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Plant diversity in mural habitates of Dindori district (M.P.)

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Abstract

During the investigation of plant diversity in mural habitates of Dindori district, Madhya Pradesh a total of 65 species of which 60 species belonging to 31 families of Angiosperms and 5 species belonging to 4 families of pteridophytes were enumerated. Among angiosperms 49 species are dicots and 11 species are monocots representing 46 and 11 genera respectively. The dominant families are Asteraceae among dicots and Poaceae among monocots. Four wall tree species viz. *Azadirachta indica*, *Ficus benghalensis*, *Ficus religiosa*, *Ficus cunia* and *Zizyphus mauritiana* were also recorded.

Keywords: Plant diversity, wall flora, Dindori, angiosperms, pteridophytes, tree species

Introduction

Some plants are adapted to grow on walls as well as living spaces. This is a way to use the limited amount of food and water available in the walls and fences of the house to complete their lives without taking special responsibility. These plants have a variety of adaptations, generally moderate to dry. The term wall plant covers all plants that grow on walls, including cryptogams and flowers. Their reproductive ecology is stretched to the extent of sexual as well as asexual reproduction on walls, the diaspora quality is developing, and their distribution is good.

While epiphytic plants are mostly considered for studies among extra-terrestrial plants (Mukherjee 1991)^[1], works on epimural plants in India is meagre. Research on epimural plant life had been done by Misra (1945)^[2], Singh & Chowdhury (1975)^[3], Ghosh and Pal (1997)^[4], Palit (2012)^[5]. Sultan (1993)^[6] reported 200 species of epimural flowering plants from Bhopal. Segal (1969)^[7] and Varshney (1964, 1968)^[8,9] also envisaged ecological aspects of these plants.

The present work is based upon survey and exploration of wall flora of Dindori and restricted to the town only. At present, no or little documented work has been done to such a historically important place as Dindori and the present work is merely a preliminary study focusing on enumeration of plants of growing on different types of wall.

Dindori is a district of Madhya Pradesh state of central India. The town of Dindori is the district headquarters. It was created on 25th May, 1998 with total 927 villages. The district is a part of Jabalpur Division. The district covers an area of 7470 sq.km. And is located on the eastern part of Madhya Pradesh, bordering the state of Chhattisgarh. It is surrounded by Shahdol in the east, Mandla in the west, Umaria in the north, and Bilaspur district of the state of Chhattisgarh in the south. Mathematically, the district is situated between the latitudes 22.17N and 23.22N and longitudes 80.35E and 80.58E.

The walls in this area differs in age & size, are grouped on the basis of materials of constructions into i) Mortar walls (M) where lime is used for cementing bricks, ii) Brick mortar walls (BM) where mud is utilized for cementing bricks, iii) Mud walls (MW) which are made up of mud only and does not contain bricks. The vegetation zones on the walls are characterized into i) Horizontal top end of the wall (HT), ii) Vertical face of the wall (V), iii) Base of the wall (B).

Material and Methods

The present work is an eco-taxonomic survey of plants growing on different types of walls along with seasonal Variation in Dindori town.

The plant specimens were collected from different study sites in different seasons of the year, identified using taxonomic methods and Relevant literature (Prain, 1903) ^[10] and were dried for preservation. The dried specimens were then mounted on herbarium sheets and labelled. The species of

magnoliophytes (angiosperms) were arranged according to A. Cronquist (1981) ^[11] and the specimens of Pteridophytes were arranged alphabetically giving information about their seasonal distribution on the basis of nature and vegetation zones of the wall.

Table 1: An enumeration of plants constituting wall flora of Dindori town along with seasonal distribution: (PM- Pre- Monsoon; M- Monsoon; POM- Post monsoon)

Sl. No.	Name of the Plants	Family	Nature of wall	Vegetation zones	Seasonal distribution
1.	<i>Adiantum caudatum</i> L.	Adiantaceae	BM	V	M
2.	<i>A. capillus-veneris</i> L.	Adiantaceae	BM	V	M
3.	<i>Christella dentata</i> (Forsk.)	Thelypteridaceae	BM, MW	B, HT	M, POM
4.	<i>Lygodium flexuosum</i> SW	Schizaeaceae	BM	HT	PM, M
5.	<i>Pteris vittata</i> L.	Pteridaceae	BM	B	M, POM
6.	<i>Peperomia pellucida</i> (L.) Kunth	Piperaceae	M	B	M
7.	<i>Argemone Mexicana</i> L.	Papaveraceae	M	B	POM
8.	<i>Ficus religiosa</i> L.	Moraceae	M	V	PM, M, POM
9.	<i>F. benghalensis</i> L.	Moraceae	M	V	PM, M, POM
10.	<i>F. cunea</i> L.	Moraceae	M	V	M
11.	<i>Boerhaavia repens</i> L.	Nyctaginaceae	BM	HT	M, POM
12.	<i>Amaranthus spinosus</i> L.	Amaranthaceae	BM	HT, B	PM, M
13.	<i>Alternanthera Sessilis</i> (L.) R.Br.	Amaranthaceae	BM	B	PM, POM
14.	<i>Aerva aspera</i> L.	Amaranthaceae	BM	HT	PM, POM
15.	<i>Portulaca quadrifida</i> L.	Portulacaceae	MW	V	M
16.	<i>Mollugo oppositifolia</i> L.	Molluginaceae	BM	V	M
17.	<i>Sida acuta</i> Burn.	Malvaceae	BM	HT, V	PM
18.	<i>Coccinia grandis</i> (L.) Voigt.	Cucurbitaceae	BM	HT	M
19.	<i>Cleome viscosa</i> L.	Capparidaceae	BM	HT	PM, M
20.	<i>Rorippa indica</i> (L.) Hiern.	Brassicaceae	BM	B	POM
21.	<i>Crotalaria incana</i> L.	Fabaceae	BM	V	POM
22.	<i>Desmodium gangeticum</i> (L.) DC.	Fabaceae	BM	HT	POM
23.	<i>D. triflorum</i> (L.) DC.	Fabaceae	MW	B	M, POM
24.	<i>Tephrosia purpurea</i> (L.) Pers.	Fabaceae	BM	B	POM
25.	<i>Acalypha indica</i> L.	Euphorbiaceae	BM	HT, B	PM, M, POM
26.	<i>Croton bonplandianus</i> Baill.	Euphorbiaceae	BM	HT, B	PM, M, POM
27.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	BM	V	PM
28.	<i>Phyllanthus simplex</i> Retz.	Euphorbiaceae	BM	B	PM
29.	<i>Crozophora rotleri</i> (Geis) A. Juss ex Spreng.	Euphorbiaceae	BM	B	PM, M
30.	<i>Ziziphus mauritiana</i> Lam.	Rhamnaceae	BM	HT	POM
31.	<i>Azadirachta indica</i> A. Juss	Meliaceae	BM	HT	M
32.	<i>Oxalis corniculata</i> L.	Oxalidaceae	MW	B	PM, M
33.	<i>Catharanthus roseus</i> (L.) G. Don	Apocynaceae	BM	HT	M
34.	<i>Calotropis procera</i> R.Br.	Asclepiadaceae	BM	B	PM, POM
35.	<i>Nicotiana plumbaginifolia</i> Viv. Planch	Solanaceae	BM	HT	M
36.	<i>Clerodendrum viscosum</i> Vent.	Verbenaceae	BM	HT	PM
37.	<i>Lantana camara</i> L.	Verbenaceae	BM	HT	PM, M, POM
38.	<i>Ocimum sanctum</i> L.	Lamiaceae	BM	B	PM, M
39.	<i>Leonurus sibiricus</i> L.	Lamiaceae	BM	HT	PM
40.	<i>Scoparia dulcis</i> L.	Scrophulariaceae	BM	HT	PM, M, POM
41.	<i>Lindenbergia urticaefolia</i> Lehm.	Scrophulariaceae	BM	HT	PM, M, POM
42.	<i>Lindernia crustacea</i> (L.) F.Muell.	Scrophulariaceae	M, BM	HT	M
43.	<i>Peristrophe bicalyculata</i> (Retz.) Nees	Acanthaceae	M, BM	HT	PM, M
44.	<i>Ruellia prostrata</i> Poir.	Acanthaceae	BM	V	M
45.	<i>Dentella repens</i> Forst	Rubiaceae	BM	B	M, POM
46.	<i>Oldenlandia corymbosa</i> L.	Rubiaceae	BM	HT	M, POM
47.	<i>Ageratum conyzoides</i> L.	Asteraceae	BM	HT	POM
48.	<i>Eupatorium odorata</i> L.	Asteraceae	BM	B	M, POM
49.	<i>Eclipta prostrata</i> L.	Asteraceae	BM	B, V	POM
50.	<i>Tridax procumbens</i> L.	Asteraceae	M, BM	V, HT	POM
51.	<i>Mikania scandens</i> B. L. Rob.	Asteraceae	BM	HT	PM, POM
52.	<i>Sonchus aspera</i> (L.) Hill	Asteraceae	BM	V	PM, POM
53.	<i>Vernonia cinerea</i> Less.	Asteraceae	BM	V	POM
54.	<i>Pseudelephantopus spicatus</i> Rohr ex Gleason	Asteraceae	BM	V	POM
55.	<i>Murdannia nudiflora</i> (L.) Brenan	Commelinaceae	MW	B	M
56.	<i>Cyperus rotundus</i> L.	Cyperaceae	MW	B	PM, M
57.	<i>Fimbristylis aestivalis</i> Nahl.	Cyperaceae	BM	HT	M
58.	<i>Kyllinga brevifolia</i> Rottb.	Cyperaceae	BM	HT	M, POM

59.	<i>Chloris barbata</i> Sw.	Poaceae	BM	HT	M, POM
60.	<i>Digitaria ciliaris</i> (Retz.) Koel	Poaceae	BM	HT	PM, M
61.	<i>Eleusine indica</i> Gareth.	Poaceae	MW	B	PM, M
62.	<i>Eragrostis tenella</i> (L.) P. Beauv. ex Roem & Suchit	Poaceae	BM	HT	M, POM
63.	<i>Oplismenus compositus</i> (L.) P. Beauv	Poaceae	BM	B	POM
64.	<i>Panicum paludosum</i> (L.) Roxb.	Poaceae	BM	HT	PM, POM
65.	<i>Setaria glauca</i> (L.) P. Beauv	Poaceae	BM	B	PM, POM

Results and Discussion

From the present investigation 60 species of plants belonging to 31 families of angiosperms growing on the wall are recorded. Among these 49 species are dicots and 11 species are monocots belonging to 46 and 11 genera respectively. 5 species of pteridophytes belonging to 4 families are also recorded during this work. Asteraceae among dicots is the most dominant family exhibiting 8 species whereas Poaceae with 7 species is considered as the most dominant family among monocots.

So far, the vegetational zones are concerned most of the species are found to occur at the horizontal top of the wall (HT) and in respect to habitat preference, most of the plants are found in brick mortar walls (BM). The number of species occurring in the horizontal top of the wall (HT) are 26. Least number of species are found to occur on the vertical face of the wall (V) which is 13 while the base of the wall (B) has given shelter to 19 species. But there are 4 species which are distributed at both base and the horizontal top of the wall (B+HT), 2 species occupy in horizontal top and the vertical face of the wall (HT+V) and only 1 species is found to occur at the both vertical face and base of the wall (B+V).

As far the habitat preference is concerned, 50 species are found to occur on brick mortar walls (BM), 6 species on mortar walls (M) and 5 species on mud walls (MW). Three plant species are also found on both brick mortar and mortar walls (BM+M) and 1 species on both brick mortar and mud walls (BM+MW).

According to seasonal preferences, 14 species are recorded to prevail only in monsoon (M) only and least number of species which is 5 only grows in pre-monsoon (PM) period. Post monsoon (POM) period is represented by 12 species, 7 species are found in both pre-monsoon and post monsoon (PM+POM) period, 10 species are recorded in both premonsoon and monsoon (PM+M) period, as well as in monsoon and post monsoon period (M+POM) also. Seven species are found to occur throughout the year (PM+M+POM).

Species are rare in the pre-monsoon period, mainly due to the dry climate in the study area during this period, while the low temperature and high humidity during the monsoon facilitate plant growth, spray on the wall. When the post-monsoon period is characterized by a dry winter, the walls of the wetlands provide shelter for species belonging to certain families, whose numbers are greater than those found in the pre-monsoon period.

Conclusion

The evidence obtained from this study is that the red soil in the study area is very inadequate in terms of nutrients and the presence of iron oxide prevents the development of plants. The study area presents different levels of land formation. The soil is well drained; the water retention rate is very low and soil erosion occurs due to excess water. Water stress is common throughout the year, especially before monsoons. This may cause plants to seek secondary shelters with better water retention. Trees and herbs grow well in the

extraterrestrial matrix, often creating cracks and crevices in the walls.

The wall has a lot of biodiversity and the wall provides a way to protect organisms. In the future, there will be room for research on the detailed taxonomic relationships and ecological adaptation characteristics of the plants on the wall.

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References

1. Mukherjee A. Epiphytism - a unique style of plant life. *Everyman's Science*. 1991;26:148-153.
2. Misra R. J Ban. *Hind. Univ.* 1945;9:49-72.
3. Singh CS, Chaudhury RL. *Botanique*. 1975;6(2&3):87-92.
4. Ghosh RB, Pal NA. Contribution to the wall flora of Howrah District, West Bengal. *Indian Journal of Applied and Pure Biology*. 1997;12:61-66.
5. Palit D, Pal S. *Ne BIO*. 2012;3(2):5862.
6. Sultan A. Studies on wall flora of Bhopal District Ph.D. Thesis Barkatullah University, Bhopal; c1993.
7. Segal S. *Ecological Notes on Wall Vegetation*. The Hague, Junk; c1969.
8. Varnashey CK. Ecology of wall Flora of Varanasi. Ph.D. Thesis, Banaras Hindu University, Varanasi, India; c1964.
9. Varshney CFL. Plant succession on walls. Symposium on Recent Advances in Tropical Ecology, Varanasi. 1968;2:471-481.
10. Prain D. *Bengal Plants*, Calcutta; c1903.
11. Cronquist A. *An Integrated system of classification of flowering Plants*. Columbia University Press, New York; c1981.