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A Check List of the Flora in Madhav National Park Shivpuri M.P. India

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Abstract

The study was carried out in the different parts of Madhav National Park Shivpuri and 208 plant species were identified andcollected during the flowering, fruiting and seed developing stages. These plants were classifiedinto four categories: Trees, Shrubs and Herbs, Grasses and Bamboos and Climbers and parasites described in relation to their botanicalname, family, genus, and species. Out of the 208plant species, 112 species were large trees, 54shrubs and herbs 22 species grasses and bamboos and 20 species were climbers and parasites. This study shows great variation in the flora of Madhav National Park Shivpuri (M.P).Most plant pigments are not stable as herbarium vouchers. Hence the photographs of most of plantwere captured and attached with specimen. These photographs, combined with herbariumvouchers are critical to the process of verifying the authenticity of the plants.

Keywords: Madhav National Park, Shivpuri, Family, Trees, Shrubs, Herbs, Herbarium.

Introduction

It is that range of biodiversity that we must care for- the whole thing – rather than just one or two stars. Present days living beings are the "Islands in the sea of death." Throughout history, mankind has been benefited from plants in many ways, fundamentally for food and shelter, yet also for other purposes including clothing, medicines and cosmetics to name the few. All around the globe, different cultures have made use of plants that grew around them. The traditional knowledge of the uses and dangers of plants that could be found in hedgerows, forests and fields was helpful and sometimes invaluable. For aging for plants particularly herbs in the wild is something that humans have done for centuries. Today, however, a number of plants that once were abundant are now sadly endangered because of extensive human activities like urbanization, industrialization, deforestation and due to changes in the climate (Jain, 1981) India is among the richest floristic biodiversity zone on the earth, where plants have made a good contribution to the development since ancient times. Our ancient literature also has remarkable information right from Atharveda, which provides rich references on native plants and their properties to alleviate human suffering and for enhancement of long and healthy life. Our ancient medicalMaterialsare also based mainly on diverse plants found all over the Indian subcontinent (Gupta, 1985). The biodiversity found on earth today consists of many millions of distinct biological species, which is the product of nearly 3.5 billion years of evolution. During this past 3.5 billion years, a wide variety of plants came into existence, flourished and then perished due to various reasons. It is therefore very necessary to have proper knowledge regarding the various species of plants inhabiting in any particular area at that particular time period (Joshi *et al.,* 2004). So the present study was undertaken to carry out the preliminary survey of the flora in Madhav National Park Shivpuri.

Study Area

Madhav National Park is situated in shivpuri District of Gwalior region in north-west Madhya Pradesh, India. Shivpuri town is located at 25°40' North, 77°44' East on Agra to Bombey National Highway-3 Shivpuri is steeped in the royal legacy of its past, when it was the summer capital of the Scindia rulers of Gwalior. Earlier its dense forests were the hunting grounds of the Mughal emperors. Emperor Akbar captured herds of elephants for his stables while returning from Mandu in year 1564.This National Park has a varied terrain of forested hills and flat grassland around the lake. It is very rich in Biodiversity. These lakes not only add to the natural beauty of the area, but also provide a permanent source of water to

the wildlife, and a fine wetland habitat to the aquatic fauna including thousands of migratory waterfowls. The park represents the Northern Tropical dry deciduous mixed forest type, as well as dry thorn forest, typical of North-Western Madhya Pradesh. Having a varied terrain of wooded hills, dry, mixed deciduous forests, and flat grasslands around the lakes, the park offers abundant opportunities of sighting a variety of wildlife.

Materials and Methods

The plant specimens were collected from different regions of Madhav National Park Shivpuri from time to time (January 2012 to December 2013) .The collection of specimens carried out during flowering and fruitingperiod to facilitate the process of identification and was done according to Bentham andHooker's system of classification (1872-1897) and divided into trees, shrubs and herbs. Theherbarium was prepared by treating the specimens with 2% mercuric chloride solution toprovide protection against insects and fungal attack. Itspecimens before they get wilted. They were then wrapped in the alternating layers ofnewspapers and blotting papers. The papers were changed after 24, 48 or 72 hours as per theneed of specimen. After drying, plant and given accession number of the entire Specimen collected.Digital images, like other photographic representations, can transmit an infinitesimal number of difficulties to describe characteristics asthe Specialized Collections using digital cameras to record the taxonomic characteristics used todistinguish one plant from another, these include flower color, vegetative characteristics, fruit,and fall color. Most plant pigments are not stable as herbarium vouchers. Hence the photographof each plant was captured and attached with specimen. These photographs, combined withherbarium vouchers are critical to the process of verifying the authentic.

Results and Discussion

Floura of Madhav National Park

In the present study, only different plants from different areas of Madhav National Park Shivpuri were studied and apreliminary survey was carried out. The plants were identified and collected during flowering, fruiting and seed developing stages and described accordingly in ato their botanical names, family to which they belonged. The plants were classified and listed asper the classification of Bentham and Hooker (1872) was done immediately after collecting theplant specimens were mounted on herbarium sheets with gum at a single glance and recording the physical attributes ofauthenticity of the plants.

Table 01- Trees in Madhav National Park Shivpuri

S.N	Botanical Name	Standardized Name	Local Name	Family
1	Acacia nilotica, wild	Babul	Babul	Leguminosae
2	Acacia catechu, wild	Khair	Khair	Leguminosae
3	Acacia ferruginea, De	Safed Khair	Safed Khair	Leguminosae
4	Acacia leucophloea, Wild	Reunjha	Reunjha	Leguminosae
5	Adina cordifolia, hook. f.	Haldu	Haldu	Rubiaceae
6	Aegle marmelos, Correa	Bel	Bel	Rutacea
7	Ailantus excelsa, Roxb.	Maharukh	Arul	Simarubaceae
8	Ailangium Salvifolium, Linn	Akol	Akol	Cornaceae
9	Albizzia stipulata, Boiv	Siran	Siran	Leguminosae
10	Albizzia lebbeck, Benth	Kala Siris	Siris	Leguminosae
11	Albizzia odaratissima	Chichwa	Aiswan	Leguminosae
12	Albizzia procera, Benth	Safed Saris	Malkarari	Leguminosae
13	Anogeissus latifolia, Wall	Dhaora	Dho	Combretaceae
14	Anogeissus pendula, Edgew	Kardhai	Kardhai	Combretaceae
15	Anona squamosa Linn	Sitaphal	Sitaphal	Anonaceae
16	Anthocephalus cadamba, Miq	Kadam	Kadam	Rubiaceae
17	Artocarpus heterophyllus, Lamk	Kathel	Kathel	Salicaceae
18	Azadirachta indica, A juss	Neem	Neem	Melliaceae
19	Bauhinia malabarica, Roxb	Amta	Amta	Leguminosae
20	Bauhinia purpurea, Linn	Keolar	Keolar	Leguminosae
21	Bauhinia racemosa, Lamk	Asta	Asta	Leguminosae
22	Bauhinia retusa, Ham	Sehra	Sehra	Leguminosae
23	Bauhinai variegata, Linn	Kachnar	Kachnar	Leguminosae
24	Bridilia retusa, Spreng	Kasai	Kasai	Euphorbiceae
25	Boswellia serrata	Slai	Slai	Burcereceae
26	Buchanania lanzan, Spreng	Achar	Achar	Anacadiaceae
27	Butea monosperma,Lamak,Tarv	Palas	Palas	Leguminosae
28	Balanites aegyptiaca, Delile	Hingot	Hingot	Zygophyllaceae
29	Callistemon viminalis	Bottle Brush	Bottle Brush	Myrtaceae
30	Careya arborea, Roxb	Kumbhi	Kumbhi	Myrtaceae
31	Casearia cliptica, Wild	Tondri	Chilla	Samydaceae

32	Casearia graveolens, Dalz	Gilchi	Gilchi	Samydaceae
33	Cassia fistula, Linn	Amaltas	Girmala	Leguminosae
34	Conclospermum religiosum, Linn	Galgal	Ganger	Bixaceae
35	Cordia macleodii, Hif	Daphipalas	Gondi	Boraginaceae
36	Cordia dichotoma, Frost	Lasora	Lasora	Boraginaceae
37	Cordia latifolia, Roxb	Bara Lasora	Lasora	Boraginaceae
38	Crataeva unicularis, Ham	Barna	Barna	Capparisaceae
39	Chloroxylon swietenia, D.C.	Bhirra	Bhirra	Meliaceae
40	Dalbergia latifolia	Shisham	Shisham	Leguminosae
41	Dalbergia peniculata, Roxb	Dhobin	Phansi	Leguminosae
42	Dalbergia sissoo, Roxb	Sissoo	Sissoo	Leguminosae
43	Delonix regia, Raf	Gulmohar	Gulmohar	Leguminosae
44	Diospyros cordifolia	Bhaktendu	Bhaktendu	Ebenaceae
45	Diospyros melanoxylon	Tendu	Tendu	…….
46	Dolichandrona falcata, Seem	Medhsing	Medh	Bignoniaceae
47	Dillenia pentagyna, Roxb	Kalla	Bankela	Dilliniaceae
48	Ehretia laevis, Roxb	Datonga	Tamoe	Boraginaceae
49	Elaeodendron glaucam, Pers	Jamrasi	Jamrasi	Celastraceae
50	Embliuofficinalis, Greetn	Anola	Anola	Euphorbiaceae
51	Erythina suberosa, Roxb	Gadhapalas	Gadhapalas	Leguminosae
52	Erythina Variegata, Linn	Pangara	Pangara	Leguminosae
53	Euphorbia nivueia, Ham	Sehund	Sehund	Euphorbiaceae
54	Euphorbia nerfolia	Thuar	Thuar	Euphorbiaceae
55	Feronia limonia, Swingle	Kaitha	Kaitha	Rubiaceae
56	Ficus bengalensis, Linn	Bar	Bargad	Moraceae
57	Ficus glomeruta, Roxb	Gular	Gular	Moraceae
58	Ficus lacor, Buch-Ham	Pakar	Pakar	Moraceae
59	Fecus religiosa, Linn	Pipal	Pipal	Moraceae
60	Ficus microcapra, Linn.f.	Paraspipal	Paraspipal	Moraceae
61	Ficus hispida, Linn	Kat-gular	Katumar	Moraceae
62	Flacourtia indica, Merr	Kakai	Kanker	Bixaceae
63	Gardinia latifolia, Ait	Papra	Pepri	Rubiaceae
64	Gardinia lucida, Roxb	Dekamali	Dekamali	Rubiaceae
65	Gardinia turida, Roxb	Phetra	Chamarkarang	Rubiaceae
66	Garugapinnata, Roxb	Kekad	Kekad	Burceraceae
67	Gmelina arborea, Roxb	Gamari	Sewan or Gunher	Vervanaceae
68	Grewia titliaefolia, Vahl	Dhaman	Dhaman	Tilliaceae
69	Hardwickia binata, Roxb	Anjan	Anjan	Leguminosae
70	Holoptelea intrigrifolia, Planch	Choril	Choril	Ulmaceae
71	Hymenodictyon excelsum Wall	Bhonrsal	Bhonrsal	Rubiaceae
72	Ixora arborea	Lokhandi	Lokhandi	Rubiaceae
73	Jacaranda acutifolia, Hunb	Jacaranda	Dona	Pedaliaceae
74	Jatropha cureas, Linn	Ratanjot	Ratanjot	Euphorbiaceae
75	Kydia calycina, Roxb	Barenga	Barenga	Malvaceae
76	Lagerstroemia parviflora, Roxb	Lendia	Lendia	Lythraceae
77	Lamnea coromendelica, Merr	Jhingan	Jhingan	Anacadiaceae
78	Limonia crenulata, Linn	Bilsena	Binnas	Rutaceae
79	Litsea glutinosa, Lour	Maida lakri	Maida lakri	Lauraceae
80	Madhuca indica, Cmel	Mahua	Mahua	Sapotaceae
81	Malloutus Philippinensis, Muell	Sinduri	Rori or Rohan	Euphorbiaceae
82	Mangifera indica, Linn	Aam	Aam	Anacardiaceae
83	Manikara Hexandra, Roxb	Khirini	Khirini	Sapotaceae
84	Melia azedarach, Linn	Bakain	Bakain	Meliaceae
85	Miliusa velutina, Thoms	Domsal	Domsal	Anonaceae
86	Miliusa tomentosa, Sinclair	Kari	Kari	Anonaceae
87	Millingtonia hortensis, Linn	Akasnim	Akasnim	Pedaliaceae
88	Mitragyana parvifolia, Kortyh	Mundi	Kaim or Kalam	Rubiaceae
89	Moringaoleifera, Lamk	Munga	Senjhna	Moringaceae

90	Morinda tinctoria, Roxb	Aal	Alaua	Rubiaceae
91	Morus laevigata, Wall	Shahtoot	Shahtoot	Urticaceae
92	Murraya Koenigil, Spreg	Mithinim	Mithinim	Rutaceae
93	Ougeinia oojelinensis, Roxb	Tinsa	Tinsa	Leguminosae
94	Phoenix humilis, Poyle	Barichhind	Khajur	Palmae
95	Polyalthia longifolia, Thw	Asok	Asok	Anonaceae
96	Pongamia pinnata, Linn	Karanji	Karanji	Leguminosae
97	Pithecolobium dulce, Benth	Jangal-Jalebi	Jangal-Jalebi	Leguminosae
98	Prosopis cinerasis, Linn	Chenkur	Chonkar	Leguminosae
99	Prosopisjuliflora, D.C.	Khejra	Vilayati-Babul	Leguminosae
100	Pterocarpus marsumpium, Roxb	Bija	Bija	Leguminosae
101	Padermachera xylocarpox	Sonpadar	Sonpadar	Bignoniaceae
102	Randia duetorum, Lamak	Mainphal	Mainphal	Rubiaceae
103	Randia uliginosa, D.C.	Kala-Phetra	Kala-Phetra	Rubiaceae
104	Salmalia Malabarica, D.C.	Samal	Semal	Salmaliaceae
105	Salvadora oleoides, Dene	Pilu	Gadela	Salvadoraceae
106	Sapindus laurofolius	Ritha	Ritha	Sapindaceae
107	Syzygium cumini, Linn	Jamun	Jamun	Myrtaceae
108	Tamarindus indica, Linn	Imli	Imli	Leguminosae
109	Tamarix dioica, Roxb	Jhau	Jhau	Tamaricaceae
110	Tectona grandis, Linn.F.	Sagon	Sagwan	Verbenaceae
111	Terminalia arjuna, Bedd.	Kahua	Kahua	Combretaceae
112	Terminalia belerica, Roxb	Bahera	Bahera	Combretaceae

Table 02- Shrubs and Herbs in Madhav National Park Shivpuri

S.N.	Botanical Name	Standardized Name	Local Name	Family
1	Achyranthes aspera, Linn	Chirchira	Adhajhara	Amarantaceae
2	Adhatoda vasica, Nees	Adusa	Adusa	Acanthaceae
3	Azyratum conyzoides, Linn	Ajagandha	Phanjo	Compositeae
4	Alangium salvifolium,Linn.f., Wang	Akol	Akol	Cornaceae
5	Antidesma ghaesembilla, Caertn	Jhaaondharli	Jhaaondharli	Euphorbiaceae
6	Argemone maxicana, Linn	Siarkanta	Siarkanta	Berberidaceae
7	Azanza iampas,Cav.Alef	Bankapas	Bankapas	Malvaceae
8	Calotropus gigantea, Br.	Aak	Aak	Ascelepidaceae
9	Calotopus procera, R.Br.	Madar	Madar	Ascelepidaceae
10	Capparis aphylla, Roth	Karil	Karil	Capparidaceae
11	Capparis zelanica, Linn	Ulat-kanta	Hins	Capparidaceae
12	Carissa opaca, Staff	Karonda	Karonda	Apocynaceae
13	Cassia auriculata, Linn	Tarwar	Tarwar	Leguminosae
14	Cassia tora, Linn	Tarota	Panmar	Leguminosae
15	Casearia graveolens, Dalz	Gilchi	Gilchi	Samydaceae
16	Caseoria elliptica, Wild	Tondri	Tondri	Samydaceae
17	Caesalpinia sepiaria, Roxb	Ari	Chillari	Caesalpinaceae
18	Chlorphytum tuberosum, Roxb	Safed- musli	Safed- musli	Liliaceae
19	Clerodendron phlomoidis, Linn	Inni	Inni	Verbenaceae
20	Clerodendron viscosum, Vent	Bhant	Bhant	Verbenaceae
21	Clausena lansium, Skeels	Pattanjot	Pattanjot	Rutaceae
22	Colebrookia oppositifolia, Smith	Bhandra	Kalabansa	Labiatae
23	Datura stramonium, Linn	Datura	Datura	Solanaceae
24	Desmodium cephalotes, Wall	Chipti	Chipti	Leguminosae
25	Dichrostachys cinerea, W&A	Yealati	Bhirbhira	Leguminosae
26	Dodonaea viscosa, Linn	Kharenta	Kharenta	Sapindaceae
27	Dolichos lablab, Linn	Jangli tuar	Jangli tuar	Papiliaonaceae
28	Embelia tajeriamcottam, Linn	Baibrang	Baibrang	Myrsinaceae
29	Euphorbia nerifolia, Linn	Thaur	Thuar	Euphorbiaceae
30	Grewia hirsuta, Vahl	Gursukri	Gursukri	Tilliaceae
31	Grewia scabrophylla, Roxb	Bendi	Bendi	Tilliaceae

32	Gymnosporia spinosa, Fiori	Baikal	Baikal	Celastraceae
33	Helicteres isora, Linn	Marorphal	Morophali	Stereuliaceae
34	Hibiscus rosesinensis, Linn	Jasond	Shoe flower	Malvaceae
35	Holarrhena antidysenterica, Wall	Kurchi	Inderjo	Apocynaceae
36	Indigofera cassioides, Rottlex.DC	Neel	Bareni	Leguminosae
37	Ipomaea batatas, Forsk	Besharam	Besharam	Convolonlaceae
38	Indigofera glandulosa, Wild,	Jhunjru	Jhunjru	Papilonaceae
39	Lantana camare, Linn	Raimunia	Lantana	Verbenaceae
40	Leea macrophylla, Roxb	Hathipan	Kand	Vitaceae
41	Maytenus emerginata, Wild,Ding.H	Bharati	Bharati	Celastraceae
42	Mimosa rubicaulis, Lamak	Ailly	Ailly	Leguminosae
43	Nerium indicum, Mill	Kanher	Kanher	Ascelepidaceae
44	Nyctanthes arbortristis	Harsinghar	Siari	Verbenaceae
45	Opuntia dillenii, Haw	Nagphani	Nagphani	Caetaeceae
46	Pheoniracaulis, Roxb	Chhind	Chhind	Palmaceae
47	Pogostemon benghalensis, O.ktz	Kora	Kora	Labiatae
48	Pueraria tuberosa, Roxb	Sural	Sural	Papiliaonaceae
49	Randia dumentorum, Roxb	Mainphal	Mainphal	Rubiaceae
50	Salixtetra sperma, Roxb	Bed	Bainsa	Salicaceae
51	Securinega leucophyrus, M.Arg	Dengala	Dengala	Euphorbiaceae
52	Sida acuta, Burm.f.	Khareti	Khareta	Malvaceae
53	Solanum indicum, Linn	Bhat-Katani	Bingini	Solanaceae
54	Solanum nigrum, Linn	Jangli biagan	Makoi	Solanaceae
55	Strobilanthes auriculatus, Nees.	Nees	Marudona	Acanthaceae
56	Syzygium heyncanum, Well	Katjamun	Katjamun	Myrtaceae
57	Zizyphus nummularia, W & A	Jharberi	Jharberi	Rhamnaceae

Table 03- Grasses and Bamboos in Madhav National Park Shivpuri

S.N.	Botanical Name	Standardized Name	Local Name	Family
1	Apluda varia, Hdk.subsp.	Phuli	Phulera	Graminae
2	Cymbopogon martinii, Wats	Rusa	Rosha	Graminae
3	Cynodon dactylon, Pers.	Doob	Doob	Graminae
4	Desmostachya bipinnata, Linn	Kush	Khus	Graminae
5	Dendrocalamus strictus, Nees	Bans	Bans	Graminae
6	Dichanthium annulatum, Stapf	Chhoti-Marvel	Chhoti-Marvel	Graminae
7	Digitaria longiflora, Pers	Ghatka	Ghatka	Graminae
8	Digitaria griffithil, Henr.	Bai	Bai	Graminae
9	Echinochloa frumentacea, Linn	Sama	Sama	Graminae
10	Echinochloa colonum, Linn	Sama	Sama	Graminae
11	Eragrostis diarrhena, Steud	Ghadela	Ghadela	Graminae
12	Eragrostis tenella, Beauv.	Bhurbhusi	Bhurbhusi	Graminae
13	Heteropogon contortus, Linn	Kusil	Kusil	Graminae
14	Hemarthria compressa, Linn	Tor-Ghans	Tor-Ghans	Graminae
15	Ischaemum laxum, Hack	Mushan	Mushan	Graminae
16	Ischaemum pilosu, Hack	Kunda	Kunda	Graminae
17	Ischaemum prostratum, Linn	Ukri	Ukri	Graminae
18	Imperata Cylindrica Linn	Chhir	Chhir	Graminae
19	Paspalidum flavidum, A.Camus	Chichwi	Chichwi	Graminae
20	Phragmites karka, Trin	Nal	Nal	Graminae
21	Paspalidium punctatum, A.Camus	Ghatka	Ghatka	Graminae
22	Saccharum spontaneum, Linn	Kans	Kans	Graminae

Table 04- Climbers and Parasites in Madhav National Park Shivpuri

S.N.	Botanical Name	Standardized Name	Local Name	Family
1	Abrus precatorious, Linn	Gunj	Gunj or Rati	Papilionaceae
2	Acacia caesia W&A	Ari	Ari	Leguminosae
3	Acaciatorta, Roxb	Curar	Chillari	Mimosaceae
4	Acacia pinnata, Wild	Raoni	Raoni	Mimosaceae
5	Asparagus recemossua, Wild	Satawar	Satawar	Liliaceae
6	Bauhinia Valii W&A	Mahulbel	Mahulbel	Leguminosae
7	Butea superba, Roxb	Palasbel	Palasbel	Papilonaceae
8	Celastrus paniculata	Malakangni	Malakangni	Celastraceae
9	Cissus repanda, Vahl	Panibel	Panibel	Ampelidaceae
10	Cryptolepis buchanani Roem&Sch.	Nagbel	Nagbel	Ascelepidaceae
11	Cuscuta reflexa, Roxb	Amarbel	Amarbel	Convolonlaceae
12	Dendrophthoe falcata, Linn.f.	Bandha	Vanda	Loranthaceae
13	Gymnema sylvestris, R.Br.	Gudmar	Gudmar	Ascelepidaceae
14	Ichnocarpus frutescens, R.Br.	Dhimarbel	Dudhibel	Apocynaceae
15	Millettia auriculata, Barker	Gurer	Gurer	Papilonaceae
16	Momrdica dioica, Roxb	Kakodabel	Kakodabel	Cucurbitaceae
17	Mucuna pruiens, D.C.	Kenwanch	Kenwanch	Papilonaceae
18	Samilax zeylanica, Linn	Hamdaton	Hamdaton	Liliaceae
19	Tinospora cordifolia, Miers.	Geloy	Geloy	Monospermaceae
20	Zizyphus oenoplia, Mill	Makor	Makor	Bhamnaceae

Similar studies were done by Vavilov (1920), Joshi (1995), Sing and Sing (1992), Uniyal *et al.,* (2002), Choudhary and Wadhwa (1984) Rau (1973) Semwal (1984), who alsosurveyed the different Himalayan regions and identified the valuable plants. During the study, 208plant species were studied and collected from the different part of the Madhav National Park ShivpuriOut of the 208 plant species, 112 species were large trees, 54 shrubs and herbs 22 species grasses and bamboos and 20 species were climbers and parasites.Present investigation showing that trees and Shrubby vegetation are dominating the area. Madhav National Park Shivpuri showed great floral variation as evident from thepresent survey. This survey of Madhav National Park Shivpuri is an attempt to initiate the further intensive andexhaustive exploratory studies so as to have better utilization of our floral wealth for thebetterment of humanity. In the race for urbanization, we are somewhere losing our naturalflora. These investigations and further documentation of plant species are helpful in knowingthe status of individual plant species in the study area and thus playing an important role intheir preservation and making us aware about their usefulness. The harvesting practices, ecological status, commercial uses, population decline and density of the plant shows that ifcontrol measures are not taken, the species fall into the extinction from wild category in thenear future.

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