

## Observation and Documentation on Angiosperm Herbs of Balod District, Chattishgarh

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**Abstract:** The present work is done in different blocks of Balod district CG which has unreported 110 Herbs belonging to 102 genera under 39 families. Most dominant families are Asteraceae (13), Fabaceae (10), Acanthaceae (7), Convolvulaceae (6), Lamiaceae (6) and Asparagaceae, Cucurbitaceae, Zingiberaceae, Apiaceae with 4 taxa in each. Out of 110 taxa, more than 50 % of herbs belong to these 9 dominant families in out of 39 families. Documentation of most of plant species ( $\geq 65\%$ ) were observed in Gurur and Sanjari Balod block out of five sites of Balod District. A total of 36 species belongs to 30 genera and 25 families are assessed as rare, medicinal and aromatic taxa. Medicinal diversity and tribal tracts of different blocks of Balod district are store house of information and knowledge on the multiple. Present assessment provides the herbaceous flora of Balod of still unexplored sites. The purpose of the study should be emphasis on conservation of rare and few important medicinal and aromatic plants. Some species are assessed as threatened i.e., *Curculigo orchioides*, *Gloriosa superba*, *Asparagus racemosus*, *Chlorophytum borivilianum*, *Cheilocostus speciosus*, *Curcuma caesia*, *Plumbago zeylanica*, *Sphaeranthus indicus* etc due to anthropogenic disturbances and other climatic changes may cause loss of diversity of rare and medicinal herb.

**Keywords:** Angiosperms, Documentation, Herbs, Rare, Balod

### 1. INTRODUCTION

The Herbal state of Chhattisgarh is an an important part of the rich and unique diversity and it's situated in Deccan bio-geographical area. The men are using in various ways, since his existence of his life on earth. They use it in many ways including, worshipping gods and goddess for the protection and better man of human. Plant have a vital role in human welfare, continued to be valued industrial, economic, commercial and medicinal resources and some subcontinent with its wealth and variety of medicinal, many of which are even today in common uses much of which is steadily being eroded (Schulted, 1960, Mitra, 1922, Dastur, 1951). Taxonomy is the oldest of almost all biological sciences over the centuries. The tropical countries with rich flora are under threat. So far about 4,000,000 plants aspects are identified of which 2,86,000 are of angiosperms. Diversity within species or genetic refers to variability in the functional units of heredity present in any material of plant, animal microbial or other origin species. Diversity was conducted in different part of Balod district Chhattisgarh with number of valuable data recorded. Convention on Biological Diversity was approved on the United Nations the herbaceous layer composed of herbaceous and woody species harbors the great majority of vascular plant diversity in eastern deciduous forests (Gilliam and Roberts 2003). Conference on Environment and Development in Rio de Janeiro in 1992, defines biological diversity biodiversity as the variety and variability among living organisms from all sources including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part with three fundamental components of diversity: genetic, species, and ecosystem diversity (as cited in Larsson, 2001). Plants are the basis of life on earth and central to people's livelihoods. The need for the integration of local indigenous knowledge for a sustainable management and conservation of natural resources receives more and more recognition (Posey, 1992) The dictionary of Indian Folk medicines (Jain, 1991) and Indian Materia Medica (Nadkarni, 1992) were consulted to find out the medicinal use of plants mentioned in the present paper and their documentation by different ethno-botanists who were in this field. The aim of present work on the observation of angiospermic herbs of Balod, District C.G. with scientific name, vernacular names, family and distribution of plant herbs have been documented.

## 2. METHODOLOGY

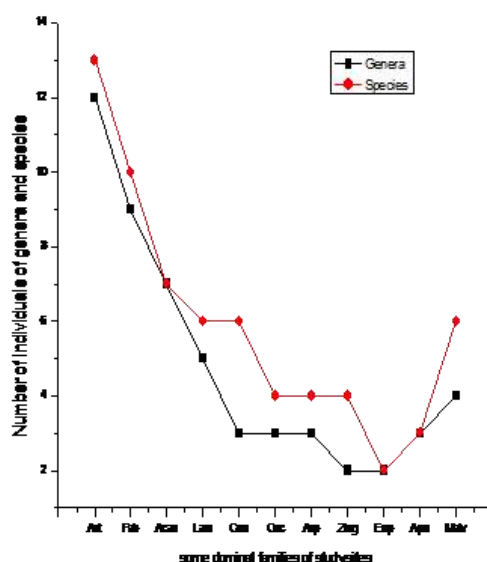
Balod District is located in South north center of Chhattisgarh and is the 19<sup>th</sup> District of Chhattisgarh state, rich in medicinal and plant diversity. Balod is lies between latitude 20.73° north longitudes 81.20° east. The area of the district is 2, 78,000 km<sup>2</sup>, of which 44.49% is forest area. Balod is divided into five blocks, Dondi, Sanjari- Balod, Gurur, Gunderdehi, Dondi lohara. Gurur block of Chhattisgarh is diversity rich in plant species with total forest area of Gurur 16241.707 sq. ha. The State is completely dependent on the monsoons for rains. The Mahanadi is the principle river of the State. Ethno medicinal information, medicinal diversity, economic importance and tribal tracts of different blocks of Balod district, C.G., are store house of information and knowledge on the multiple uses of plants.

The extensive study is based on intensive field visits during 2013-2014, 2017-2018 at regular interval in different villages of Balod District. The plants species were collected during the study were identified with the with the help of regional Floras, Literature, viz. Hooker (1872-1897), Singh *et al.*, (2001), Murthi and Panigrahi (1999); Verma *et al.*, (1993); Mudgal *et al.* (1997) and Khanna *et. al.* (2009) at Department of Botany, Dr C V Raman University and Guru Ghasidas University, Bilaspur CG. The collected voucher specimens with vernacular names and field notes have also been recorded during field work. The study includes plant collection, preparation of herbarium, and documentation of angiosperms herbs. The Medicinal value of the small herbs and climber recorded earlier literature was used for ascertaining the medicinal properties of the various plants.

## 3. RESULT & DISCUSSION

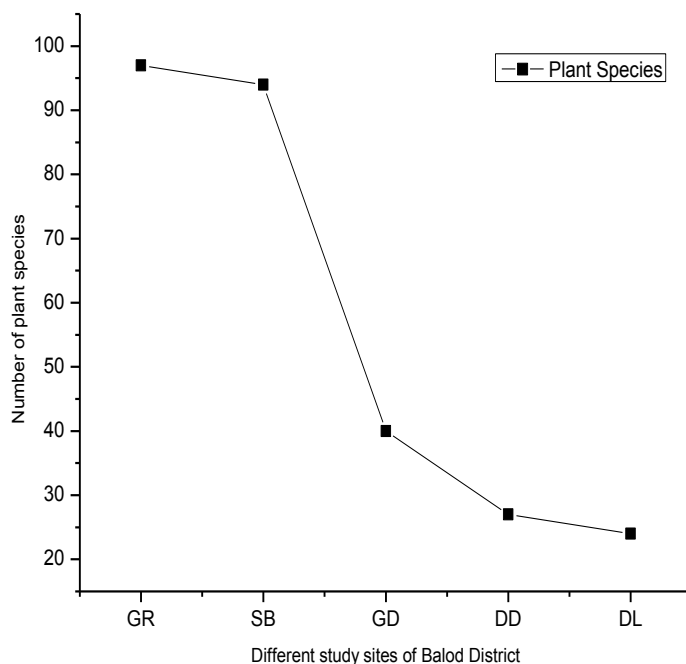
The result of the documentation and observation of total of 110 angiosperm herbs belong to 39 families of five different blocks of Balod district CG are presented in Table 1, in which plants are arranged alphabetically by Botanical names, common name, families and localities. In dicots, Asteraceae is the largest family showing with 13 species while in monocots, Zingiberaceae, Asparagaceae both are dominant family showing by 4 species in each.

Family wise distribution of taxa has been mentioned in Graph 1. Out of 110 taxa, more than 50 % of herbs belong to these nine dominant families (Asteraceae, Fabaceae, Acanthaceae, Convolvulaceae, Lamiaceae, Asparagaceae, Cucurbitaceae, Zingiberaceae, Apiaceae) out of 39 families. A total of 36 species belongs to 30 genera and 25 families are assessed as rare, medicinal and aromatic taxa. Most of plant species were observed in Gurur and Sanjari-Balod blocks of Balod District, CG. in Graph 2.



Graph 1: representing the comparative account of dominant families with number of species and genera

abbreviations for families: Ast-asteraceae, Acan-acanthaceae, Fab-Fabaceae, Lam-Lamiaceae, Con-Convulvaceae, Asp-Asparagaceae, Cuc-Cucurbitaceae, Zing-Zingiberaceae, Apo-Apocynaceae, Eup-Euphorbiaceae, Malv-malvaceae



**Graph 2:** representing the site-wise distribution of number of species. where abbreviation for sites are Dondi (DD), Sanjari-Balod (SB), Gurur (GR), Gunderdehi (GD), Dondilohara (DL).

Biological diversity implies the variety of living organisms and includes diversity within species, between species and of ecosystems and the ecological processes of which they are a part (Gaston and Spicer, 2004). At global level biodiversity crisis has given rise to a growing concern at the prospect of a rapidly accelerating loss of species, population, domesticated varieties, medicinal herbs and natural habitats. Species diversity is considered to be one of the key parameters characterizing ecosystems and a key component of ecosystem functioning (Hutchinson, 1959; Larsson, 2001; Scherer-Lorenzen et al., 2005). In small scale the density and Species diversity of herb layers in two different parts of Bilaspur CG was studied in ninety plots and (Sahu et al., 2013). Recent estimates suggest that more than half of the habitable surface of the planet has already been significantly altered by the human activity (Hannah and Bowles, 1995) and we are on the average of mass extinction of the species (Wilson, 1985). Some species are assessed as threatened, *Curculigo orchioides*, *Gloriosa superba*, *Asparagus racemosus*, *Chlorophytum borivilianum*, *Cheilocostus speciosus*, *Curcuma caesia*, *Plumbago zeylanica*, *Sphaeranthus indicus* etc

#### 4. CONCLUSION

On the basis of present study, it can be concluded that Balod district of Chattisgarh is rich in angiosperms tata and also support medicinal, aromatic and threatened taxa. Present assessment provides diversity of herbaceous flora of Balod of still unexplored sites. We should emphasis on conservation of rare and important medicinal plants, because due to anthropogenic disturbances and human activities may cause these rare and medicinal herbs of the area.

#### ACKNOWLEDGMENTS

The authors are thankful to people inhabiting in forest villages of Gurur, Dondi, Balod and Dondi lohara because of their help and support.

**Table 1:** representing the checklist of herbaceous plants observed in 5 blocks of Balod, District, CG

| SN. | Botanical Name  | Common name                | Family         | Distribution      |
|-----|---|----------------------------|----------------|-------------------|
| 1   | <i>Abelmoschus</i> Medik                                | Ban Bhindi                 | Malvaceae      | SB                |
| 2   | <i>Acanthospermum hispidum</i> Linn.                    | Gokharu                    | Asteraceae     | SB, GR,           |
| 3   | <i>Achyranthes aspera</i> Linn.                         | Circita                    | Amaranthaceae  | DD,SB,GR,GD       |
| 4   | <i>Aerva lanata</i> (L.) Juss                           | -                          | Acanthaceae    | SB, GR,           |
| 5   | <i>Ageratum conyzoides</i> Linn.                        | Sahadevi                   | Asteraceae     | SB,GR,GD DL       |
| 6   | <i>Aloe vera</i> (Linn.) Burm. f.                       | Ghritkumari                | Liliaceae      | SB, GR            |
| 7   | <i>Alysicarpus vaginalis</i> (L.) DC.                   |                            | Fabaceae       | SB,GR,GD          |
| 8   | <i>Amaranthus viridis</i> Linn.                         | Chavloi                    | Amaranthaceae  | SB,GR,GD DL       |
| 9   | <i>Amorphophallus paeoniifolius</i> (Dennst.) Nicolson. | Zimikanda, Ponga           | Araceae        | SB                |
| 10  | <i>Andrographis paniculata</i> (Burm.f.) Wall           | Kalmegha, kirayat          | Acanthaceae    | DD,SB,GR, DL      |
| 11  | <i>Antigonon leptopus</i> Hk. & Arn.                    | Ice-cream flower           | Polygonaceae   | DD,SB,GR,GD<br>DL |
| 12  | <i>Aresaema tortuosum</i> (Wall) Schott                 | Arum, Wild turnip          | Araceae        | SB                |
| 13  | <i>Argemone mexicana</i> Linn.                          | Pili kateri                | Papaveraceae   | DD,SB,GR,GD       |
| 14  | <i>Asparagus racemosus</i> Willd.                       | Sataver                    | Asparagaceae   | SB, GR            |
| 15  | <i>Bacopa monnieri</i> Linn                             | Brahmi                     | Plantaginaceae | GR                |
| 16  | <i>Barleria prionitis</i> Linn.                         | Keshariya                  | Acanthaceae    | SB, GR            |
| 17  | <i>Basella alba</i> Linn.                               | Poibhaji                   | Basellaceae    | SB,GD             |
| 18  | <i>Blepharis maderaspatensis</i> (L.) Heyne ex Roth     | Rasnajadi                  | Acanthaceae    | SB, GR            |
| 19  | <i>Blumea lacera</i> (Burn.f.) D.C.                     | Jangli muli                | Asteraceae     | DD,SB,GR,GD       |
| 20  | <i>Boerhavia diffusa</i> L.                             | Punarnava                  | Nyctaginaceae  | GR, DD            |
| 21  | <i>Bryophyllum pinnatum</i> (Lam.) Oken                 | Patherchhata,<br>Bhampatti | Crassulaceae   | GR, SB            |
| 22  | <i>Carum carvi</i> Linn.                                | Kalajira                   | Apiaceae       | SB                |
| 23  | <i>Senna tora</i> (L.) Roxb.                            | Charota                    | Fabaceae       | DD,SB,GR,GD       |
| 24  | <i>Catharanthus roseus</i> Linn.                        | Sadabahar                  | Apocynaceae    | DD,SB,GR,         |
| 25  | <i>Cayratia auriculata</i> (Wall.) Gamble               | Jangli angoor              | Vitaceae       | SB, GR            |
| 26  | <i>Celosia argentea</i> Linn.                           | Silver cocks comb          | Amaranthaceae  | SB                |
| 27  | <i>Centella asiatica</i> (L.) Urban                     | Brahmi booti               | Apiaceae       | SB GR             |
| 28  | <i>Centratherum anthelminticum</i> (L.) Kuntze          | Vanjira                    | Asteraceae     | DL                |
| 29  | <i>Chenopodium album</i> L.                             | Bathua                     | Chenopodiaceae | SB GR             |
| 30  | <i>Chlorophytum borivilianum</i> Santapau & R.R. Fern.  | Safed musli                | Asparagaceae   | SB GR             |
| 31  | <i>Cissus quadrangularis</i> Wall.                      | Hadjod                     | Vitaceae       | GR                |
| 32  | <i>Cleome viscosa</i> Linn.                             | Hulhul                     | Capparaceae    | SB,GR,GD DL       |
| 33  | <i>Coccinia grandis</i> (L.) Voigt.                     | Kundururu                  | Cucurbitaceae  | DD,SB,GR,GD       |
| 34  | <i>Cocculus hirsutus</i> Linn                           | Patal Kumdha               | Menispermaceae | SB, GR            |
| 35  | <i>Colocasia esculenta</i> (L.) Schott                  | Kochhai, Ghuia             | Araceae        | SB                |
| 36  | <i>Cheilocostus speciosus</i> (J. Konig) C. Specht      | Keokanda                   | Costaceae      | DD,SB,GR,GD       |
| 37  | <i>Crotalaria retusa</i> Linn.                          | Khunkuniyan,               | Fabaceae       | SB                |
| 38  | <i>Croton bonplandianum</i> Bail.                       | -                          | Euphorbiaceae  | DD,SB,GR,GD       |
| 39  | <i>Cucumis melo</i> Linn.                               | -                          | Cucurbitaceae  | SB,GR,GD          |
| 40  | <i>Curcuma angustifolia</i> Roxb.                       | Tikhur                     | Zingiberaceae  | SB, GR            |
| 41  | <i>Curcuma aromatica</i> Salisb.                        | Van haldi                  | Zingiberaceae  | GR, SB            |
| 42  | <i>Curcuma caesia</i> Roxb.                             | Kali Haldi                 | Zingiberaceae  | GR                |
| 43  | <i>Cuscuta reflexa</i> Roxb.                            | Amarbel                    | Convolvulaceae | SB                |
| 44  | <i>Cynoglossum lanceolatum</i> Forsk                    | Kamraj                     | Boraginaceae   | DD,SB,GR,GD       |
| 45  | <i>Datura metal</i> Linn.                               | Dhatura                    | Solanaceae     | SB, GR            |
| 46  | <i>Diplocyclos palmatus</i> (L.) C. jeffrey             | Shivlingi                  | Cucurbitaceae  | SB, GR            |
| 47  | <i>Drimia indica</i> (Roxb) Jessop.                     | Jangli piyaz               | Asparagaceae   | GR                |
| 48  | <i>Eclipta prostrata</i> Roxb.                          | Bhringraj                  | Asteraceae     | DD,SB,GR,GD       |
| 49  | <i>Emilia sonchifolia</i> (L) DC. ex Wight              | Hirankhuri                 | Asteraceae     | SB,GR,GD          |

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|----|---|--------------------------|----------------|-------------------|
| 50 | <i>Elephantopus scaber</i> Linn.              | -                        | Asteraceae     | LC                |
| 51 | <i>Eryngium foetidum</i> Linn.                | Jangli Dhania            | Apiaceae       | DD, DL            |
| 52 | <i>Euphorbia hirta</i> Linn.                  | Dudhi                    | Euphorbiaceae  | DD,SB,GR,GD       |
| 53 | <i>Evolvulus nummularius</i> Linn.            | Musakani,<br>Bchuichipki | Convolvulaceae | DD,SB,GR,GD       |
| 54 | <i>Gloriosa superba</i> Linn.                 | Baijanti &Kebu           | Liliaceae      | GR                |
| 55 | <i>Gymnema sylvestre</i> (Retz.) R.Br.        | Gudmar                   | Apocynaceae    | SB                |
| 56 | <i>Hemidesmus indicus</i> A.Rich.             | Antmool                  | Apocynaceae    | DD,SB,GR,GD       |
| 57 | <i>Hygrophila auriculata</i> (K. Schum) Heine | Talmakhana               | Acanthaceae    | SB, GR            |
| 58 | <i>Hyptis suaveolens</i> (L.) Poit.           | Van tulsi                | Lamiaceae      | DD,SB,GR,GD       |
| 59 | <i>Impatiens balsamina</i> Linn.              | Gulmehndi                | Balsamiaceae   | DD, SB            |
| 60 | <i>Ipomoea carnea</i> Jacq.                   | Beshram                  | Convolvulaceae | DD,SB,GR,GD<br>DL |
| 61 | <i>Ipomoea pes-carpae</i> (Linn) R.Br.        | Dopatilata               | Convolvulaceae | SB,GR,GD DL       |
| 62 | <i>Ipomoea quamoclit</i> Linn.                | Kamlata                  | Convolvulaceae | SB                |
| 63 | <i>Lablab purpureus</i> Linn.                 | Semi                     | Fabaceae       | GR                |
| 64 | <i>Lathyrus aphaca</i> Linn.                  | Jangli matter            | Fabaceae       | SB                |
| 65 | <i>Leonotis nepetifolia</i> Roxb              | Ukand, Bara guma         | Lamiaceae      | DD,SB,GR,GD<br>DL |
| 66 | <i>Linum usitatissimum</i> Linn.              | Alsi                     | Linaceae       | SB, GR            |
| 67 | <i>Malvastrum coromandelianum</i> (L.) Garcke | -                        | Malvaceae      | DD,SB,GR,GD<br>DL |
| 68 | <i>Merremia hederacea</i> (Burm.f) Hallier f. | -                        | Convolvulaceae | DD,SB,GR          |
| 69 | <i>Mimosa pudica</i> Linn                     | Lajbati, Chuimui         | Fabaceae       | SB,               |
| 70 | <i>Mirabilis jalapa</i> Linn.                 | Lal Gulabas              | Nyctaginaceae  | GR                |
| 71 | <i>Nelumbo nucifera</i> Gaertn.               | Kamal                    | Nymphaeaceae   | SB, GR            |
| 72 | <i>Ocimum americanum</i> Linn                 | Kalitulsi                | Lamiaceae      | DD,SB,GR,GD       |
| 73 | <i>Ocimum tenuiflorum</i> Linn.               | tulsi                    | Lamiaceae      | GR                |
| 74 | <i>Oldenlandia corymbosa</i> Linn.            | Daman pappar             | Rubiaceae      | DD,SB,GR,GD       |
| 75 | <i>Origanum vulgare</i> Linn.                 | Dounapatti               | Lamiaceae      | SB                |
| 76 | <i>Oxalis corniculata</i> Linn.               | Tinpatiya                | Oxalidaceae    | DD,SB,GR,GD<br>DL |
| 77 | <i>Parthenium hysterophorus</i> Linn.         | Gajarghass               | Asteraceae     | DD,SB,GR,GD<br>DL |
| 78 | <i>Passiflora edulis</i> Sims                 | Rajkiphul                | Passifloraceae | SB                |
| 79 | <i>Peucedanum nagpurensis</i> Linn.           | Tejraj                   | Apiaceae       | SB, GR            |
| 80 | <i>Phyllanthus amarus</i> Schumach & Thonn.   | Bhui Amala               | Phyllathaceae  | DD,SB,GR          |
| 81 | <i>Physalis minima</i> Linn.                  | Chirpoti                 | Solanaceae     | GR                |
| 82 | <i>Piper nigrum</i> Linn.                     | Kalimircha               | Piperaceae     | SB, GR            |
| 83 | <i>Pergularia daemia</i> (Forssk.) Choiv.     | Utaran                   | Asclepiadaceae | SB,GR,GD DL       |
| 84 | <i>Plectranthus amboinicus</i> (Lour) Spreng. | Patharachur              | Lamiaceae      | SB, GR            |
| 85 | <i>Plumbago zeylanica</i> Linn                | Chitrak                  | Plumbaginaceae | SB, GR            |
| 86 | <i>Polianthes tuberosa</i> Linn.              | Rajnigandha              | Asparagaceae   | SB, GR            |
| 87 | <i>Portulaca grandiflora</i> Hook.            | Lonica (Bichhi)          | Portulacaceae  | SB,GR,GD DL       |
| 88 | <i>Pueraria tuberosa</i> Linn.                | Patal kumhda             | Fabaceae       | SB, GR            |
| 89 | <i>Ruellia prostrata</i> Linn.                | Bell weed                | Acanthaceae    | SB, GR, DL        |
| 90 | <i>Ruellia simplex</i> C. Wright.             | Bluebell                 | Acanthaceae    | SB                |
| 91 | <i>Rumex dentatus</i> Linn.                   | Jangali palak            | Polygonaceae   | SB,GR,DL          |
| 92 | <i>Scoparia dulcis</i> Linn.                  | Ghoda tulsi              | Plantaginaceae | SB, GR            |
| 93 | <i>Sesamum indicum</i> Linn                   | Til                      | Pedaliaceae    | GR                |
| 94 | <i>Sida acuta</i> Burm.f.                     | -                        | Malvaceae      | SB,GR,GD DL       |
| 95 | <i>Sida cordifolia</i> Linn.                  | -                        | Malvaceae      | SB, DL            |
| 96 | <i>Sida rhombifolia</i> Linn                  | Atibala                  | Malvaceae      | GR,GD DL          |
| 97 | <i>Smithia conferta</i> Sm.                   | -                        | Fabaceae       | SB, GR            |

|     |   |               |                |             |
|-----|---|---------------|----------------|-------------|
| 98  | <i>Solanum nigrum</i> Linn.                 | Makoi         | Solanaceae     | SB,GR,GD DL |
| 99  | <i>Sonchus asper</i> Linn.                  | Didhi         | Asteraceae     | SB,GR,DL    |
| 100 | <i>Sphaeranthus indicus</i> Linn.           | Gorakhmundi   | Asteraceae     | SB,GR,GD    |
| 101 | <i>Tinospora cordifolia</i> (Willd.) Miers. | Gilloy        | Menispermaceae | SB, GR      |
| 102 | <i>Trichosanthes cucumerina</i> Linn.       | Jangli parval | Cucurbitaceae  | GR,GD DL    |
| 103 | <i>Tridax procumbens</i> Linn.              | Ekapushpi     | Asteraceae     | SB,GR,GD DL |
| 104 | <i>Trigonella corniculata</i> (L.) Linn.    | Kasturi Methi | Fabaceae       | SB,GR,GD    |
| 105 | <i>Tribulus terrestris</i> Linn.            | Gokhru        | Zygophyllaceae | SB,GR       |
| 106 | <i>Cyanthillium cinereum</i> (L.) H Rob.    | Sahadevi      | Asteraceae     | SB,GR       |
| 107 | <i>Xanthium strumarium</i> Linn.            | Chotadhatura  | Asteraceae     | SB,GR,GD DL |
| 108 | <i>Zingiber officinale</i> Linn.            | Adrak         | Zingiberaceae  | SB, GR,     |
| 109 | <i>Zornia gibbosa</i> Spanoghe.             | -             | Fabaceae       | GR          |
| 110 | <i>Pentapetes phoenicea</i> Linn.           | -             | Malvaceae      | SB,GR,GD    |

Abbreviation: Dondi (DD), Sanjari-Balod (SB), Gurur (GR), Gunderdehi (GD), Dondi lohara (DL)

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