

Field Weeds of GGDC Lalgarh Campus And Its Applications

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Abstract- Any habitat is filled with weeds because all the habitats are naturally governed and occupied by propagules of plants. These propagules are available but sometimes hidden in the ground due to many natural forces. Some forces are surface runoff, sedimentation, sand deposition, extra layer by litter, decomposing materials heaped on the ground or sometimes by carriers both man and animals. Day by day any barren land may be overcrowded by many plants it may be herbs, shrubs or trees. Climax vegetation may be established in an area due to over interactions of species time to time. Like different habitats our College campus has been vegetated by weeds since 2014 with different shrubs and trees. In this communication authors are trying to establish a general ecological situation lying under various microclimatic conditions. It will reflect the scenario for better understanding among the habitats in and around the campus.

Keywords- GGDC Lalgarh, Campus, Weeds, ecology and applications

I. INTRODUCTION

Weeds are naturally growing plants that are obnoxious to our crop plants but they have some potential to develop ecosystem. In the cultivated land or in field except wanted crops others are obnoxious and may be said as weeds. But in field *i.e.* waste land, shrubberies, rail line, roads, aerodromes, sea shores; all the plants grown naturally are called weeds. Weeds are more diverse in monsoon but reduced or stunted during summer or in winter. In forest many exotic elements are called weeds. Example found in case of our Southwest Bengal forest where species are *Lantana camara*, *Parthenium hysterophorus*, *Chromolaena odorata* and *Mimosa pudica* etc. Here these are dangerous because due to allelopathic interactions they interrupt the growth behaviour of local flora. Similarly in any waste places or like barren lands College campus shows vivid presentation of weed species. Weed study is important because it reflects the ecology and behaviour of weeds of an area. Mortensen et al. (2000)¹ presented a paper and mentioned the use of its study. The paper discusses the extent to which knowledge of weed biology and ecology can contribute to the development of

weed management strategies. Remembering the theme in mind the present study was undertaken at GGDC Lalgarh, W.B.

II. MATERIALS AND METHODS:

Plant frequency is the number of times a plant species is present in a given number of quadrats. It is based on the size so of a particular size or at a given number of sample points are required. Sometimes it is expressed as a percentage and sometimes called a frequency Index as a whole. In general concept of frequency refers to the uniformity of a species in its distribution over an area in specific season. No counting is involved just a record of species present for that purpose². So, $F = (\text{no of occurrence of species in all the quadrats} / \text{no of quadrats studied}) \times 100$

RF= Reduced no. as per total no is 100

1 x 1 m quadrat was fixed after study at College campus and same size of quadrats were placed randomly at different sites and frequency based data was prepared. The following points included for frequency study. Ecological notes and taxonomic parameters were also studied. All the studies were made as per standard ecological work book. GPS locations were placed using GPS mobile camera. Other equipments used as per the standard ecology Book.

III. RESULT AND DISCUSSION

Ecology study is important for every country as because it is the study of relationship of plants and animals. So, at first plant study is essential. Major advances of plant ecology research are China is described the plants and their surroundings that control the water and biogeochemical cycles at the ecosystem scale³ (Zhang *et al.* 2020). Like different studies, we are going to study at our own field for status of some weeds that are important for biogeochemical process. Result revealed that highest frequency recorded in case of 4 species (Table 1) namely *Oplismenus compositus*, *Evolvulus alsynoides*, *Achyranthes aspera* and *Tridax procumbens* (7.69). Similarly, lowest frequency was observed in almost all cases (Table 1, Fig. 7). Monocot and dicot species ratio was

1:2.66 (Table 2) and monocot family: dicot family ration was 1:5. Only two families of monocots i.e. Poaceae and Cyperaceae were recorded. Highest species no. was recorded in case of Poaceae (5) followed by Asteraceae and Leguminosae (Table 2). As a whole in the quadrats only 12 families of herbs were recorded (Table 4). Other species of the campus were placed by author few years back that need repeated study to know actual status of the said plants in the study area⁴ (Das, 2017).

Table 1. Ecological status of medicinal herbs at GGDC Lalgah, W.B.

Sr. No.	Species Name	Frequency (F)	Relative Frequency (RF)	Comment
1	<i>Brachiaria</i> sp.	20	3.84	Monocot
2	<i>Corchorus</i> sp.	20	3.84	Dicot
3	<i>Cynodon dactylon</i>	20	3.84	Monocot
4	<i>Azadirachta indica</i>	20	3.84	Dicot
5	<i>Oplismenus compositus</i>	40	7.69	Monocot
6	<i>Evolvulus alsynoides</i>	40	7.69	Dicot
7	<i>Vernonia</i> sp.	20	3.84	Dicot
8	<i>Cardiospermum helicacabum</i>	20	3.84	Dicot
9	<i>Xanthium strumarium</i>	20	3.84	Dicot
	<i>Oplismenus burmanii</i>	20	3.84	Monocot
	<i>Atylosia</i> sp.	20	3.84	Dicot
	<i>Desmodium</i> sp.	20	3.84	Dicot
	<i>Sida</i> sp.	20	3.84	Dicot
	<i>Boerhaavia</i> sp.	20	3.84	Dicot
	<i>Amaranthus viridis</i>	20	3.84	Dicot
	<i>Senna tora</i>	20	3.84	Dicot
	<i>Aristida</i> sp.	20	3.84	Monocot
	<i>Achyranthes aspera</i>	40	7.69	Dicot
	<i>Tridax procumbens</i>	40	7.69	Dicot
2	<i>Cyperus rotundus</i>	20	3.84	Monocot
2	<i>Tragia involucrata</i>	20	3.84	Dicot
2	<i>Croton bonplandianum</i>	20	3.84	Dicot
	Total :	520	99.88	

Note: Data prepared on the basis of field study (2023)

Table 2 Dicot and Monocot family ratio during summer at GGDC Lalgah

Sr. No.	Monocot Spp.	Dicot spp.	Monocot:Dicot Ratio
1.	06	16	1:2.66
	Monocot Family	Dicot Family	
1.	2	10	1:5

Table 3 Family wise species number and ecological note

Sr. No.	Family Names	Spp. No in Monocot	Spp. No in Dicot	Comments/Ecological notes
	Amaranthaceae	0	2	Both the plants are vegetable as well as medicinal. <i>Amaranthus</i> used as green vegetable, <i>Achyranthes</i> roots are used as abortifacient.
	Asteraceae	0	3	Capitalism inflorescence bearing plant, grow round the year.
	Convolvulaceae	0	1	Carpet or mat over the ground and medicinally important plant. Flowers white and available round the year.
	Cyperaceae	1	0	Medicinal plant, bulbous rhizome used in ayurveda.
	Euphorbiaceae	0	2	Both the plants are medicinal. <i>Tragia</i> is very important plant because seeds are used in various treatments according to ayurveda.
	Leguminosae	0	3	Flowers not found but dominant during summer.

Malvaceae	0	1	No flowers but small plants not yet mature plant.
Meliaceae	0	1	Unwanted growth as herb but it is tree species.
Nyctaginaceae	0	1	Medicinal plant, twigs used as vegetable.
Poaceae/Graminae	5	0	Fodder grass, very prominent, drought resistant, and luxuriant in field.
Sapindaceae	0	1	Vine balloon, climbing plant grow better through tendrils, flowers white but in ecological quadrat it is a small herb.
Tiliaceae	0	1	Weed but rudimentary during summer.

IV. CONCLUSION

Campus is covered with green vegetation round the year. Many trees, shrubs and herbs are dominant though a few plants have been recorded as important medicinal plants among the weeds at post monsoon. Good example is *Gloriosa superba* (flame lily), *Martyinia annua* (tiger’s claw or cat’s claw), *Tribulus terrestris* (Gokharu) and *Biophytum sensitivum* (sensitive plant). *Calotropis gigantea* and *Jatropha gossypifolia* (Fig. 1-7) are common shrubs but obnoxious weeds like *Eupatorium* and *Lantana* are common here. Almost all plants are medicinal so need to study herbs in field but critical studies need to be included round the year to get more broad data. Recent studies revealed that in extreme condition under environmental situations reproductive phenology gradually changing that needs study (Panchen, 2022)⁵. So, in any area consequent studies need to develop for better understanding of species existence.

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Photographs:



Fig. 1 *Calotropis procera*



Fig. 2 *Eupatorium odoratum*



Fig. 3 *Jatropha gossypifolia*



Fig. 4 *Tridax procumbens*



Fig. 5 GPS reading of study site



Fig. 6 Study at College campus, Sankha Khulya, W.B.

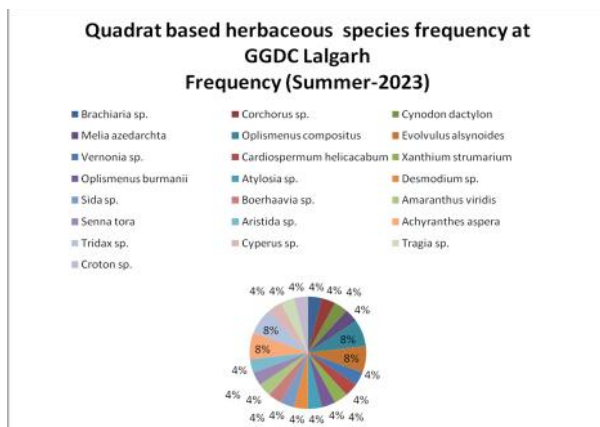


Fig. 7 Quadrat based frequency study at GGDC Lalgarh

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