

## COMMON WEEDS OF RABI (WINTER) CROPS OF TEHSIL NOWSHERA, DISTRICT RAJOURI (JAMMU & KASHMIR), INDIA

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### ABSTRACT

*The present communication pertains to common weeds of rabi crops of Nowshera, teshil of the district Rajouri (Jammu & Kashmir), India. From the study area the 53 weed species belonging to 01 monocot and 20 dicot families are reported. Among dicot families the maximum dominance was shown by Asteraceae and Fabaceae, each represented by eight species. The only reported monocot family was Poaceae which included four weed species. The common weeds of rabi crops were Avena fatua, Anagallis arvensis, Chenopodium album, Cirsium arvense, Fumaria parviflora, Lathyrus aphaca, Melilotus indica, Parthenium hysterophorus, Phalaris minor, Rumex dentatus, Vicia hirsuta and Vicia sativa etc.*

**KEY WORDS:** Broadleaf weeds, grassy weeds, Rabi crops, identification.

### INTRODUCTION

Weeds are unwanted plants that grow in association with agricultural crops and bring about significant decline in yield through their competition with crop plants for sunlight, space, nutrients etc. (Dangwal *et al.*, 2010). However, some weeds are also allelopathic in nature (Oudhia and Tripathi, 1997; 1998). While Holm *et al.*, (1977; 1979) estimated that about 8000 weed species growing in world, only 250 are of particular importance to agricultural crops. In view of significant yield decline by weeds in different crops, numerous studies have been carried out on various aspects of weed biology and control. The most fundamental of these studies is to document the composition of weeds that grow with crops. It is in this context Shailey and Gaur (1993) studied the phyto-sociological association of crops and weeds of Pauri district of Uttrakhand, India and recorded 180 weed species belonging to 50 angiosperm families. The dominant dicot families were Amaranthaceae, Apiaceae, Asteraceae and Brassicaceae, in their studies. Among monocot families Commelinaceae and Poaceae were dominant. Gupta *et al.*, (2008) studied the dynamics of cereal crop weeds of Doon valley with special reference to rice, maize and wheat fields. They reported 151 weed species belonging to 118 genera and

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31 families; 57 weeds were reported from rice, 77 from maize and 71 from wheat fields. Kaul (1986) studied the weed flora of Kashmir valley and reported 401 weed species belonging to 251 genera and 56 angiosperm families. Singh *et al.*, (2007) studied the phytosociological association of weeds in winter crops of Kashmir valley at varying altitudes from 1500 to 2000 m asl. They reported maximum IVI of *Poa annua* in brown mustard throughout Kashmir valley. They found maximum IVI of *Ranunculus* spp. in wheat fields of high altitudes and *Capsella bursa-pastoris* in wheat fields above 1600m asl.

The present study area i.e. Tehsil Nowshera, District Rajouri, India is located at an elevation of 470-1200 m and situated at an latitude of 33<sup>o</sup>-10' and longitude of 74<sup>o</sup>-41'. The boundary of Tehsil Nowshera is surrounded on the eastern side with Kalakote and Sunderbani blocks and in the northern side with Rajouri. Its southern and western boundaries are bounded with Pakistan. Wheat is the major rabi crop of Tehsil Nowshera but alongwith wheat, onion and mustard are also grown on small scale. The economy of this Tehsil revolves around production of its cash crops but the per hectare yield of crops in this Tehsil is less as compared to other Tehsils of District Rajouri, due to many factors out of which the problem of weeds is also prominent. The management of weeds involves costs therefore, reduction in net returns. Moreover, weeds in the study area make harvesting and threshing of crops costly, laborious and reduce the value of produce.

#### **MATERIALS AND METHODS**

The present study was undertaken to find out common weeds of rabi crops in Tehsil Nowshera of district Rajouri (Jammu and Kashmir), India. Extensive and intensive field surveys were conducted during different months of rabi (winter) season (2009-10) in 5 important villages of tehsil Nowshera i.e. Breri, Jaba, Lam, Nonial and Rajal. Three sites were selected in each village. Weeds were collected from all the sites of the study area. During this period interviews of farmers and agriculturists were conducted to collect information about the seasonal weed plants and their vernacular names. The collected weed plants were pressed, dried, preserved and properly identified with the help of available literature, monographs and confirmed from the authentic regional herbaria i.e. Botanical Survey Of India, Northern Circle (BSD), Dehradun and Forest Research Institute Herbarium (DD), Dehradun and deposited them in the H.N.B. Garhwal Central University Herbarium, Department of Botany, S.R.T. Campus, Badshahithaul, Tehri Garhwal, Uttrakhand, India.

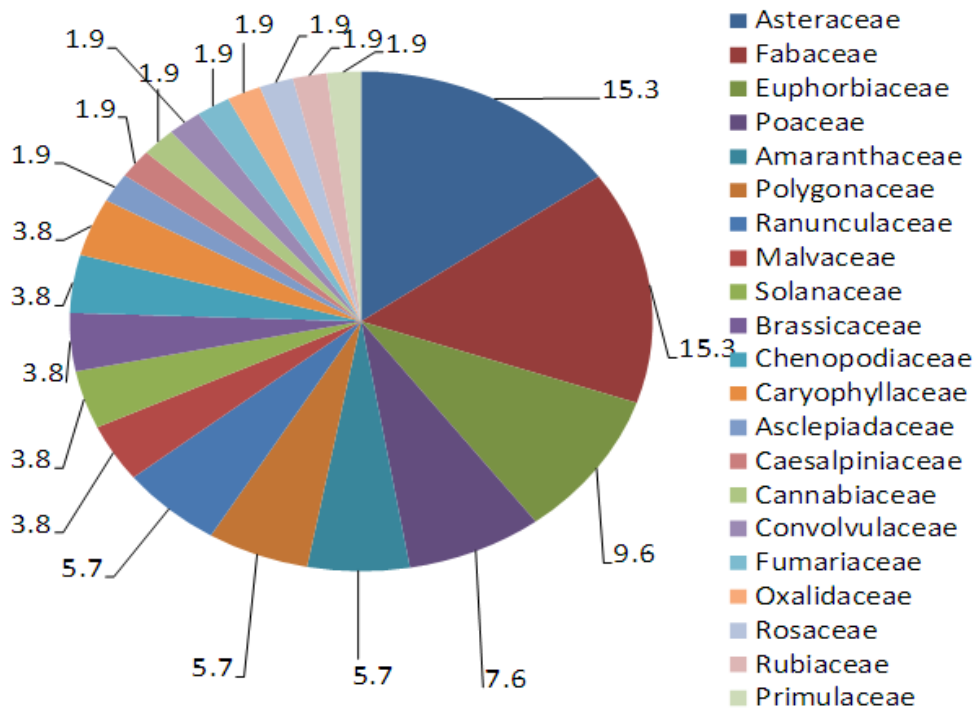
## RESULTS AND DISCUSSION

In all 53 weed species belonging to 01 monocot and 20 dicot families (Table-1) were collected from five villages of tehsil Nowshera district Rajouri (Jammu and Kashmir), India. The predominance was shown by Asteraceae and Fabaceae each represented by eight weed species. Euphorbiaceae included five weed species and Poaceae was represented by four weed species. Amaranthaceae, Polygonaceae and Ranunculaceae were represented by three weed species each. Brassicaceae, Caryophyllaceae, Chenopodiaceae, Malvaceae and Solanaceae included two weed species each. The remaining families i.e. Asclepiadaceae, Cannabiaceae, Caesalpiniaceae, Convolvulaceae, Fumariaceae, Oxalidaceae, Primulaceae, Rosaceae and Rubiaceae were represented by one weed species each. The relative percentage of the different families exhibited 15.3% each for family Asteraceae and Fabaceae (Fig. 1). It is astonishing to note that grasses existed only to the extent of 7.6% among the weed flora of the target site. Out of 53 weed species reported from the study area, weeds like *Avena fatua*, *Anagallis arvensis*, *Chenopodium album*, *Cirsium arvense*, *Fumaria parviflora*, *Lathyrus aphaca*, *Melilotus indica*, *Parthenium hysterophorus*, *Phalaris minor*, *Rumex dentatus*, *Vicia hirsuta* and *Vicia sativa* were common weeds of rabi crops in the study area. The weeds like *Euphorbia dracunculoides*, *Lolium temulentum*, *Polygonum barbatum*, *Polygonum persicaria* and *Ranunculus scleratus* were reported particularly from irrigated fields.

Some weeds reported from the study area, such as *Achyranthus aspera*, *Calotropis procera*, *Cannabis sativa*, *Chenopodium album* and *Cynodon dactylon* etc. are of medicinal importance. The weeds like *Amaranthus viridis*, *Chenopodium album*, *C. vulgare*, *Coronopus didymus*, *Lathyrus aphaca*, *Vicia hirsuta* and *V. sativa* are used in cooking recipes by *Gujjar* tribes of the study area. Fruits of *Fragaria indica* are also edible. The present study may be helpful in identification of some common weeds of rabi crops. It may be helpful for taxonomists, agriculturists and scientists involved in the management of weeds.

The 01 monocot and 20 dicot families are arranged alphabetically with their botanical names, available vernacular names and flowering and fruiting season are mentioned (Table-1). These findings are in a greater analogy with the previous work of Kaul (1986) who studied the weed flora of Kashmir valley and reported 401 weed species belonging to 251 genera and 56 angiosperm families. Since the present work was localized limited only to one Tehsil, hence the flora is less diverse. Singh *et al.* (2007) studied the phyto-sociological association of weeds in winter crops of Kashmir valley at varying altitudes from 1500 to 2000 m asl. They reported maximum IVI of *Poa*

*annua* in brown mustard throughout Kashmir valley. They found maximum IVI of *Ranunculus* spp. in wheat fields of high altitudes and *Capsella bursa-pastoris* in wheat fields above 1600m asl. Again there is a disparity in findings, which could be attributed to the varying altitudes studied by those scholars. Hussain *et al.*(2004) studied the flora of Tehsil Mastuj, District Chitral, Pakistan and ten top most weeds in decreasing order of importance were *Mentha royleana* Benth., *Convolvulus arvensis* L., *Hordeum spontaneum* C. Koch. and *Trifolium repens* L, etc. Moreover, the recent studies of Hussain *et al.* (2009) also show a varying flora from the present findings due to the difference in agro-ecological conditions in the study areas. Our findings corroborated with the work of Swami and Gupta (1998).



**Fig. 1. Comparative percentage of weed families of Rabi Crops of Tehsil Nowshera, District Rajouri (Jammu & Kashmir), India.**

**Table-1. The 53 weed species along with their families, available vernacular names and flowering and fruiting seasons.**

S.No	Family	Botanical name	Vernacular name	Flowering & fruiting season
01	Asteraceae	1) <i>Bidens pilosa</i> L.	Saryala	Sept.-Nov.
		2) <i>Cirsium arvense</i> Syn.	Kandyari	Jan.-March
		3) <i>Conyza ambigua</i> Dc.	Booti	April-May
		4) <i>Conyza bonariensis</i> L.	Booti	Aug.-Sept.
		5) <i>Parthenium hysterophorus</i> L.	Congress booti	June-Sept
		6) <i>Silybum marianum</i> L.	Kantili	June-Aug.
		7) <i>Sonchus asper</i> L.	Badi hand	June-Oct
		8) <i>Taraxacum officinale</i> Weber.	Hand	March-Oct.
02	Amaranthaceae	1) <i>Achyranthes aspera</i> L.	Pooth kanda	Aug.-Dec.
		2) <i>Amaranthus spinosus</i> L.	Chelari	Sept.-Oct.
		3) <i>Amaranthus viridus</i> L.	Chelari	Aug.-Nov.
03	Asclepiadaceae	<i>Calotropis procera</i> (Ait.)F.	Aak	April-July
04	Brassicaceae	1) <i>Capsella bursa-pastoris</i> Medik.	--	Jan.-March
		2) <i>Coronopus didymus</i> (L.)Smith.	--	April-Oct.
05)	Caesalpiniaceae	1) <i>Cassia occidentalis</i> L.	--	Sept-Nov.
06)	Cannabiaceae	1) <i>Cannabis sativa</i> L.	Bhang	July-Sept.
07)	Caryophyllaceae	1) <i>Silene conoidea</i> L.	Doda ghash	March-April
		2) <i>Stelleria media</i> L.	--	Feb.-March
8)	Chenopodiaceae	1) <i>Chenopodium album</i> L.	Bathua	April-June
		2) <i>Chenopodium murale</i> L.	Laal bathua	May-Oct.
9)	Convolvulaceae	1) <i>Convolvulus arvensis</i> L.	Bill	April-Sept.
10)	Euphorbiaceae	1) <i>Euphorbia dracunculoides</i> Lamk.	Doodal	Nov.-Jan.
		2) <i>Euphorbia geniculata</i> Orteg.	Badi doodal	May-July.
		3) <i>Euphorbia helioscopia</i> L.	Doodal	May-July.
		4) <i>Euphorbia hirta</i> L.	Choti doodi	Sept.-Oct.
		5) <i>Euphorbia prostrata</i> Ait.	Doodi	July-Sept.
11)	Fabaceae	1) <i>Lathyrus aphaca</i> L.	Jangli matar	Feb.-Mar.
		2) <i>Medicago denticulata</i> Willd.	Saridi	April-July
		3) <i>Medicago polymorpha</i> L.	Saridi	Aug.-Oct.
		4) <i>Melilotus indica</i> L.	Maithi ghash	March-April
		5) <i>Trifolium repens</i> L.	Jangli stal	April-July
		6) <i>Trifolium tomentosum</i> L.	Jangli stal	March-April
		7) <i>Vicia hirsuta</i> (D.)S.FGray.	Choti phali	March-April
		8) <i>Vicia sativa</i> L.	Choti phali	March-April
12)	Fumariaceae	1) <i>Fumaria parviflora</i> Lamk.	Daniya ghash	Sept.-Nov.
13)	Malvaceae	1) <i>Malva parviflora</i> L.	Sonchal	Mar-April

S.No	Family	Botanical name	Vernacular name	Flowering & fruiting season
		2) <i>Malvastrum coromen delianum</i> Syn.	--	May-Aug.
14)	Oxalidaceae	1) <i>Oxalis corniculata</i> L.Syn.	--	Feb.-Nov.
15)	Poaceae	1) <i>Avena fatua</i> L.	Gandial	March-April
		2) <i>Cynodon dactylon</i> (L.) Pers.	Ghass	April-July
		3) <i>Lolium temulentum</i> L.	--	March-April
		4) <i>Phalaris minor</i> Retz.	Sitti	Mar.-April.
16)	Polygonaceae	1) <i>Polygonum barbatum</i> L.	Chitti booti	Feb.-Nov.
		2) <i>Polygonum persicaria</i> L.	--	Feb.-Nov.
		3) <i>Rumex dentatus</i> L.	Arphali	March-April
17)	Primulaceae	1) <i>Anagallis arvensis</i> L.	Krishna neel	Feb.-April.
18)	Ranunculaceae	1) <i>Ranunculus arvensis</i> L.	Chuchumba	March-April
		2) <i>Ranunculus leatus</i> L.	--	March-April
		3) <i>Ranunculus scleratus</i> L.	Chuchumba	March-April
19)	Rubiaceae	1) <i>Gallium aparine</i> L.	Chechra	Feb.-March
20)	Rosaceae	1) <i>Fragaria indica</i> Andrews	Laal akhra	March-May.
21)	Solanaceae	1) <i>Datura stramonium</i> L.	Datura	April-July
		2) <i>Solanum nigrum</i> L.	Kach mach	Aug.-Sept.

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