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WEEDS OF WHEAT FIELDS AROUND MUZAFFARABAD, AZAD JAMMU AND KASHMIR

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Thirty-eight species belonging to 24 families were recorded as weeds of wheat from three different areas of district Muzaffarabad during March-April, 1990. Family Asteraceaea had 7 species while Papilionaceae and Poaceae each had 3 species. Two species were recorded for Caryophyllaceae, Boraginaceae, Lamiaceae and Ranunculaceae. Each of the remaining 17 families had single species. There were 78:95% therophytes, 5.26% hemi-cryptophytes and 15.79% geophytes. The index of similarity shows close resemblance due to similar ecological conditions, season and proximity of the sites within the area.

INTRODUCTION

Weeds decrease the available resources to the desired crop species by a number of ways (Rao, 1983). The negative influence upon the crops ultimately affect the welfare of human being as energy is diverted in unwanted direction. Competition for habitat resources, allelopathy, facilities for alternate hosts for pathogens/harmful organisms, seed contamination and many other characters are undesirable features of weeds (Putnam and Duke, 1978). There are few such reports from Azad Kashmir, especially of wheat fields of Muzaffarabad. The present report is a contribution to weeds of crops from Azad Jammu and Kashmir in general and wheat fields specially. Such ecological information are generally prerequisite in formulating any organized effort for controlling weeds in a particular region and crop.

MATERIALS AND METHODS

Ghari Dopatta, Hatian Bala and Kohoree, all within a radius of 30 km from Muzaffarabad, were surveyed during March-April, 1990. Weed plants within ~ m of the field borders were not counted to avoid edge effect. Density, frequency and cover of each species were determined using 20, O.5xO.5m quadrats laid randomly in each of the sites and important values were computed from these data for determining species dominance (Hussain, 1989). Biological spectrum and index of similarity were calculated following Hussain (1989). Nomenclature followed here is that of Stewart (1972).

RESULTS AND DISCUSSION

Thirty-eight species of 24 families were recorded as weeds of wheat in Muzaffarabad (Table 1). The families are Asteraceae (7 species), Poaceae and Papilionaceae (each with 3 species). CaryophyJlaceae, Lamiaccac, Boraginaceae and Ranunculaceae each had 2 species. The remaining 17 families had one species each. There were 30 species in Kohrcc, 20 in Hatian bala and 17 in Ghari Dopatta. The most frequently recorded weeds in Kohree were *Anagallis, Medicago, Setaria* followed by *Oxalis* and *Vicia* (Table 1). *Taraxacum, Scandix, Stellaria* and *Herunan ia* were next in order

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Table 1. Distribution and life form of weeds or wheat fields around MuzalTarabad, Azad Jammu and Kashmir

	Species	Life form	Importance value			Constancy class
			Kohree	Hatian bala	Ghari Dopatta	
I.	*Apiaceae*					
	1. *Scandix pecten-veneris* L.	Th	13.41	20.08	19.63	V
II.	*Asteraceae*					
	1. *Carthamus oxyacantha* M.D.	Th	0.97	-	-	II
	2. *Conyza aegyptiaca* Ail.	Th	4.37	-	-	II
	3. *Conyza japonica* Less	Th	4.23	-	-	II
	4. *Eclipta prostrata* L.	G	2.66	-	-	II
	5. *hili/a vestita* Wall	Th	5.79	-	-	II
	6. *Sonchus arvensis* (DC) Kirp	1'h	7.68	-	-	II
	7. *Taraxacum officinate* Weber	a	13.41	1.10	-	IV
III.	*Boragillaccae*					
	1. *Lilltospermum arvensis* L.	Th	5.58	18.20	11.76	V
	2. *Cynoglossum* spp.	1'h	-	16.03	-	II
IV.	*Brassicaceae*					
	1. *Capsclla bursa-pastoris* (L) Medic	Th	6.13	13.84	9.21	V
V.	*Cannabinaceae*					
	1. *Cannabis sativa* L.	Th	3.54	6.87	-	IV
VI.	*Caryophyllaceae*					
	1. *Silene conoidea* L.	Th	4.73	4.19	10.83	V
	2. *Steliaria media* (L.) Cry	Th	12.54	29.32	37.40	V
VII.	*COlll'O/vll/accae*					
	1. *COIIVO/VII/IIS rvensis* Linn	Th	3.34	-	-	II
VIII.	*Ellpllorbiaccac*					
	1. *Euphorbia hclioscopia* L.	Th	7.20	10.37	13.90	V
IX.	*Fllmariaccae*					
	1. *Fumaria indica* (Ilausskn) IIN	1'h	-	6.16	11.46	IV
X.	*Geraniaceae*					
	1. *Geranium nepalcnse* Swcct	Th	6.59	2.85	-	IV
XI.	*Lamiaceae*					
	1. *Lamium amplexicautc* Linn	I'lJ	-	34.14	14.06	IV
	2. *Mentha logifolia* L.	a	3.34	-	-	II
XII.	*Liliaceae*					
	1. *Tulipa stellata* Hook. f	G	-	6.83	-	II

XIII.	*Malvaceae*					
	I, Mall'aSIlWll coromandclianutn (L.) Garckc	11	6.26	-	-	11
XIV.	*Onagraccae*					
	I. *ttartmania rosca* I: 11~r	Th	12.52	-	-	11
XV.	*Oxalidaceae*					
	I. *Oxalis corniculate* L.	G	20.50	-	-	11
XVI.	*Papavcraceae*					
	I. *Papaver rhoaes* L.	Th	-	4.55	-	11
XVII.	*Papilionaceae*					
	I. *Latriyrus aphaca* L.	Th	11,72	23.71	17.09	V
	2. *Mcdicago laciniata* (L.) Mill	Th	26,31	11,80	45,65	V
	3. *Vicia sativa* L.	Th	15.89	24.97	7.77	V
XVIII.	*Poaceac*					
	I. *Al'e/la sativa* L.	Th	6.16	-	8.20	IV
	2.*I'clli/loch/oa crus-galli* (L.) I. Bcauv	Th	4.94	-	38.54	IV
	3. *Setaria palmifolia* (Kacn) Slapf	Th	24.63	-	-	11
XIX.	*Potygonaceae*					
	I. *PolygO/l/III1 plebcjum* R. Br	11	-	-	5.95	11
XX,	*Pnnutlaceac*					
	I. *Anagallis arvcnsis* L.	Th	37.14	25J.2	-	IV
xxi.	*Ranunculaccac*					
	I. *Ua/l/IIICIIIIIS arvcnsis* L.	Th	-	29.05	17.95	IV
	2. *Ranunculus muricatus* L.	Th	8.93	-	13.15	IV
XXII.	*SCl'Oplllllariaccac*					
	I. *Veronica bilo!Ja* L.	Th	-	10.19	17.40	IV
XXIII.	*Rosaceae*					
	I. *Fragaria nubicola* Lindl	G	9.04	-	-	11
XIV.	*Rubiacca*					
	I. *Galium elegans* Wall	Th	10.08	-	-	11

Key: Th = Therophyle; H = Hemicryptophyte; G = Geophyte
Constancy class: 1 = (J-20%; II = 21-40%; 1II = 41-60%; IV = 61-80%; V = 81-100%

of occurrence. In Hatian bala, the most common species were *Lamium, Stellaria* and *Ranunculus, Anagallis, Vicia, Lathyrus* and *Scandix, Medicago, Echin ochloa, Stellaria* and *Scandix*, had highest occurrence at Ghari Doptta. *Capsella, Silene, Stellaria, Euphoroia, Lathynis, Medicago* and *Vicia* were the most common weeds in all the

three localities. There were 9 and 11 species in the constancy classes V and IV, respectively (Table 1). Eighteen species were grouped into constancy class 1 and were therefore least frequent in the area. There were 78.95% (30 species) thcrophytes, 5.26% (2 species), hemicryptophytes and 15.79% (6 species) geophytes,

Weeds reduce yield and productivity of wheat if no weeding is practiced. The growth of weeds, at least partly, removes the available resources which in their absence might become available to wheat. Perennial weeds utilize soil and aerial resources better than wheat and annual species. *Medicago, Polygonum* and *Malvastnun* are better competitors due to underground parts. Such weeds pose problems in their eradication as they regrew from underground parts. Weed species like *Ranunculus* (Alien, 1979), *Callabis* (Inam *et al.,* 1989) and *Avella* (Qureshi *et al.,* 1987) exhibit allelopathy. Spiny weeds like *Carthamus* cause problems during harvest, ploughing and seed threshing.

The index of similarity indicates similar ecological and habitat conditions and close proximity of the sites. In similar geographic areas weeds tend to become similar. Most weeds will not affect growth behaviour of wheat unless their density ecologically become important. In the present study, although *Stellaria, Lamiunt, Medicago, Anagallis, Ranunculus* and *Setaria* had high density yet they were suppressed by wheat due to their habit. The critical stage of wheat and weed population also influence wheat and weed interaction. There are chances that wheat might allelopathically suppress some of its weeds (Stcinsick *et al.,* 1982). Some weeds like *A veila, Lolium, Phalaris, Setaria* and other weedy grasses are difficult to identify in early phase of life due to morphological similarity with wheat. Furthermore, phenological cycle and seed behaviour is more or less identical to wheat. It is suggested that more detailed analysis in various other localities and during different times of the growing season be carried out to get an overall picture of the weed infestation in the area. Time of survey, edaphic variability and agronomic practices affect the kind and population of weeds.

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