

SEASONAL DISTRIBUTION PATTERN OF GRASSES OF DURG BHILAI REGION

BHAWANA PANDEY^{a1}, PRATIKSHA PANDEY^b AND SUDHA AGRAWAL^c

^{a,c}Department of Biotechnology and Microbiology, Bhilai Mahila Mahavidyalaya, Hospital Sector, Bhilai, Chhattisgarh, India

^bDepartment of Botany, Bhilai Mahila Mahavidyalaya, Hospital Sector, Bhilai, Chhattisgarh, India

ABSTRACT

Chhattisgarh state is newly born state known for rich biological diversity and lush greenery. Durg- Bhilai twin city is famous for Bhilai Steel Plant and also for plantation of surroundings barren and open land and gokher land for live stock. But the scenario is totally changed in early decades. There is vast changes observed in the vegetation physiognomy of the district, due the cutting down of forests clearing of area for increased agricultural operations, construction of dams, roads, bridges etc. Present study was based on two years of extensive and intensive survey. The study was conducted in various habitat of Durg-Bhilai region. The important studies area e. g. river bank, open barren land, different rural and urban areas selected for sampling of grassland vegetation. During the course of study total 148 grasslands vegetation were recorded belonging to the 35 families in which Fabaceae and Asteraceae were recorded as most dominant family, family Fabaceae is most dominant family in tree/ shrub group in herbaceous group 60 plant species were recorded in which family Fabaceae, Asterraceae, Malvaceae, Euphorbaceae were the most dominant family (Pandey *et al.*, 2014).

KEYWORDS: Open Barren Land, Dominant Family, Live Stock, Diversity and Lush Greenery.

Chhattisgarh state is newly born state known for rich biological diversity and lush greenery. Durg- Bhilai twin city is famous for Bhilai Steel Plant and also for plantation of surroundings barren and open land and gokher land for live stock. But the scenario is totally changed in early decades. There is vast changes observed in the vegetation physiognomy of the district, due the cutting down of forests clearing of area for increased agricultural operations, construction of dams, roads, bridges etc. Many aliens have entered into floristic composition through accidental are deliberate introduction and the taxonomic status and nomenclature of the plants taxa have also under gone change, therefore a fresh assessment in the field as well as laboratory become necessary and provides justification for this study.

MATERIALS AND METHODS

Chhattisgarh is the 26th state of our country established on November 1st 2000. It covers only 4.14% of the total area of country; it covers 44% of area with forests. Its unique topographical position makes the enormous diversity among Angiospermic plants. In recent years those neglected grassland have gained due importance in the study.

In Durg –Bhilai region, Bhilai is an industrial township of Chhattisgarh also it is famous for its lush greenery in their open and barren area. It lies between 21.10°C north latitude and 81°C -20°C east longitude. The area mainly receives the tropical climatic condition with very hot summer and moderate rain fall and short period

of winters. The district has very rich plant diversity, including weed and grass species keeping these points in view the extensive field survey were under taken during the year 2014-15.

The study area is divided into three blocks namely Durg block, Patan block and Dhamdha block. the Durg-Bhilai region covering an area of 84 km.

The study area covers urban and rural grassland vegetation. These includes Arjunda, Anda, gunderdehi, Dhamdha, Ahiwara, chhatagarh, Nandini mines area, kokha, dondhilohara, tedesara, Utai, Jamul, pairi, Chandkhuri, dhour, risama , nardha higna , girola , penderi tarai , mohlai, dargaon , hasda , bagdoomar, urla , khapri , karela , murmunda , kherda, surdung, Durg-Bhilai urban area eg- sector 1,2,3,4,5,6,7,8,9,10 Hudco, Talpuri , Adarsh Nagar, Station Para , Vidhuyt Nagar, Risali Area , Shanti Nagar Etc.

RESULTS AND DISCUSSION

Present study was based on two years of extensive and intensive survey. The study was conducted in various habitat of Durg-Bhilai region. The important studies area e. g. river bank, open barren land, different rural and urban areas selected for sampling of grassland vegetation. The sample method was implied random sampling method for this purpose total district was divided into three major blocks i. e. Patan Block, Durg Block and Dhamdha Block. Collected plant sample were kept for making herbaria. The herbarium specimen was deposited into college herbarium.

During the course of study total 148 grasslands vegetation were recorded belonging to the 35 families in which Fabaceae and Asteraceae were recorded as most dominant family, family Fabaceae is most dominant family in tree/ shrub group in herbaceous group 60 plant species were recorded in which family Fabaceae, Asterraceae, Malvaceae, Euphorbaceae were the most dominant family. Plant species in herbaceous group namely *Parthenium hysterophorus* (Asteraceae), *Argimon maxicana* (Papavarceae), *Vernonia cinerea* (Asteraceae), *Agiratum cionizoides* (Asteraceae), *Solanum nigrum* (Solanaceae), *Calotropis gigantean* (Asclapidceae), *Datura mental* (Solanaceae) these weeds recorded throughout the year in each sampling plots. Theses frequents weeds are considered as only troublesome weds in the field of grassland, presenting problem for their eradication. On the other hand some medicinal plant species frequently recorded in the field of grassland such as Bhoomi amla (*Phyllanthus niruri*), Punarnava (*Boerhavia diffusa*), Kalmegh (*Andrographis paniculata*), Giloy (*Tinospora cordifolia*), Nir Brahmi (*Bacoca moniera*), Bhringraj (*Eclipta alba*), Vajradanti (*Barlania primonitis*), Bathua (*Chenopodium album*), Chirayata (*Swertia chirayata*) and Arandi (*Ricinus communnis*).

Family Cyperaceae and family Poaceae were recorded well established grass species in the area which

are used for food and fodder for live stocks. Both of the families are Cosmopolitan, showing remarkable range of adaptability to varied ecological conditions. The grass like or rush like herbs, communally known as sedge are found with great diversity. Family Cyperceae were occur in marshes, ponds and along the margin of streams and rivers *Cyperus iria*, *C. difformis*, *C. rotundus*, *Eleoaulon compressus*, *Fimbristylis milicia*, *Carex glucina* are most common species. But *Eleoaulon compressus*, and *Fimbristylis milicia* recorded as endangered plant species in the area. The grass family Poaceae or Gramineae is the most widely distributed amongst the families of vascular plants. It is also one of the largest families of flowering plants. Consisting of about 65 genera and 9000 species (Clayton *et. al.*1994). The grasses occur in all kinds of situation become some of these are hygrophilous habitat, mesophyllous or inhabit in desert or dry area. Grasses are of great importance to man and his domestic animals. They provide food for man (rice, wheat, Maize, Oats, Barley, Millets and Sugarcane) raw products for industries (paper pulp), building and thatching materials (bamboo), Forage for domesticated and wild animals, aeromatic oils (citronella) and vertiveria oils.(Table,1)

Table 1: Seasonal Distribution Pattern of Grasses

S.No	Grasses Sps	Family	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Ac.1AA	<i>Cynodon dactylon</i> L.	Poaceae	+	+	+	+	+	+	+	+	+	+	+	+
Ac.1AA	<i>Cyperus rotundus</i> L.	Cyperaceae	+	+	+	+	-	-	+	+	+	+	+	+
Ac.1AA	<i>Cyperus difformis</i> L.	Cyperaceae	+	+	-	-	-	-	+	+	+	+	+	+
Ac.1AA	<i>Cyperus ejunoides</i> (Lam)	Cyperaceae	-	-	-	-	-	-	-	+	+	+	+	+
Ac.1AA	<i>Cyperus pilosus</i> Vahl.	Cyperaceae	-	-	-	-	-	-	-	-	+	+	+	+
Ac.1AA	<i>Fimbristylis aestivalis</i> Vahl.	Cyperaceae	-	-	-	-	-	+	+	+	+	+	+	+
Ac.1AA	<i>Scirpus dichotomus</i> .L.	Cyperaceae	-	-	-	-	-	-	+	+	+	+	+	+
Ac.1AA	<i>Kyllinga brevifolius</i> rotth	Cyperaceae	-	-	-	-	-	-	+	+	+	+	+	-
Ac.1AA	<i>Pycreus stamineus</i> nees.	Cyperaceae	-	-	-	-	-	+	+	+	+	+	-	-
Ac.1AA	<i>Carex glucina</i> boeck	Cyperaceae	-	-	-	-	-	+	+	+	+	+	+	-
Ac.1AA	<i>Oryza sativa</i> .L.	Poaceae	-	-	-	-	-	+	+	+	+	+	-	-
Ac.1AA	<i>Centotheca lappacea</i> .L.	Poaceae	+	+	+	+	+	-	-	-	-	-	+	+
Ac.1AA	<i>Centotheca latifolia</i> . Osbeck.	Poaceae	-	-	-	-	-	+	+	+	+	+	-	-
Ac.1AA	<i>Elusine indicum</i> . Gaerth.	Poaceae	+	+	+	+	+	+	+	+	+	+	+	+

Ac.1AA	Eragrostis tenella.L.	Poaceae	+	+	+	+	+	+	+	+	+	+	+	+
Ac.1AA	Eragrostis viscose. Retz.	Poaceae	+	+	+	+	+	+	+	+	+	+	+	+
Ac.1AA	Aristida setaceae Retz.	Poaceae	-	-	-	-	+	+	+	+	+	+	+	+
Ac.1AA	Digitaria ciliaris. Retz.	Poaceae	+	+	+	+	+	+	+	+	+	+	+	+
Ac.1AA	Echinochola colona.L.	Poaceae	-	+	+	+	+	+	+	-	-	-	-	-
Ac.1AA	Eriochloa procera. Retz.	Poaceae	-	+	+	+	+	+	+	-	-	-	-	-
Ac.1AA	Penicum psilopodium. Trin gram	Poaceae	-	-	-	-	-	-	-	+	+	+	+	+
Ac.1AA	Penicum repens.L.	Poaceae	-	+	+	+	+	+	-	-	-	-	-	-
Ac.1AA	Paspalidium flavidum. Retz.	Poaceae	-	+	+	+	+	+	-	-	-	-	-	-
Ac.1AA	Poa spp	Poaceae	-	+	+	+	+	-	-	-	-	-	-	+

Besides these grasses play a great role in the soil conservation and wildlife management perhaps, economically the grasses out weight all other families of flowering plants. *Cynodon dactylon*, *Heteropogon*, *Contortus*, *Themeda triandra*, *Ischemum indicum*, *dactyloctenium aegyptium*, *Anthraxon hispidus*, *Dicanthium annulatum*, *Eragrostis tenella*, *Eriochloa procera*, *Echinocloa colona*, *Digitaria ciliaris*, *Penicum repens*, *Paspalum distichum* are the dominant species. In which *Ischemum*, *Heteropogon*, *Vetevaria* are the grass species recorded as endangered species therefore a urgent need for conservation and balanced exploitation of the indigenous natural plant wealth a grassland- grazing policy to ensure the sustainable use of grassland and biodiversity.

REFERENCES

Champion H.G., 1936. A preliminary survey of the forest types of India and Burma. Ind.For. Rec. New ser (silv), 1.

Clayton W.D., 1981. Evolution and distribution of grasses. Ann. Missouri Bot. Gard., 68:14.

Cope T.A., 1982. Poaceae, No. 143. In: E. Nasir and S. I. Ali (Eds.), Flora of National herbarium, Pakistan Agricultural Research Council, Pakistan.

Delgado M.E.S., 2007. Culm anatomy of *Bouteloua* and relatives (Gramineae: Chloridoideae: Boutelouinae. Acta Botanica Mexicana, **78**:39-59.

Good R., 1953. The geography of the flowering plants. 2nded Longmans, Green & Co., Ltd., London.

Mitra S. and Mukherjee S.K., 2004. Ethnobotanical usages of Grasses by the tribals of West Dinajpur District, West Bengal. Ind. J. Tradit. Knowledge, **4** (4): 396 - 402.

Olorode O., 1984. Taxonomy of West African flowering plants, Longman Publishers, London. 1st Edition.

Pandey et al., 2014, Ecological status of weed flora found in Bhilai Nagar, I.J.S.R., **4**(1):115-120.

Pandey, Bhandari and Pandey, 2014. Ecological status of weed flora found in Bhilai Nagar. I.J.S.R., **4**(1) 115-120.

Soderstrom T.R., Hilu K.W., Campbell C.S. and Barkworth M.E.,1987. Grass systematics and evolution. Smithsonian Institution Press, Washington D. C., pp. 472.

Webster R.D., 1988. Genera of the North American Paniceae (Poaceae: Panicoideae). Syst. Bot., **13**: 576-609.