

**WEED FLORA OF KHARIF CROPS OF BALLIA DISTRICT OF UTTAR PRADESH, INDIA**

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**Received** : 25.01.18; **Accepted** : 22.03.18**ABSTRACT**

Ballia is one of the important district of Uttar Pradesh bordering Bihar and surrounded by rivers Ganga and Ghaghara. Soil is fertile and the living mode completely depends upon the agricultural practices. Majority of crops are affected by weeds. The common weeds of kharif crops are *Bergia ammannioides*, *Eclipta prostrata*, *Ipomea aquatica*, *Sida acuta* and *Tridax procumbens* etc. The present communication is a survey report about weed flora associated with kharif crops. During investigation 77 weed species of angiospermic plants were found. The botanical names, families and flowering and fruiting periods of each species were studied.

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KEY WORDS : Ballia, Kharif Crops, Weed.

**Introduction**

Belonging to Azamgarh Division Ballia is an important district of Purvanchal area of Uttar Pradesh. The district is a level plain, intersected by numerous streams. Though, there are no hills, the level surface is varied because of the high banks of the great rivers and gentle slope from the central watershed towards the Ganga and Ghaghra. Majority of the people's life depend upon the agriculture. Agriculture practices divided into three groups Rabi, Kharif, and Jayed. Kharif crops are usually sown with the beginning of the first rains in July, during the south-west monsoon season. In our country the kharif season varies by crop and state, in general it starts in June and to end in October. Kharif stand in contrast with the rabi crops, cultivated during the dry season. Both words came with the arrival of Mughal in the Indian subcontinent and are widely used ever-since. Kharif means autumn in Arabic. Since this period coincides with the beginning of autumn/ winter in the Indian sub continent, it is called "The Kharif period". The common Kharif crops of the area are paddy (*Oryza sativa*), Maize (*Zea mays*), Jowar (*Sorghum vulgare*), Bajra (*Pennisetum typhoides*) and likh (*Sacharum officinarum*)<sup>8</sup>.

A weed is a plant, which is not desired<sup>7</sup>. It is unwanted, nonuseful often prolific and persistent, competitive, harmful, even poisonous<sup>3</sup>. The diversification of weed flora is so prominent that even the dominant weed in the same crop may differ widely in the neighboring field.

The time bound modification of agro-technology of crops as well as introduction of new inputs like irrigation introduction of high-yielding varieties, fertilizer application, etc. further help in development of new weed species,

some of which soon occupy dominant position in different situation. The complex agricultural system does not make it possible to explore all dominant weed of Kharif crops. Weeds interfere agricultural operation by increasing the labor cost, reduce the productivity and detract from the comfort of life. According to an estimate one third of crop loss in India is due to weeds, valued Rs. 16.5 billion<sup>1</sup>. Besides, many weeds harbor insects pests and fungal diseases, weed show allelopathic effects on crop and due to this crop can not grow normally and productivity decreases. Detailed information about weeds and their life history should be made available before taking up any weed eradication programme. Completion of weed flora is a prerequisite for undertaking the weed management technology in crops or cropping system<sup>9</sup>.

No attempts have been made for systematic botanical exploration of weed flora of Kharif crops of this district. Thus the present investigation was taken up to make a systematic approach to the weeds of this area which are found in the Kharif crops.

**Material and Method**

In the season of Kharif crops, the area was surveyed. Regular surveys were conducted in such a way to cover the entire area at a regular intervals. The district Ballia can be divided into six regions for the convenience of exploration of the weeds, These regions are Ballia, Rasara, Belthra Road, Bansdih, Bairia and Sikanderpur. At the time of survey weeds were collected and placed in a vasculam for the prevention of desiccation. At this time dominancy of weeds were seen, photography was taken. After each collection trip weeds were brought to the laboratory. They were studied, dried

**TABLE-1: List of weeds along with their flowering-fruited period****Dicotyledonous Weeds:**

No.	Family & Botanical Name	Flowering-Fruiting period
1	<b>Brassicaceae</b>	
	1. <i>Lepidium sativum</i>	Feb. Aug
2	<b>Cleomaceae</b>	
	2. <i>Cleome gynandra</i>	July – Oct
	3. <i>C. viscosa</i>	July – Sept.
3	<b>Elatinaceae</b>	
	4. <i>Bergia ammannoides</i> Roxb.	Oct. – Jan
4	<b>Malvaceae</b>	
	5. <i>Malvastrum coromadelianum</i>	July – Jan.
	6. <i>Sida acuta</i>	Aug. – Dec.
5	<b>Sterculiaceae</b>	
	7. <i>Melochia corchorifolia</i>	Sept.– Dec.
6	<b>Tiliaceae</b>	
	8. <i>Corchorus aestuans</i>	Aug. – Nov
	9. <i>C. fascicularis</i>	Sept. – Nov.
	10. <i>Corchorus acutangulus</i>	Aug. – Nov.
7	<b>Papilionaceae</b>	
	11. <i>Aeschynomene aspera</i>	July – Nov.
	12. <i>Alysicarpus monilifer</i>	Sept. – Nov.
	13. <i>Crotalaria medicaginea</i>	July – Nov.
	14. <i>Desmodium trifolium</i>	Throughout the year
8	<b>Caesalpiniaceae</b>	
	15. <i>Cassia absus</i>	Aug. – Oct.

No.	Family & Botanical Name	Flowering-Fruiting period
	16. <i>C. tora</i>	Aug. – Nov
9	<b>Lythraceae</b>	
	17. <i>Ammania baccifera</i>	June – Jan.
10	<b>Aizoaceae</b>	
	18. <i>Trianthema portulacastrum</i>	June- Jan.
11	<b>Rubiaceae</b>	
	19. <i>Oldenlandia nudicaulis</i>	June- Dec.
12	<b>Asteraceae</b>	
	20. <i>Caesulia axillaris</i>	Sept – April
	21. <i>Eclipta prostrata</i>	Throughout the year
	22. <i>Inula indica</i>	Dec.–March
	23. <i>Parthenium hysterophorus</i>	Throughout the year
	24. <i>Tridax procumbens</i>	Throughout the year
	25. <i>Vernonia cinerea</i>	Throughout the year
	26. <i>Xanthium strumarium</i>	Sept.– June
13	<b>Convolvulaceae</b>	
	27. <i>Ipomoea aquatica</i>	Sept. - Feb.
	28. <i>I. fistulosa</i> Mart.ex	Throughout the year
	29. <i>Convolvulus arvensis</i>	Aug.–March
14	<b>Scrophulariaceae</b>	
	30. <i>Lindernia anagallis</i>	Aug. – Dec.
	31. <i>L. ciliate</i>	Aug. – Nov.
	32. <i>L. crustacean</i>	Aug. – Jan.
15	<b>Acanthaceae</b>	
	33. <i>Hygrophill auriculata</i>	Sept.– Dec.

No.	Family & Botanical Name	Flowering-Fruiting period
16	<b>Verbenaceae</b>	
	34. <i>Phyla nodiflora</i>	July – April
17	<b>Lamiaceae</b>	
	35. <i>Leucas aspera</i>	July – April
18	<b>Amaranthaceae</b>	
	36. <i>Alternanthera sessilis</i>	Aug. – Oct.
	37. <i>Amranthus spinousus</i>	Sept.– Feb.
	38. <i>Amranthus virides</i>	Sept.– March
	39. <i>Celosia argeneta</i>	Aug. – Oct.
	40. <i>Digera arvensis</i>	Aug. – Oct.
	41. <i>Gomphrena globosa</i>	Sept.–Feb.
19	<b>Nyctaginaceae</b>	
	42. <i>Boerhavia diffusa</i>	July – Jan.
20	<b>Polygonaceae</b>	
	43. <i>Polygonum barbatum</i>	Sept.–Jan.
	44. <i>P. glabrum</i>	Sept –April
21	<b>Euphorbiaceae</b>	
	45. <i>Euphorbia hirta</i>	Throughout the year
	46. <i>E. prostrate</i>	Throughout the year
	47. <i>Phyllanthus niruri</i>	June – Nov
	48. <i>P simplex</i>	Aug. – Dec.
	49. <i>P. urinaria</i>	July – Dec.

in old news paper, poisoned and pasted on the standard size herbarium sheets (41.25cm X 28.75 cm ). The weeds were identified<sup>2,5,6</sup>.

**TABLE-2: List of weeds along with their flowering-fruited period**

**Monocotyledonous Weeds :-**

No.	Family & Botanical Name	Flowering-Fruiting period	
22	<b>Commelinaceae</b>		
	50. <i>Amischophacelus axillaris</i>	July – Jan	
	51. <i>Commelina benghalensis</i>	June – Nov.	
	52. <i>Commelina nudiflora.</i>	Aug. – Nov.	
23	<b>Cyperaceae</b>		
	53. <i>Bulbostylis barbata</i>	Aug. – Oct	
	54. <i>Cyperus bravifolius</i>	Jan. – Oct.	
	55. <i>C. compactus</i>	Aug. – Nov.	
	56. <i>C. compressus</i>	July – Oct.	
	57. <i>C. difformis</i>	Aug. – Jan.	
	58. <i>C. exaltatus</i>	Sept.– Nov.	
	59. <i>C. iria</i>	Aug. – Nov.	
	60. <i>C. rotundus</i>	July – Dec.	
	61. <i>Fimbristylis ferruginea</i>	June – Oct.	
	62. <i>F. shoenoides</i>	Aug. – Oct.	
	63. <i>Scirpus affinis</i>	Aug. – Nov.	
	24	<b>Poaceae</b>	
		64. <i>Brachiaria ramosa</i>	June – Oct.
		65. <i>Cynodon dactylon</i>	Throughout the year
66. <i>Dactyloctenium aegyptium</i>		June – Nov.	
67. <i>Digitaria ciliaris</i> (Retz.)		June – Nov.	
68. <i>Echinochloa colonum</i>		June – Nov.	

No.	Family & Botanical Name	Flowering-Fruiting period
	69. <i>E. stagnina</i>	June – Nov.
	70. <i>Eleusine indica</i>	July – Nov.
	71. <i>Eragrostis tenella</i>	Aug. – Jan.
	72. <i>Imperata cylindrica</i>	June – Oct
	73. <i>Ischaemum rugosum</i> Salish	Sept. – Jan
	74. <i>Oplismenus burminii</i>	July – Dec.
	75. <i>O. composites</i>	Aug. – Jan.
	76. <i>Oryza fatua</i>	June – Oct.
	77. <i>Portulaca oleracea</i>	June – Nov.

In the present communication a widely accepted natural system of classification was followed. However,

some changes and new families have been included. Every effort has been made to bring the nomenclature upto date. Weeds are arranged alphabetically along with their flowering and fruiting period.

### Results

The common weeds which are reported in crop fields during investigation are listed along with their flowering and fruiting period (Tables-1 & 2).

### Discussion

In all 77 species belonging to 55 genera and 24 families were recorded. Out of these 21 families, 37 genera and 49 species belong to dicots and 3 families 18 genera and 28 species to monocots. The ratio between dicot and monocot weeds is 1:0.75 although the number of dicot weeds were more than monocot weeds, the severity of weed infestation in Kharif crops specially in paddy and maize field was more in comparison to other crop. The dominant weeds were found to be *Melochia corchorifolia*, *Corchorus aestuans*, *Ammania baccifera*, *Lindeernia anagallis*, *Hygrophila auriculata*, *Celosia argentia*, *C. rotundus*, *Brachiaria ramosa*, *Cynodon dactylon*, *Echinochloa colonum* and *Eragrostis tenella* throughout the area.

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