

Taxonomic Study on the Weeds of Wheat Fields in Attock District

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ABSTRACT

Seventy eight species distributed among twenty four families and sixty four genera were recorded as the weeds of wheat fields in Attock district. *Calendula arvensis* L., *Stellaria media* (L.) Vill., *Chenopodium album* L., *Carthamus oxyacantha* M. Bieb., *Convolvulus arvensis* L., *Fumaria indica* (Hausskn.) Pugsley, *Lathyrus aphaca* L., *Vicia monantha* Retz., *Avena fatua* L. and *Anagallis arvensis* L. were the most common weeds in all the district having at least 70% distribution in majority of the sites, while 13 species had minimum percentage frequency (5-10%). Few species were found as a frequent escape from other cultivated crops. Illustrations has been given to facilitate identifications.

INTRODUCTION

Weeds are plants invading undesirably in crop lands, gardens, parks, or other cultivated areas. Usually weeds compete vigorously with crops of interest and drastically reduce the yield.

Muzik (1970) showed that weeds cause greater losses than either insect or plant diseases. The allelopathic action of weeds affect germination, growth, productivity and distribution

of species in natural and cultivated ecosystems. (Muller, 1966, 1969). Hus-sain and Shah (1978) have observed that weeds not only rob the cultivated plants of their essential food elements, but also harbour insects/ pests and diseases, injurious to the crop plants.

Control of weeds is one of the most important component of modern agricultural technology. This approach pre-supposes a detailed knowledge of individual weed species. Justice and White-head (1964); Barton (1962); and Rao (1968) worked on the reproduction of weeds and the factors affecting their distribution in time and space.

According to Mehmood (1987), difficulty in weed identification has led to misrepresentation of the weed species. Moreover, these unwanted plants are continually appearing in new areas and the need for rapid identification of such newcomers cannot be overemphasized. Luthra (1938) studied the taxonomy and control of weeds of Punjab, but, accounted for only a fraction of the total weed flora present in the country.

Shinwari & Wazir (1988) studied 43 species of weeds of wheat fields from Bannu district. They also formulated a comprehensive key for their identification.

The weed flora of Pakistan is quite variable due to the difference in climate and topographic conditions at

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various levels. Agricultural scientists as well as field workers always face a problem in identification of weeds.

Keeping in view the above facts, a simplified weed flora with illustrations and frequency of occurrence was prepared. Botanical and common names have been given to facilitate identification. The growing season & the importance of weeds are also given of controlling such weeds, when they are very small and easy to kill before they compete with the crop.

MATERIALS AND METHODS

A survey was carried out during Dec. 1987 to May 1988 in Attock district and its adjoining areas for weed collection of wheat fields. The other basic informations about weeds like habitat, flower colour, occurrence, frequency etc. were also recorded. The collected weeds were preserved and identified by comparison with authenticated herbarium specimens of Pakistan Museum of Natural History (PMNH), National Herbarium, PARC and the herbarium of Quaid-i-Azam University, Islamabad using "Flora of west Pakistan" (Nasir and Ali, 1970, Stewart 1972) and "Flora of British India" (Hooker, 1875-1897). The voucher specimens were deposited in the herbarium of PMNH. Moreover, some weeds from the study area reported by others, were also included. Illustrations are original but, for reference help was taken from "Flora of Pakistan" (Nasir and Ali, 1970-87). Few of the reported weeds are an escape from the other crops, but are weeds in wheat fields. So some of them are reported in the tables.

RESULTS AND DISCUSSION

It is very obvious from the results that the weed flora of Attock is quite variable due to the difference of climate and topographic conditions at various levels.

Seventy eight species distributed among twenty four families and sixty four genera were recorded as the weeds of wheat fields in Attock district. Out of the 78 species recorded, 9 species (2 of Liliaceae, 7 of Poaceae) are monocotyledonous while the remaining were dicotyledonous.

The frequency percentage of each weed in 4 Tehsils is given in table 1. *Calendula arvensis* L., *Stellaria media* (L) Vill., *Chenopodium album* L., *Carthamus oxycantha* M. Bieb., *Convolvulus arvensis* L., *Fumaria indica* (Hauskn.) Pugsley, *Lathyrus aphaca* L., *Vicia monantha* Retz., *Avena fatua* L. and *Anagalis arvensis* L., were the most common weeds in all the district having at least 70% distribution in majority of the sites, while *Aerva javanica* Burm. f., *Cardaria chalapense* (L.) Hand.-Mazz., *Cleome brachycarpa* Vahl. ex DC., *Spergula fallax* (Lowe.) Karause, *Vaccaria hispanica* (Miller) Raus., *Breca arvensis* (L.) Less, *Conyza aegyptiaca* Dryand, *Asparagus adscendens* Roxb., *Malva microcarpa* Pers., *Hypocoum pendulum* L., *Vicia nabrodensis* L., *Emex australis* Steinh. and *Solanum cordatum* Forssk. have minimum percentage frequency (5-10%). *Brassica rapa* L. ssp., *campestris* (L.) Clapham, *Eruca sativa* Mill., *Cicer arietinum* L. & *Trifolium alexandrinum* L. were found as a frequent escape from other cultivated crops.

Description of the weeds including its scientific family and vernacular names; its occurrence, status and flowering period are given in table 1.

The best time to control annual weeds is when they are very small and easy to kill before they compete with the crop and produce seeds flowering period listed in table can be much help in this regard. Probably perennial weeds are very dangerous, and they may be difficult to control, because perennials can reproduce by stolons, suckers and rhizomes.

ACKNOWLEDGEMENT

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Table 1. Occurrence, flowering period and percentage frequency of the weeds in 4 tehsils of attock district.

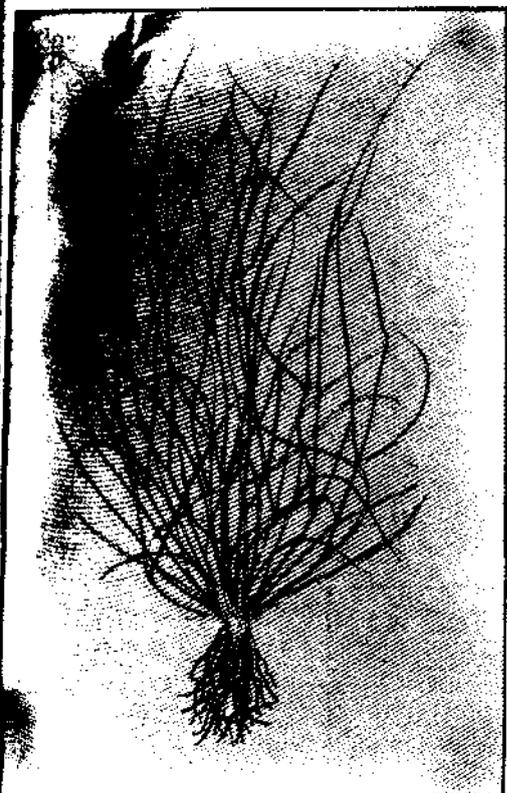
Weed	Importance	Flowering Period	Percentage Frequency			
			Attock	Fatehjung	Jund	Pindigaib
I FAMILY AMARANTHACEAE						
<i>Aerva javanica</i> (Burm.f.) Juss.	Rare	Apr.-Jun.	-	-	10	5
<i>Amaranthus spinosus</i> L.	Rare	All around	30	20	-	-
<i>A. viridus</i> L.	Common	All around	50	50	-	2
II FAMILY BORAGINACEAE						
<i>Heliotropium europaeum</i> L.	Rare	April	40	10	-	-
<i>Trichodesma indicum</i> (L.) R.Br.	Common	Mar.-Aug.	30	30	-	1
III FAMILY BRASSICACEAE						
<i>Brassica rapa</i> L. ssp., <i>campestris</i>	Common	Jan.-Mar.	50	50	70	6
<i>Capsella bursa-pastoris</i> (L.) Medik	Less common	Mar.-June	40	50	20	5
<i>Cardaria chalapense</i> (L.) Hand.-Mazz.	V.rare	Apr.-July	10	5	-	-
<i>Coronopus didymus</i> (L.) Smith	Rare	Mar.-June	20	10	-	5
<i>Eruca sativa</i> Mill.	Rare	Apr.-June	-	10	30	-
<i>Descurainia sophia</i> (L.) Webb.	Rare	Apr.-July	20	10	-	-
<i>Goldbachia laevigata</i> (M.Bieb.) DC.	Less common	Mar.-May	10	20	-	3
<i>Malcolmia africana</i> (L.) R.Br.	Rare	Mar.-June	20	10	-	5
<i>M. cabulica</i> (Boiss.) Hook.f.	Common	Mar.-May	50	40	10	3
<i>Neslia apiculata</i> Fisch.,	Less common	Mar.-Apr.	30	10	-	-
<i>Sisymbrium irio</i> L.	Common	Mar.-May.	10	20	40	3
IV FAMILY CAPPARIDACEAE						
<i>Cleome brachycarpa</i> Vahl.	Rare	Mar.-Apr.	-	-	10	1

Weed	Importance	Flowering Period	Percentage Frequency			
			Attock	Fatehjung	Jund	Pindigaib
V FAMILY CARYOPHYLLACEAE						
<i>Silene conoidea</i> L.	Common	Mar.-May	80	80	20	5
<i>Spergula fallax</i> (Lowe.) Krause	V.rare	Mar.-June	10	-	-	-
<i>Stellaria media</i> (L.) Vill.	Abundant	Jan.-May	95	90	80	8
<i>Vaccaria hispanica</i> (Miller) Raus.	Rare	Mar.-Apr.	10	10	-	-
VI FAMILY CHENOPODIACEAE						
<i>Chenopodium album</i> L.	Abundant	Apr.-Aug.	100	90	80	8
<i>C. murale</i> L.	Common	Mar.-Sep.	50	30	20	-
VII FAMILY COMPOSITAE						
<i>Breca arvensis</i> (L.) Less	Rare	Mar.-June	5	-	-	-
<i>Calendula arvensis</i> L.	Abundant	Feb.-May	100	90	95	9
<i>Carthamus oxyacantha</i> M.Bieb	Abundant	Mar.-July	85	80	80	9
<i>Conyza aegyptiaca</i> Dryand	V.rare	Feb.-June	-	5	-	-
<i>Launea procumbens</i> (Roxb.) Ramayya	Common	Summer	20	60	-	1
<i>Pulicaria crispa</i> (Forssk.) Benth.	Common	Mar.-Apr.	20	30	-	-
<i>Scorzonera ammophila</i> Bunge	Rare	Spring	10	40	-	-
<i>Silybum marianum</i> Gaerth.	Common	Jan.-June	50	20	-	1
<i>Sonchus asper</i> (L.) Hill	Common	Jan.-Apr.	60	50	20	4
<i>S. oleraceus</i> L.	Rare	Jan.-May	30	10	-	-
<i>Taraxacum officinale</i> auct. non Webber.	Common	Feb.-July	80	70	50	2
<i>Xanthium strumarium</i> L.	Common	Summer	30	20	-	1

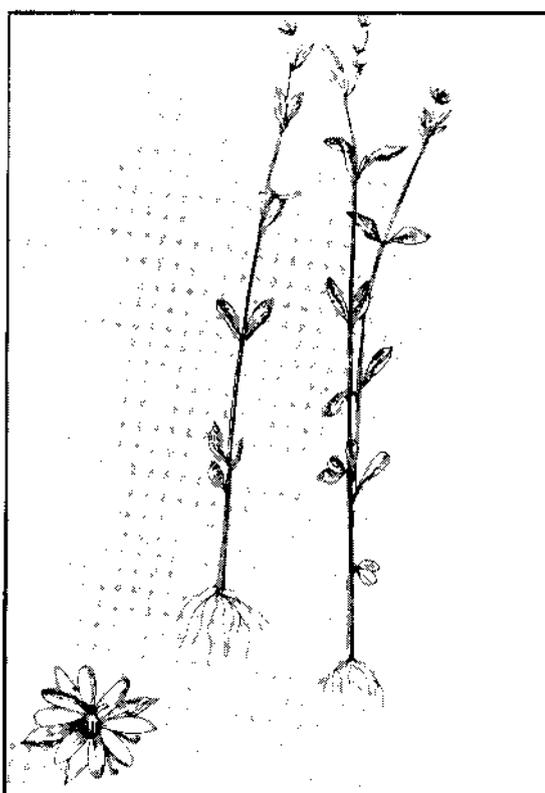
Weed	Importance	Flowering Period	Percentage Frequency			
			Attock	Fatehjung	Jund	Pindigaib
VIII FAMILY CONVULVULACEAE						
<i>Convolvulus arvensis</i> L.	Abundant	Feb.-Apr.	100	95	80	9
IX FAMILY EUPHORBIACEAE						
<i>Euphorbia dracunculoides</i> L. Less	Common	Feb.-May	50	30	10	2
<i>E. helioscopia</i> L.	Common	Jan.-Apr.	80	80	30	5
X FAMILY FUMARIACEAE						
<i>Fumaria indica</i> Hausskn.	Abundant	Mar.-June	100	95	80	9
XI FAMILY LABAITAE						
<i>Salvia moorcroftiana</i> Wall.	Common	Spring	50	60	20	5
XII FAMILY LILIACEAE						
<i>Asparagus adscendens</i> Roxb.	Vrare	Spring	-	5	-	-
<i>Asphodelus tenuifolius</i> Cav.	Common	Mar.-May	50	70	30	2
XIII FAMILY MALVACEAE						
<i>Malva microcarpa</i> Pers.	V.rare	Spring	10	-	-	-
<i>M. parviflora</i> L.	Common	Spring	20	30	60	5
XIV FAMILY OROBANCHACEAE						
<i>Orobanche aegyptiaca</i> Pers.	Common	Apr.-Sep.	-	30	-	1
XV FAMILY PAPAVERACEAE						
<i>Hypecoum pendulum</i> L.	V.rare	Mar.-Apr.	-	-	5	1

Weed	Importance	Flowering Period	Percentage Frequency			
			Attock	Fatehjung	Jund	Pindigaib
XVI FAMILY PAPILIONACEAE						
<i>Alhagi maurorum</i> Medic.	Less common	Apr.-Sep.	-	10	20	3
<i>Cicer arietinum</i> L.	Common	Feb.-Apr.	30	60	20	1
<i>Lathyrus aphaca</i> L.	Abundant	Feb.-Apr.	100	90	80	9
<i>Medicago laciniata</i> (L.) Mill.	Common	Mar.-Apr.	70	60	10	3
<i>M. polymorpha</i> L.	Common	Mar.-May	50	40	10	2
<i>Melilotus indica</i> (L.) All.	Common	Mar.-Aug.	70	60	10	3
<i>Trifolium alexandrianum</i> L.	Less common	Apr.-July	20	15	-	5
<i>Trigonella monantha</i> C.A. Meyer ssp. <i>incisa</i>	Common	Jan.-Apr.	40	50	10	3
<i>Vicia hirsuta</i> (L.) S.F. Gray	Less common	Feb.-Aug.	30	10	-	-
<i>V. monantha</i> Retz.	Abundant	Feb.-Apr.	90	95	80	8
<i>V. nabrodensis</i> L.	V.rare	March	5	-	-	-
<i>V. sativa</i> L.	Common	Apr.-Aug.	50	30	-	2
XVII FAMILY PLANTAGINACEAE						
<i>Plantago amplexicaulis</i> Cav. ssp. <i>baupula</i>	Common	March.	50	30	10	3
XVIII FAMILY POACEAE						
<i>Aristida adscensionis</i> L.	Less common	Mar.-Dec.	20	30	-	-
<i>Avena fatua</i> L.	Abundant	Mar.-Aug	90	90	80	8
<i>Cenchrus biflorum</i> Roxb.	Common	Jan.-Apr.	30	40	-	-
<i>C. ciliaris</i> L.	Common	Mar.-Apr.	50	40	10	3
<i>Cynodon dactylon</i> (L.) Pers.	Common	All around	30	100	-	2
<i>Phalaris minor</i> Retz.	Common	Mar.-May	30	40	-	2
<i>Themeda anathera</i> Nees ex Steud.	Rare	June-Oct.	20	10	-	-

Weed	Importance	Flowering Period	Percentage Frequency			
			Attock	Fatehjung	Jund	Pindigaib
XIX FAMILY POLYGONACEAE						
<i>Emex australis</i> Steinh.	V.rare	Spring	5	-	-	-
<i>E. spinosus</i> (L.) Campd.	Common	Mar.-Apr.	10	-	50	-
<i>Polygonum plebejum</i> R. Brown	Common	All around	50	40	-	3
<i>Rumex dentatus</i> L.	Common	Feb.-Sep.	50	40	10	3
XX FAMILY PRIMULACEAE						
<i>Anagallis arvensis</i> L.	Abundant	Jan.-Mar.	100	90	80	8
XXI FAMILY RANUNCULACEAE						
<i>Ranunculus arvensis</i> L.	Rare	Feb.-Aug.	30	20	-	-
<i>R. muricatus</i> L.	Common	Jan.-Mar.	50	40	10	3
XXII FAMILY SCROPHULARIACEAE						
<i>Veronica persica</i> Poir.	Less Common	Mar.-Apr.	-	10	10	2
XXIII FAMILY SOLANACEAE						
<i>Solanum cordatum</i> Forssk.	V. rare	Mar.-Apr.	5	10	-	-
<i>S. surattense</i> Burm.f.	Common	All around	30	20	-	1
XXIV FAMILY UMBELLIFERAE						
<i>Scandix pecten-veneris</i> L.	Common	Feb.-Apr.	60	50	-	1
<i>Torilis leptophylla</i> (L.) Reichb.f.	Common	Spring.	40	30	-	-



Aristida absensionis L.



Stellaria media (L.) Cyrill.



Phedusa tenuifolia Cav.



Cl. U. H. I.



Chenopodium murale L.

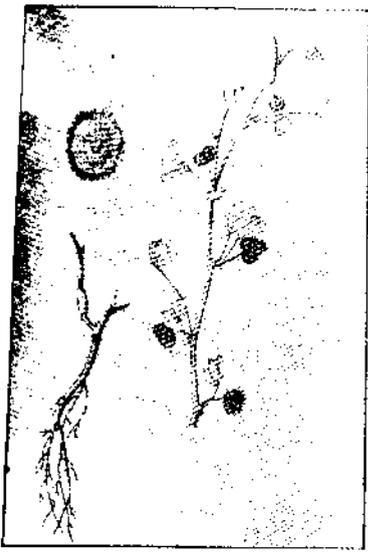


Carthamus oxyacantha M. B.



Convolvulus arvensis L.





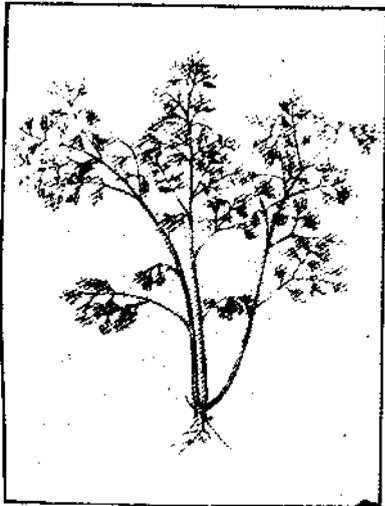
Medicago polymorpha L.



Lathyrus aphaca L.



Vicia monantha Retz.



Fumaria indica (Hausskn.) Pursh.



Vicia sp.