International Journal of Botany Studies
ISSN: 2455-541X, Impact Factor: RJIF 5.12
www.botanyjournals.com
Volume 1; Issue 6; September 2016; Page No. 13-15

Diversity of common (Dicot) herbs of Bankura district and Bishnupur sub division of West Bengal

Debi Prasad Mukherjee, Shashi Bhushan Chaudhary, Diwakar Nirala

P.G. Department of Botany, Vinoba Bhave University, Hazaribagh, Jharkhand, India

Abstract
A floristic survey of plant diversity was carried out to record and analyse the current status of the different herbaceous dicot species of flowering plants (Angiosperms) in bishnupur sub–division of bankura district, West Bengal, India during the year 2014. All together 6 quadrats were laid down, and 24 dicot plant species were documented. The specimens were preserved in the form of herbarium. Frequency and density varied greatly among the taxa, while many species were not evenly abundant in the study area. Out of total species, 10 species were used as medicinal plants by the local people. There are also some alien invasive species of diverse origin.

Keywords: common (Dicot) herbs, medicinal plants, Bankura district, Bishnupur sub division

1. Introduction
The bishnupur sub-division of bankura district, west Bengal lye between 22°54´ - 23°25´ N latitudes and 87°15´ - 87°46´ E longitudes. The current study area extending over 1870.05 sq. km. The study area also have archaeological prehistoric importance so naturally it is a one of the important tourist place of the state west Bengal. Due to tourism and modernization of the area the species richness decreasing rapidly. Not only that due to excessive human settlements, agriculture, and industrial activities the fate of local biodiversity and the future of huge human population depending on plant resource are now in danger. Despite rich in floral diversity, limited information is available regarding status and conservation of flora in this region.
The previous work was mainly on the ethnomedicinal and special dicot plants but not on the most sensitive dicot herbs. Considering all the above perspectives, the present floristic study was undertaken around the bishnupur sub-division and township area. Main objectives of the study were 1) enlisting the current available species, 2) to perform ecological analysis, and 3) Ethnomedicinal uses of the plant by the local people.

2. Study area
The study area includes bishnupur sub-division of the bankura district, west bengal. The district has been described as the "connecting link between the plains of Bengal on the east and Chota Nagpur plateau on the west." The areas to the east and north-east are low lying alluvial plains. To the west the surface gradually rises, giving way to undulating country, interspersed with rocky hillocks the district bankura lye between 22°38´ - 23°38´ N latitudes and 86°36´ - 87°46´ E longitudes. The main rivers of the district are dwarekeswar, kansabati, birai.

3. Materials and Methods
Several field survey were carried out during the session 2013-2014 to collect data. Data regarding the ethnomedicinally important dicot herbaceous plants were also collected by interviewing the local people and tribals. Field work was carried out to document vegetation and for that 6 quadrats were randomly laid down for sampling of herbaceous dicot angiospermic species. This is done by sampling the vegetation with a nested quadrat methods. It includes a series of quadrats laid over the others with gradually increasing size. In the present study, minimal and maximal sizes of quadrat were 25 cm 2 and 150 cm 2, respectively. Following data such as Density, frequency and abundance of plant species were determined on the basis of individual species observed in the quadrats lay. The plant species were identified using regional flora, IPNI (International Plant Names Index; www.IPNI.org), and herbarium collection in the Central National Herbarium, Sibpur, howrah. In identification personal interactions with some of the specialist in the field of plant systematics helped a lot. For the preparation of herbarium standard methods as suggested by Jain & Rao (1977) [1] were adopted. Correct names are checked for each of the enlisted plants from Mabberley's Plant Book and author citations are confirmed from Brummit's book. Later, standard literatures and recent works of some botanists of India [19, 20] were consulted for cross-verification of the accumulated data from the native people.

4. Results and Discussion
In the present study about 35 plant species were studied but only 24 were identified. The dicot plant species were belongs to 15 family and family asteraceae contain highest number of plant species followed by the family Nyctaginaceae, solanaceae, Amaranthaceae, Rubiaceae, Euphorbiaceae, compositae and (table1). Highest number of species shown by the genus Emilia sonchifolia belongs to compositae and minimum number of species shown by the species Sida acuta which was belons to malvaceae.
According to the table no 1 given below the study area showed a great variability of parameters used such as plant frequency (%), density (D), and abundance (AB) The value of frequency ranges from 33.3% to
100%.The highest value shown by the eight taxa of different family such as Boerhavia diffusa, Evolvulus numularius,

Oldelandia corymbosa, Amaranthus spinosus, Tridex procumbens, Senna tora, Achyranthes aspera and Argemone Mexicana. The lowest frequency value shown by the two taxa such as Sida acuta and Peperomia pellucida. The highest density shown by the genera Emilia sonchifolia and the lowest by Sida acuta. The flowering in most of the given species starts between January to march but fruting period varies from species to species. Out of 24 taxa, ten plants were used as medicinal purposes such as cough and cold, diarrhea, as a tonic and as a vegetables for example tender leaves of Amaranthus spinosus L. have been used as vegetables The importance of traditional knowledge in conservation of local biodiversity resources have widely been recognized (Antons, 2010).

Table 1: Number, frequency (F), density (D) and abundance (AB) of plants in square quadrat methods (minimum: 25 sq cm and maximum: 150 sq cm), data collected from selected study site and 6 quadrats are studied (Q1-6)

S. No.	Botanical name with family	Number of individuals of species in various quadrats.						Total(a)	Total points of occurrence(b)	Density D=a/6	Frequency (%) F=(b/6)x100	AB=a/b	Frequency class
		Q1	Q2	Q3	Q4	Q5	Q6						
1	*Peperomia pellucida, piperaceae*	1		2	6	5	8	22	5	3.66	83.33	4.4	D
2	*Antigonon leptopus, Polygonaceae.*		3	4	5	5	11	28	5	4.66	83.33	5.6	D
3	*Mirabilis jalapa, Nyctaginaceae*		1	2	4	6	7	20	5	3.33	83.33	4.0	D
4	*Aerva lanata, Amarantheceae*		2	2	5	5	7	21	5	3.5	83.33	5.2	D
5	*Boerhavia diffusa, Nyctaginaceae*	3	3	3	5	6	11	31	6	5.16	100	5.16	E
6	*Sida acuta (Burm. f.), Malvaceae*				1		1	2	2	0.33	33.33	1.0	A
7	*Evolvulus numularius (L). Convolvulaceae*	1	2	6	7	9	12	37	6	6.16	100	6.16	E
8	*Oldanlandia corymbosa. (L). Rubiaceae*	1	2	7	7	7	9	33	6	5.5	100	5.5	E
9	*Cleome viscosa. (L). Cleomaceae*	1		1		2	2	6	4	1.0	83.33	1.5	D
10	*Amaranthus spinosus, Amarantheceae*	1	1	1	1	2	3	9	6	1.5	100	1.5	E
11	*Senna tora (L). (Roxb) Fabaceae*	1	3	6	7	7	8	32	6	5.3	100	5.3	E
12	*Physalis minima, Solanaceae*			1			3	4	2	0.66	33.33	2.0	A
13	*Achyrathes aspera. L. M, Amaranthaceae*	4	4	4	5	6	8	33	6	5.5	100	5.5	E
14	*Aerva lanata. L, Juss. Amarantheceae*			1	2	3	5	11	4	1.8	66.66	2.7	C
15	*Centella asiatica. L. Urban. Apiaceae*				1	3	5	9	3	1.5	50	3.0	C
16	*Tridex procumbens. L. Asteraceae*	1	5	5	6	8	10	35	6	5.8	100	5.8	E
17	*Argemone Mexicana. L. Papaveraceae*	2	5	7	8	8	12	42	6	7.0	100	7.0	E
18	*Andrographis peniculata. Burm. f. Acanthaceae*			2	1		3	6	3	1.0	50	2.0	B
19	Ageratun conyzoides (L). Asteraceae			1	3	3	4	11	4	1.8	66.66	2.7	C
20	*Amaranthus viridis. Amaranthaceae.*				1	1	3	5	3	0.8	50	1.6	B
21	*Crysanthemum coronarium. L. Asteraceae*			1	1	2	3	7	4	1.1	66.66	1.7	C
22	*Croton bonplandianum. L. Euphorbiaceae*		1	4	5	10	12	32	5	5.33	83.33	6.4	D
23	*Mimosa pudica. L. Fabaceae*			3	5	7	9	24	4	4.0	66.66	6.0	C
24	*Emilia sonchifolia, Compositae*		1	7	8	15	20	51	5	8.5	83.33	10.2	D

5. Conclusion

The present study represents the impact of tourism and industrialization on dicot floral diversity of bishnupur subdivision of bankura district, west Bengal. The climate and habitat of the area changing very rapidly along with the extinction of dicotylednous herbaceous angiospermic plant species. The number of commonly available wild species decreasing rapidly according to the author and tribal people of that area. According to the table it was proved that the number of respective taxa was less than normal. This is the one of the aim of the survey along with the study of the taxonomic characters of the taxa. The study also reveald that

a number of alien species was disturbed the local species by their rapid growth. The research work on progress and the final outcome of such studies will be useful in determining the present situation of the area and suitable conservational strategies for these dicot plant species.

6. Acknowledgement
The author is thankful to Prof. A Mallick, Prof. P.K Mishra, Prof. C. Prasad and Mr. Sudip chatterjee and the rural people of the district bankura for their kind help and support during the survey periods

7. References

1. Jain SK, Rao RR. A Handbook of Field and Herbarium Methods, Today & Tomorrow's Printers and Publishers, New Delhi, 1977.
2. Prain D. Bengal Plants, 1 & 2, Botanical Survey of India, Kolkata, 1903, repr. ed. 1963.12. Bhattacharyya, P.K. and Sarkar, K, Flora of West Champaran District, Bihar, Botanical Survey of India, Kolkata, 1998.
3. Mishra PK, Sinha AK. Rice: Diversity in Bankura district of West Bengal (India). Bioscience Discovery 2012; 3:284-287.
4. Hajra PK. Flora of West Bengal, 1, Botanical Survey of India, Kolkata. 1997.
5. Panigrahi G, Murti SK. Flora of Bilaspur District Madhya Pradesh, 1, Botanical Survey of India, Kolkata. 1989, 47-72.
6. Talukdar D. Species richness and floral diversity around 'Teesta Barrage Project' in Jalpaiguri district of West Bengal, India with emphasis on invasive plants and indigenous uses. Biology and Medicine. 2013a; 5:01-14.
7. Basak SK, Medicinal plants of Bankura (W.B.) and their uses. J Natl Bot Soc. 1997, 61.
8. Cronquist A. The Evolution and Classification of Flowering Plants (Second eds.). The New York Botanical Z Garden, Bronx, New York, USA. 1988, 503-517.