



FLORISTIC COMPOSITION OF A GRASSLAND COMMUNITY OF ODISHA, INDIA

KEYWORDS

Floristic composition, Grassland, Community,

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ABSTRACT The floristic composition of a grassland community of Jajpur district (20° 59' N; 85° 58' E), in Odisha was studied during 2015. The community comprised of 30 species, out of which 10 species belonged to grass family and the rest 20 species to the non-grass families. The species in the community included under 13 families i.e. Poaceae, Fabaceae, Asteraceae, Cyperaceae, Rubiaceae, Malvaceae, Nyctaginaceae, Capparaceae, Euphorbiaceae, Convolvulaceae, Verbenaceae, Lamiaceae and Acanthaceae. The Community was dominated by the members of family Poaceae.

INTRODUCTION

The grasslands are very much valuable to mankind. The thatching materials, clothing's, food and medicines which we use in our day to day life - the milk, the meat which we drink or eat, all are directly or indirectly obtained from grassland flora. Basing upon the ecological and economical point of view, grassland plays a very important role. The grassland flora controls soil erosion, absorbs rainfall, restores soil fertility and is the cheapest sources of nutrients for livestock, grasshoppers, rabbit, deer and many other herbivores. It is therefore important to collect information on grassland flora for survival of livings beings.

LITERATURE REVIEW

Literature review revealed a lot of work on various aspects of grassland communities by odum (1960), Golley and Gentry (1966), Bliss (1970), Varshney (1972), Redmann (1975), Billore and Mall (1977), Misra and Misra (1979 & 1981), Ambasht and Pandey (1981), Rath and Misra (1980), Malana and Misra (1980 & 1981), Misra (1983), Ambasht and Sharma (1989), Ram and Arya (1991), Ram and Ramakrishnan (1992), Misra (1992), Behera and Misra (1993), Barik and Misra (1995, 1996, 1997 & 1998), Barik (2006), Kar *et al.* (2010), Baldau and Jaiswal (2014), Dash and Barik (2015), Rout and Barik (2016) and many others in India and abroad. However, very little work has been made so far on the ecology of grassland community, especially in the Jajpur District in the state of Odisha.

Aim of the Study

The aim of this investigation is to find out the floristic composition of a grassland community of Jajpur district in Odisha.

Study Site and Environment:

The experimental site was selected at Duburi (20° 59' N; 85° 58' E) in the District of Jajpur (Fig - 1), situated at a distance of 55 kms from Jajpur town, 160 kms from the North Orissa University and 80 kms from Bhubaneswer, the capital of the state of Odisha. The climate of the locality is monsoonal with three distinct seasons i.e. rainy (July to October), winter (November to February) and summer (March to June).

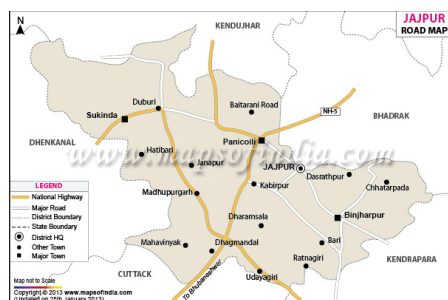


Fig. 1: Map of Jajpur district shawing the experimental site (Duburi)

The total rainfall during the study period was found to be 695 mm, of which a maximum of 303 mm was recorded during September. No rainfall was observed in the month of December. Total number of rainy days was found to be 50 days during the study period. The mean minimum and mean maximum atmospheric temperature recorded during the study period were found to be normal. August showed the highest temperature (34.25° C) whereas December exhibited the lowest temperature (18.12°C).

The soil of the experimental site was found to be somehow acidic (pH range - 6.22 to 6.64). The percentage of organic carbon was found to be in the range of 0.49 to 0.76. The available phosphorus and potassium contents in the soil were found to be very low. The organic carbon (%), available phosphorus and potassium contents of the soil were found to be maximum at upper surface and gradually decreased with the increase in soil depth (Barik, 2017).

MATERIALS AND METHODS

The plant specimens preferably along with reproductive parts were collected from the experimental grassland and brought to the laboratory for identification (Muller- Dombois and Ellenberg, 1974). Identification of all the species were made in consultation with various regional and national Flora i.e. The Botany of Bihar and Orissa (Haines, 1921-25), Supplement to the Botany of Bihar and Orissa (Mooney, 1950), The Flora of Madras Presidency (Gamble and Fischer, 1915-36), Flora of Simlipal (Saxena and Brahmam, 1989), The Flora of Orissa (Saxena and Brahmam, 1994-96) Flora of Madhya Pradesh (Verma *et al.*, 1993, Mudgal *et al.*, 1997 and Singh *et al.*, 2001). The voucher specimens were preserved and housed in the laboratory for future use and reference.

For the analysis of soil, soil samples were collected from three different depths i.e. 0 to 10, 10 to 20 and 20 to 30 cm with the help of a soil corer. Five samples were taken from each depth, labeled and were mixed thoroughly in order to make a composite soil sample. The samples were dried in the open, rolled and sent to the soil testing laboratory, Department of Agriculture, Government of Odisha, District headquarter branch, Jajpur for the determination of soil pH, organic carbon, available phosphorus and potassium content of the experimental site.

The meteorological data i.e. rainfall, number of rainy days and atmospheric temperature were collected from District Agriculture Office, Jajpur and are incorporated in this investigation.

RESULTS AND DISCUSSION

A floristic list of the experimental grassland community is presented in Table-1. The community comprised of 30 species, out of which 10 species belonged to grass family i.e. Poaceae and the rest 20 species to the non-grass family i.e. 4 species from the family Fabaceae, 3 species from Asteraceae, 2 species each from family Cyperaceae, Rubiaceae

and Malvaceae and single species each from family Nyctaginaceae, Capparaceae, Euphorbiaceae, Convolvulaceae, Verbenaceae, Lamiaceae and Acanthaceae.

Table – 1. A complete floristic list of grasses and non-grasses along with their families of the experimental grassland community.

Sl. No.	Name of the Species	Family
Grasses		
1	<i>Brachiaria reptans</i> (L.) Gard. & C.E. Hubb.	Poaceae
2	<i>Brachiaria ramosa</i> (L.) Stapf.	Poaceae
3	<i>Chrysopogon aciculatus</i> (Retz.) Trin.	Poaceae
4	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae
5	<i>Dactyloctenium aegyptium</i> (L.) P. Beauv	Poaceae
6	<i>Eragrostis tenella</i> (L.) P. Beauv	Poaceae
7	<i>Heteropogon contortus</i> (L.) P. Beauv ex. Roem. & Schult.	Poaceae
8	<i>Microchloa indica</i> (L.f.) P. Beauv.	Poaceae
9	<i>Pennisetum pedicellatum</i> Trin.	Poaceae
10	<i>Vetiveria zizanioides</i> (L.)	Poaceae
Non-grasses		
1	<i>Alysicarpus vaginalis</i> (L.) DC.	Fabaceae
2	<i>Boerhavia diffusa</i> L.	Nyctaginaceae
3	<i>Cleome viscosa</i> L.	Capparaceae
4	<i>Crotalaria prostrata</i> Rotl. In Wild.	Fabaceae
5	<i>Cyperus rotundus</i> L.	Cyperaceae
3	<i>Desmodium triflorum</i> (L.)	Fabaceae
7	<i>Emilia sonchifolia</i> (L.) DC.	Asteraceae
8	<i>Euphorbia hirta</i> L.	Euphorbiaceae
9	<i>Evolvulus nummularius</i> (L.) L.	Convolvulaceae
10	<i>Fimbristylis dichotoma</i> (L.) Vahl.	Cyperaceae
11	<i>Hedyotis corymbosa</i> (L.) Lam.	Rubiaceae
12	<i>Indigofera linnaei</i> Ali	Fabaceae
13	<i>Lantana camara</i> L.	Verbenaceae
14	<i>Leucas aspera</i> (Willd.) Link	Lamiaceae
15	<i>Rungia pectinata</i> (L.) Nees	Acanthaceae
16	<i>Sida acuta</i> Burm.f.	Malvaceae
17	<i>Sida cordata</i> (Burm.f.) Borss-walk.	Malvaceae
18	<i>Spermacoce ramanii</i> Sivar & Nair.	Rubiaceae
19	<i>Tridax procumbens</i> L.	Asteraceae
20	<i>Cyanthillium cinereum</i> (L.) H. Rob	Asteraceae

The percentage contribution of various families occurring in the study site (Table–2) revealed that the community was dominated by the members of family Poaceae (33.33%) followed by Fabaceae (13.33%) and Asteraceae (10%). The species belonging to family Cyperaceae, Rubiaceae and Malvaceae, contributed 6.67% each whereas the family Nyctaginaceae, Capparaceae, Euphorbiaceae, Convolvulaceae, Verbinaceae, Lamiaceae and Acanthaceae exhibited the lowest percentage contribution in the community.

Table – 2. Percentage contribution of the families occurring in the experimental grassland community.

Sl No	Family	Species	% Contribution
1	Poaceae	10	33.33
2	Fabaceae	4	13.33
3	Asteraceae	3	10
4	Cyperaceae	2	6.67
5	Rubiaceae	2	6.67
6	Malvaceae	2	6.67
7	Nyctaginaceae	1	3.33
8	Capparaceae	1	3.33
9	Euphorbiaceae	1	3.33
10	Convolvulaceae	1	3.33

11	Verbinaceae	1	3.33
12	Lamiaceae	1	3.33
13	Acanthaceae	1	3.33
Total		30	99.98

SUMMARY AND CONCLUSION

The floristic composition of a grassland community of Jajpur district (20° 59' N; 85° 58' E) comprised of 30 species, out of which 10 species belonged to grass family and the rest 20 species belonged to the non-grass families. The community was dominated by the members of family Poaceae (33.33%) followed by Fabaceae (13.33%) and Asteraceae (10%). The species belonging to family Cyperaceae, Rubiaceae and Malvaceae, contributed 6.67% each and the member of the family Nyctaginaceae, Capparaceae, Euphorbiaceae, Convolvulaceae, Verbinaceae, Lamiaceae and Acanthaceae exhibited the lowest percentage contribution (3.33% each). The floristic composition in grassland community may vary from place to place and from time to time might be due to the topography, geographical distribution, soil characteristics, climatic condition and biotic interference of the locality.

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