Trees species               | Average diameter in m | Basal area in m |
|---------|-------------------------------------|-----------------------|-----------------|
| 1       | <i>Abelmoschus ficulneus</i>        | 1.6                   | 2.011           |
| 2       | <i>Abrus precatorious</i>           | 1.4                   | 1.54            |
| 3       | <i>Acacia arabica</i>               | 1.2                   | 1.13            |
| 4       | <i>Acacia catechu</i>               | 1.0                   | 0.79            |
| 5       | <i>Acacia leucophloea</i>           | 1.6                   | 2.01            |
| 6       | <i>Aegle marmelos</i>               | 1.4                   | 1.54            |
| 7       | <i>Ageratum conyzoides</i>          | 0.6                   | 0.28            |
| 8       | <i>Amaranthus viridis</i>           | 0.8                   | 0.50            |
| 9       | <i>Amorphophallus paeoniifolius</i> | 0.6                   | 0.29            |
| 10      | <i>Andrographis paniculata</i>      | 0.8                   | 0.50            |
| 11      | <i>Annona squamosa</i>              | 1.2                   | 1.13            |
| 12      | <i>Anogeissus latifolia</i>         | 1.6                   | 2.01            |
| 13      | <i>Argemone mexicana</i>            | 0.6                   | 0.29            |
| 14      | <i>Ariopsis peltata</i>             | 0.6                   | 0.28            |
| 15      | <i>Aristada adscensionis</i>        | NA                    | NA              |
| 16      | <i>Aristolochia indica</i>          | 0.6                   | 0.28            |
| 17      | <i>Asparagus racemosus</i>          | 1.0                   | 0.79            |
| 18      | <i>Azadirachta indica</i>           | 1.2                   | 1.13            |
| 19      | <i>Bambusa arundinacea</i>          | NA                    | NA              |
| 20      | <i>Bauhinia vahlii</i>              | 1.0                   | 0.79            |
| 21      | <i>Bauhinia variegata</i>           | 1.6                   | 2.01            |
| 22      | <i>Bauhinia racemosa</i>            | 1.4                   | 1.54            |
| 23      | <i>Butea monosperma</i>             | 1.0                   | 0.79            |
| 24      | <i>Boerhavia diffusa</i>            | 0.8                   | 0.50            |
| 25      | <i>Bombax ceiba</i>                 | 1.2                   | 1.13            |

|    |                               |     |      |
|----|-------------------------------|-----|------|
| 26 | <i>Boswellia serrata</i>      | 1.0 | 0.79 |
| 27 | <i>Bougainvillea glabra</i>   | 1.4 | 1.53 |
| 28 | <i>Brassica juncea</i>        | 0.8 | 0.50 |
| 29 | <i>Buchnanan lanzan</i>       | 1.6 | 2.01 |
| 30 | <i>Byttneria herbacea</i>     | 1.2 | 1.13 |
| 31 | <i>Calotropis gigantea</i>    | 1.0 | 0.79 |
| 32 | <i>Canscora decussate</i>     | 0.6 | 0.28 |
| 33 | <i>Carrisa opaca</i>          | 1.4 | 1.54 |
| 34 | <i>Carrisa spinarum</i>       | 1.2 | 1.13 |
| 35 | <i>Cassia fistula</i>         | 1.2 | 1.13 |
| 36 | <i>Cassia occidentalis</i>    | 1.0 | 0.79 |
| 37 | <i>Chlorophytum tuberosum</i> | 0.8 | 0.50 |
| 38 | <i>Chloroxylon swietebia</i>  | 1.6 | 2.01 |
| 39 | <i>Cissus quadrangularis</i>  | 1.2 | 1.13 |
| 40 | <i>Citrus reticulata</i>      | 1.0 | 0.79 |

|    |                                  |     |      |
|----|----------------------------------|-----|------|
| 41 | <i>Coccinia grandis</i>          | 0.8 | 0.50 |
| 42 | <i>Colebrookea oppositifolia</i> | 0.6 | 0.28 |
| 43 | <i>Colocasia arabica</i>         | 1.0 | 0.79 |
| 44 | <i>Convolvulus prostratus</i>    | 0.6 | 0.28 |
| 45 | <i>Curculigo orchioides</i>      | 0.8 | 0.50 |
| 46 | <i>Curcuma longa</i>             | 0.6 | 0.28 |
| 47 | <i>Cuscuta reflexa</i>           | 0.8 | 0.50 |
| 48 | <i>Cynodon dactylon</i>          | NA  | NA   |
| 49 | <i>Cyperus rotundus</i>          | NA  | NA   |
| 50 | <i>Cyprus distans</i>            | NA  | NA   |
| 51 | <i>Cyprus scarious</i>           | NA  | NA   |

|    |                                 |     |      |
|----|---------------------------------|-----|------|
| 52 | <i>Dactyloctenium aegyptium</i> | NA  | NA   |
| 53 | <i>Dalbergia sisso</i>          | 1.8 | 2.55 |
| 54 | <i>Dendrocalamus strictus</i>   | NA  | NA   |
| 55 | <i>Desmostachya bipinnata</i>   | NA  | NA   |
| 56 | <i>Dioscoria alata</i>          | 1.0 | 0.79 |
| 57 | <i>Dioscoria pentaphyla</i>     | 0.8 | 0.50 |
| 58 | <i>Dichanthium annulatum</i>    | NA  | NA   |
| 59 | <i>Digitaria bicorris</i>       | NA  | NA   |
| 60 | <i>Diospyros melanoxylon</i>    | 1.8 | 2.54 |
| 61 | <i>Echinochloa colona</i>       | NA  | NA   |
| 62 | <i>Eclipta alba</i>             | 1.0 | 0.79 |
| 63 | <i>Eclipta prostrata</i>        | 0.8 | 0.50 |
| 64 | <i>Eleusin indica</i>           | NA  | NA   |
| 65 | <i>Elgtraria acaulis</i>        | 1.2 | 1.13 |
| 66 | <i>Epipremnum aureum</i>        | 1.0 | 0.79 |

|    |                            |     |      |
|----|----------------------------|-----|------|
| 67 | <i>Eragrostis tenela</i>   | NA  | NA   |
| 68 | <i>Euphorbia hirta</i>     | 0.8 | 0.50 |
| 69 | <i>Euphorbia nerifolia</i> | 1.4 | 1.54 |
| 70 | <i>Feronia elephantum</i>  | 1.2 | 1.13 |
| 71 | <i>Ficus amottiana</i>     | 1.0 | 0.79 |
| 72 | <i>Ficus benghalensis</i>  | 1.8 | 2.54 |
| 73 | <i>Ficus raligiosa</i>     | 1.6 | 2.01 |
| 74 | <i>Ficus racemosa</i>      | 1.2 | 1.13 |
| 75 | <i>Gloriosa superba</i>    | 0.7 | 0.39 |
| 76 | <i>Grewia hirsuta</i>      | 1.0 | 0.79 |
| 77 | <i>Gymnema sylvestre</i>   | 0.8 | 0.50 |

|    |                                 |     |      |
|----|---------------------------------|-----|------|
| 78 | <i>Haldina cardifolia</i>       | 1.4 | 1.54 |
| 79 | <i>Hemidesmus indicus</i>       | 0.6 | 0.28 |
| 80 | <i>Heretopogon contorus</i>     | NA  | NA   |
| 81 | <i>Hibiscus sabdariffa</i>      | 1.0 | 0.79 |
| 82 | <i>Imperata cylindrica</i>      | NA  | NA   |
| 83 | <i>Ipomea batata</i>            | 0.8 | 0.50 |
| 84 | <i>Ipomoea carnea</i>           | 1.2 | 1.14 |
| 85 | <i>Ipomoea pestigrdis</i>       | 1.0 | 0.79 |
| 86 | <i>Jasminum officinale</i>      | 1.4 | 1.54 |
| 87 | <i>Jatropha Curcas</i>          | 1.6 | 2.01 |
| 88 | <i>Lablab purpureus</i>         | 1.2 | 1.13 |
| 89 | <i>Lantana camara</i>           | 0.8 | 0.50 |
| 90 | <i>Lagerstroemia parviflora</i> | 1.4 | 1.54 |
| 91 | <i>Lawsonia inermis</i>         | 1.2 | 1.13 |
| 92 | <i>Limonia acidissima</i>       | 1.0 | 0.79 |
| 93 | <i>Madhuca indica</i>           | 1.6 | 2.01 |

|     |                              |     |      |
|-----|------------------------------|-----|------|
| 94  | <i>Mallotus phillppensis</i> | 1.4 | 1.54 |
| 95  | <i>Mangifera indica</i>      | 1.8 | 2.55 |
| 96  | <i>Mentha piperita</i>       | 0.8 | 0.50 |
| 97  | <i>Mimosa pudica</i>         | 0.6 | 0.28 |
| 98  | <i>mitragyna parvifolia</i>  | 1.4 | 1.54 |
| 99  | <i>Momordica charantia</i>   | 1.0 | 0.79 |
| 100 | <i>Momordica dioica</i>      | 0.8 | 0.50 |
| 101 | <i>Mucuna pruriens</i>       | 1.2 | 1.13 |
| 102 | <i>Murraya koenigii</i>      | 1.0 | 0.79 |
| 103 | <i>Murraya paniculata</i>    | 1.4 | 1.54 |

|     |                                  |     |      |
|-----|----------------------------------|-----|------|
| 104 | <i>Musa paradisica</i>           | 1.6 | 2.01 |
| 105 | <i>Neolamarckia cadamba</i>      | 1.8 | 2.54 |
| 106 | <i>Nyctanthes arbor- tristis</i> | 1.2 | 1.13 |
| 107 | <i>Ocimum gratissimum</i>        | 0.8 | 0.50 |
| 108 | <i>Parthenium hysterophorus</i>  | 0.6 | 0.28 |
| 109 | <i>Pennisatum pedicellatum</i>   | NA  | NA   |
| 110 | <i>Phoenix acaulis</i>           | 1.2 | 1.13 |
| 111 | <i>Phylanthus emblica</i>        | 1.6 | 2.01 |

|     |                                |     |      |
|-----|--------------------------------|-----|------|
| 112 | <i>Physalis peruviana</i>      | 0.8 | 0.50 |
| 113 | <i>Polypogon monspeliensis</i> | 0.6 | 0.28 |
| 114 | <i>Pongamea pinnata</i>        | 1.0 | 0.79 |
| 115 | <i>Prosopis cineraria</i>      | 1.2 | 1.14 |
| 116 | <i>Pueraria tuberosa</i>       | 1.4 | 1.54 |
| 117 | <i>Saccharum munja</i>         | NA  | NA   |
| 118 | <i>Santalum album</i>          | 1.6 | 2.01 |
| 119 | <i>Senna tora</i>              | 1.0 | 0.79 |
| 120 | <i>Setaria verticillata</i>    | NA  | NA   |
| 121 | <i>Shorea robusta</i>          | 2.2 | 3.80 |
| 122 | <i>Solanum nigrum</i>          | 0.6 | 0.29 |
| 123 | <i>Solanum virginianum</i>     | 1.0 | 0.79 |
| 124 | <i>Sphaeranthus indicus</i>    | 0.8 | 0.50 |
| 125 | <i>Syzygium cumini</i>         | 1.4 | 1.54 |
| 126 | <i>Tamarindus indica</i>       | 1.2 | 1.13 |
| 127 | <i>Tectona grandis</i>         | 2.4 | 4.52 |
| 128 | <i>Terminalia alata</i>        | 1.2 | 1.13 |
| 129 | <i>Terminalia arjuna</i>       | 2.0 | 3.14 |

|     |                                |      |       |
|-----|--------------------------------|------|-------|
| 130 | <i>Terminalia bellirica</i>    | 0.53 | 0.21  |
| 131 | <i>Terminalia chebula</i>      | 0.76 | 0.45  |
| 132 | <i>Terminalia elliptica</i>    | 1.8  | 2.544 |
| 133 | <i>Themeda triandra</i>        | NA   | NA    |
| 134 | <i>Tinospora cordifolia</i>    | 1.2  | 1.13  |
| 135 | <i>Tridax procumbens</i>       | 0.4  | 0.13  |
| 136 | <i>Tylophora roperidifolia</i> | 1.0  | 0.79  |
| 137 | <i>Urginea indica</i>          | 1.6  | 2.01  |
| 138 | <i>Vigna trilobata</i>         | 0.8  | 0.50  |
| 139 | <i>Woodfordia fruticosa</i>    | 1.2  | 1.13  |
| 140 | <i>Zingiber officinale</i>     | 0.6  | 0.28  |
| 141 | <i>Ziziphus nummularia</i>     | 1.4  | 1.54  |
| 142 | <i>Ziziphus oenopila</i>       | 0.57 | 0.25  |
|     | <b>TOTAL</b>                   |      | 139.4 |

### Habit wise Phytosociological Findings

#### Trees

*Shorea robusta* was found to have the greatest frequency of 77 in the Sanjay-Dubri Tiger Reserve, according to the results. *Lagerstroemia parviflora* was the tree that was founded the second most frequently (63). *Diospyros melanoxylon* showed the next frequency pattern, with a frequency of 53; *Ficus racemosa* and *Madhuca indica* were observed to have the same frequency of 50 from both target area sites. Similarly, *Bombax ceiba* was found to have the highest abundance in the tree category, with a value of 18.6. *Diospyros melanoxylon* (26.64), *Shorea robusta* (26.26), *Terminalia arjuna* (22.91), and *Bombax ceiba* (19.42) were the trees with the highest reported IVI.

**Table 3. Phytosociological Study of Identified Trees**

| Sr.No. | Scientific Name                 | Density (ind/ha) | Frequency    | Abundance     | Relative Density | Relative Frequency | Relative Dominance | IVI        |
|--------|---------------------------------|------------------|--------------|---------------|------------------|--------------------|--------------------|------------|
| 1      | <i>Shorea robusta</i>           | 1.56             | 77.0         | 2.04          | 5.39             | 12.51              | 8.36               | 26.26      |
| 2      | <i>Lagerstroemia parviflora</i> | 1.13             | 63.0         | 1.78          | 3.90             | 10.23              | 1.97               | 16.11      |
| 3      | <i>Diospyros melanoxylon</i>    | 02.8             | 53.0         | 5.25          | 9.67             | 8.61               | 8.36               | 26.64      |
| 4      | <i>Madhuca indica</i>           | 1.76             | 50.0         | 3.53          | 6.08             | 8.12               | 1.16               | 15.37      |
| 5      | <i>Syzygium cumini</i>          | 2.53             | 50.0         | 5.06          | 8.74             | 8.12               | 1.16               | 18.03      |
| 6      | <i>Terminalia arjuna</i>        | 04.6             | 35.00        | 13.8          | 15.89            | 5.69               | 1.33               | 22.91      |
| 7      | <i>Butea monosperma</i>         | 1.06             | 27.0         | 4.00          | 3.66             | 4.39               | 8.36               | 16.41      |
| 8      | <i>Azadirachta indica</i>       | 02.9             | 27.0         | 10.8          | 10.02            | 4.39               | 3.29               | 17.69      |
| 9      | <i>Ficus recemosa</i>           | 1.53             | 27.0         | 5.75          | 5.28             | 4.39               | 2.08               | 11.75      |
| 10     | <i>Acacia arabica</i>           | 0.73             | 26.6         | 2.75          | 2.52             | 4.32               | 1.21               | 8.05       |
| 11     | <i>Anogeissus latifolia</i>     | 0.43             | 23.0         | 1.85          | 1.49             | 3.74               | 2.08               | 7.30       |
| 12     | <i>Bombax ceiba</i>             | 3.73             | 20.0         | 18.6          | 12.88            | 3.25               | 3.29               | 19.42      |
| 13     | <i>Feronia elephantum</i>       | 00.7             | 17.0         | 04.2          | 2.42             | 2.76               | 4.70               | 9.88       |
| 14     | <i>Buchania lanzan</i>          | 0.43             | 17.0         | 02.6          | 1.49             | 2.76               | 6.40               | 10.65      |
| 15     | <i>Tamarindus indica</i>        | 00.2             | 17.0         | 01.2          | 0.69             | 2.76               | 2.08               | 5.53       |
| 16     | <i>Aegle marmelos</i>           | 0.46             | 13.0         | 03.5          | 1.59             | 2.11               | 1.21               | 4.91       |
| 17     | <i>Bauhinia racemosa</i>        | 0.16             | 13.0         | 1.25          | 0.55             | 2.11               | 3.29               | 5.95       |
| 18     | <i>Boswellia serrata</i>        | 1.13             | 13.0         | 8.51          | 3.90             | 2.11               | 8.36               | 14.3       |
| 19     | <i>Mangifera indica</i>         | 00.1             | 10.0         | 1.00          | 0.35             | 1.62               | 6.40               | 8.37       |
| 20     | <i>Tectona grandis</i>          | 0.40             | 10.0         | 4.00          | 1.38             | 1.62               | 3.29               | 6.29       |
| 21     | <i>Acacia catechu</i>           | 0.13             | 7.00         | 2.00          | 0.45             | 1.14               | 1.16               | 2.75       |
| 22     | <i>Terminalia alata</i>         | 0.13             | 7.00         | 2.00          | 0.45             | 1.14               | 4.70               | 6.29       |
| 23     | <i>Terminalia bellirica</i>     | 0.13             | 7.00         | 2.00          | 0.45             | 1.14               | 4.70               | 6.29       |
| 24     | <i>Chloroxylon swietebia</i>    | 0.16             | 3.00         | 5.00          | 0.55             | 0.49               | 4.70               | 5.74       |
| 25     | <i>Terminalia chebula</i>       | 0.06             | 3.00         | 2.00          | 0.21             | 0.49               | 6.40               | 7.10       |
|        | <b>Total</b>                    | <b>28.95</b>     | <b>615.6</b> | <b>114.47</b> | <b>100</b>       | <b>100</b>         | <b>100</b>         | <b>300</b> |

#### Herbs

The table 4 provides a concise display of the results of the regional herb analysis. The species with the highest density was *Ageratum conyzoides*, which had 6.3 individuals per square meter. It also showed the highest abundance, with a count of 15 individuals, and frequency, with 48 instances overall. It also contributed significantly to the Importance Value Index (IVI) at 33.8%, having the highest values in respect to relative density (13.1%), relative frequency (8.4%), and relative dominance (12.3%). Other notable species found in the research region include *Andrographis paniculata*, which has an Importance Value Index (IVI) of 29.5% and a population density of 5.3 individuals per square meter. In addition, *Mimosa pudica* has a high frequency of 53 occurrences, resulting in an IVI of 22.3%. The plant composition of the environment under study shows a diversity of species that serve

various ecological roles. For evaluating the total importance of these species, the Importance Value Index (IVI) provides a complete measure.

**Table 4. Phytosociological Study of Identified Herbs**

| Sr.No. | Scientific Name                 | Density(ind/ha) | Frequency  | Abundance  | Relative Density | Relative Frequency | Relative Dominance | IVI          |
|--------|---------------------------------|-----------------|------------|------------|------------------|--------------------|--------------------|--------------|
| 1      | <i>Mentha piperita</i>          | 1.1             | 03         | 03         | 2.3              | 0.5                | 1.6                | 4.4          |
| 2      | <i>Cyprus distans</i>           | 1.2             | 13         | 09         | 2.5              | 2.3                | 0.0                | 4.8          |
| 3      | <i>Physalis peruviana</i>       | 1.3             | 07         | 02         | 2.7              | 1.2                | 1.8                | 5.7          |
| 4      | <i>Chlorophytum tuberosum</i>   | 1.8             | 04         | 04         | 3.7              | 0.7                | 2.0                | 6.5          |
| 5      | <i>Argemone mexicana</i>        | 1.5             | 10         | 02         | 3.1              | 1.7                | 2.2                | 7.0          |
| 6      | <i>Cyprus scariosus</i>         | 1.7             | 27         | 07         | 3.5              | 4.7                | 0.0                | 8.2          |
| 7      | <i>Amaranthus vindis</i>        | 1.2             | 23         | 05         | 2.5              | 4.0                | 3.6                | 10.1         |
| 8      | <i>Elgtraria acaulis</i>        | 1.6             | 13         | 13         | 3.3              | 2.3                | 5.3                | 10.9         |
| 9      | <i>Solanum nigrum</i>           | 1.4             | 27         | 05         | 2.9              | 4.7                | 3.8                | 11.4         |
| 10     | <i>Brassica juntia</i>          | 2.9             | 27         | 11         | 6.0              | 4.7                | 0.8                | 11.5         |
| 11     | <i>Eclipta prostrata</i>        | 1.7             | 23         | 07         | 3.5              | 4.0                | 4.3                | 11.8         |
| 12     | <i>Parthenium hysterophorus</i> | 1.6             | 27         | 06         | 3.3              | 4.7                | 4.1                | 12.2         |
| 13     | <i>Curculigo orchoides</i>      | 2.0             | 20         | 10         | 4.1              | 3.5                | 5.1                | 12.8         |
| 14     | <i>Senna tora</i>               | 1.5             | 30         | 05         | 3.1              | 5.2                | 5.1                | 13.4         |
| 15     | <i>Boerhavia diffusa</i>        | 1.5             | 37         | 04         | 3.1              | 6.5                | 5.2                | 14.7         |
| 16     | <i>convolvulus prostratus</i>   | 2.2             | 30         | 07         | 4.6              | 5.2                | 5.3                | 15.1         |
| 17     | <i>Solanum virginianum</i>      | 2.2             | 27         | 09         | 4.6              | 4.7                | 6.3                | 15.6         |
| 18     | <i>canscora decussate</i>       | 2.6             | 37         | 07         | 5.4              | 6.5                | 6.3                | 18.1         |
| 19     | <i>Byttneria herbasea</i>       | 2.8             | 40         | 07         | 5.8              | 7.0                | 7.4                | 20.2         |
| 20     | <i>Mimosa pudica</i>            | 2.8             | 53         | 05         | 5.8              | 9.2                | 7.2                | 22.3         |
| 21     | <i>Andrographis paniculata</i>  | 5.3             | 47         | 11         | 11.0             | 8.2                | 10.3               | 29.5         |
| 22     | <i>Ageratum conyzoides</i>      | 6.3             | 48         | 15         | 13.1             | 8.4                | 12.3               | 33.8         |
|        | <b>Total</b>                    | <b>48.2</b>     | <b>573</b> | <b>154</b> | <b>100.0</b>     | <b>100.0</b>       | <b>100.0</b>       | <b>300.0</b> |

**Medicinally and Economically Important species of Study Area**

In Sanjay-Dubri Tiger Reserve, many medicinal plants were identified. Out of them 20 were extensively used in medicines or were used by the locals in traditional ways. The following table 5 shows the medicinal importance of each species:

**Table 5. Medicinally and Economically Importance of Identified Species**

| S.No | Name of the species          | Family         | Uses   |
|------|------------------------------|----------------|--|
| 1    | <i>Acacia catechu</i>        | Mimosaceae     | The roots heal toothache and rheumatism, while the bark is used to treat hemoptysis, menstruation problems, and diarrhea. Cutch, a brown dye made from heart wood, is used to color khaki, olive, and brown in a variety of tints.   |
| 2    | <i>Acacia arabica</i>        | Fabaceae       | <i>Acacia arabica</i> bark is used in traditional medicine to treat a wide range of ailments. It is widely known to possess astringent, antimicrobial, and anti-inflammatory properties.   |
| 3    | <i>Aegle marmelos</i>        | Rutaceae       | Fruits are consumable and can be used to treat dysentery and chronic diarrhea. The pulp from fruits is used as gum. Antibiotic qualities are found in leaves, fruits, and roots. Additionally useful in treating fever, cholera, constipation, diabetes, jaundice, and nausea.                                     |
| 4    | <i>Azadirachta indica</i>    | Meliaceae      | Leaves have insecticidal, diuretic, anthelmintic, and expectorant properties. Bark is used to treat skin illnesses, jaundice, liver problems, and diarrhea. Leaves are used to cure boils, colds, diarrhea, dysentery, malaria, scabies, and tuberculosis.   |
| 5    | <i>Bauhinia variegata</i>    | Caesalpinaceae | Twigs and leaves are fed to animals. utilized as wood fuel. Flower buds are combined with curd and cooked like vegetables. Bark paste is used as an anthelmintic and tonic for skin conditions.  |
| 6    | <i>Butea monosperma</i>      | Fabaceae       | Tonics and aphrodisiacs contain leaves as a component. Astringent, purifying, and diuretic flowers. gum used as a diarrhea remedy. Yellow textile dye is produced from flowers. Bark that is tanned. Disposable plates made from leaves ( <i>Duna&amp;Pattals</i> ). Root decoction is used to treat tuberculosis. |
| 7    | <i>Chloroxylon swietebia</i> | Rutaceae       | utilized in conventional medicine to treat diarrhea, skin disorders, and ulcers.   |
| 8    | <i>Citrus reticulata</i>     | Rutaceae       | rich in vitamin C and packed with antioxidants. It is used to treat coughs and support skin health in traditional medicine because of its digestive qualities.   |
| 9    | <i>Ficus benghalensis</i>    | Moraceae       | For pain in the muscles and joints, use latex. Bark decoction is used to treat dysentery and diarrhea. utilized as an aphrodisiac and for eye disorders as well.   |
| 10   | <i>Ficus racemosa</i>        | Moraceae       | While fruits are used to treat diabetes, leprosy, and stomach issues, leaves are used to treat blisters, boils, diarrhea, dysentery, piles, and urinary symptoms.  |
| 11   | <i>Ficus religiosa</i>       | Moraceae       | Bark infusion is used to treat skin infections and ulcers..  |
| 12   | <i>Limonia acidissima</i>    | Rutaceae       | It is used in conventional medicine to treat digestive problems. It is believed to have antimicrobial properties and to enhance respiratory health.  |
| 13   | <i>Madhuca indica</i>        | Saponaceae     | In traditional medicine, the flowers, seed oil, and bark are used. Its antibacterial, anti-inflammatory, and antioxidant properties are widely known.  |
| 14   | <i>Phyllanthus emblica</i>   | Euphorbiaceae  | utilized to make the laxative powder triphala. Also used to treat heart problems, urinary issues, and anemia.  |
| 15   | <i>Pongamia pinnata</i>      | Fabaceae       | In addition to using the oil extracted from the seeds to treat skin disorders, traditional medicine also makes use of the plant's antibacterial and anti-inflammatory properties.  |
| 16   | <i>Syzygium cumini</i>       | Myrtaceae      | Bark and fruits are used to cure diabetes. Fruit is eatable too.   |
| 17   | <i>Tamarindus indica</i>     | Fabaceae       | High antioxidant content; several health advantages; utilized as a laxative and digestive aid in traditional medicine.   |
| 18   | <i>Terminalia bellirica</i>  | Combretaceae   | Fruits used for gastrointestinal disorders, indigestion, pneumonia, and stomach disorders. Cash earnings; wood fuel. Edible seeds.   |
| 19   | <i>Terminalia chebula</i>    | Combretaceae   | In Ayurvedic medicine, Haritaki, also known as <i>Terminalia chebula</i> , is a crucial component of Triphala. Its stated health advantages include promoting better digestion, toxin removal, and rejuvenation.   |
| 20   | <i>Terminalia arjuna</i>     | Combretaceae   | Dried or uncooked fruits used to treat indigestion, pneumonia, and stomach ailments. Revenue in cash; fuel wood.   |

**CONCLUSION**

To sum up, the phytosociological study conducted in Madhya Pradesh's Sanjay-Dubri Tiger Reserve has provided important new understandings of the variety of plant species that live there. In total 142 species of plants were identified over there. 22 species of medicinally significant plants found in the region's great biodiversity have long been used by



the local population for a variety of health-related uses. The results conveyed that among trees *Diospyros melanoxylon* and in herbs *Mimosa pudica* had high frequency. The findings revealed that *Lagerstroemia parviflora* (16.11), *Madhuca indica* (18.42), *Acacia arbica* (16.41), and *Tamarindus indica* (19.42) were the trees with the highest reported IVI. In case of herbs, the species with the highest density was *Ageratum conyzoides*, which had 6.3 individuals per square meter. It also showed the highest abundance, with a count of 15 individuals, and frequency, with 48 instances overall. It also contributed significantly to the Importance Value Index (IVI) at 33.8%, having the highest values in respect to relative density (13.1%), relative frequency (8.4%), and relative dominance (12.3%). In addition, medicinal importance of the 20 species is highlighted in this article. Overall, this research article shed light in flora of Sanjay-Dubri Tiger Reserve. The present investigation has facilitated a substantial augmentation in the botanical understanding of this crucial ecological niche.

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## Corresponding Author

**Diwakar Singh\***

Govt. SGS College, Sidhi (M.P.)