

Medicinal Weeds of Rabi (Winter) Crops of Tehsil Darhal District Rajouri (Jammu & Kashmir), India

Abstract

The present communication pertains to common weeds of rabi crops of tehsil Darhal of the district Rajouri (Jammu & Kashmir), India. From the study area the 37 weed species belonging to 01 monocot and 16 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*, *Crisium arvense*, *Fumaria perviflora*, *Lathyrus aphaca*, *Melilotus indica*, *Parthenium hysterophorus*, *Phalaris minor*, *Rumex dentatus*, *Vicia hirsute* and *Vicia sativa* etc.

Keywords: Broadleaf Weeds, Grassy Weeds, Rabi Crops, Identification.

Introduction

Weeds are unwanted plants that grow in association with agriculture 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 studies the phytosociological association of crops and weeds of Pauri district of Uttarakhand, 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) studies 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 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 field of high altitudes and *Capsella bursa-pastoris* in wheat fields above 1600m asl.

The present study area i.e. Tehsil Darhal in district Rajouri (India) is located at an elevation of 1700 m.a.s.l and situated at a latitude of 33 – 35° and longitude of 73-96°. The boundary of Tehsil Darhal Block Darhal is surrounded on the eastern side with Khoriwali and Topa and in the northern side Ujhan & Kote. Its southern and western boundaries are bounded with Pakistan. Wheat is the major rabi crop of Tehsil Darhal but along with wheat, onion and mustard are also grown on a 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.



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Materials and Methods

The present study was undertaken to find out common weeds of rabi crops in Tehsil Darhal of district Rajouri (Jammu & Kashmir), India. Extensive and intensive field surveys were conducted during different months of rabi (winter) season (2009 – 10) in important villages of tehsil Darhal i.e, Topa, Hill Tak, Madoon, Dodaj, Rich Wali, Khoriwali, Beeri Darhal, Thanamang, Chowkian, Thanda, Rakibn, Ujhan, Jabbar and Neeli etc. 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.

Result and Discussion

In all 37 weed species belonging to 01 monocot and 16 dicot families (Table -1) were collected from five villages of Tehsil Darhal Block Darhal district rajouri (Jammu & Kashmir), India. The predominance was shown by Asteraceae and Fabaceae 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, 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 37 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 hirsute* 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 hirsute* and *V.sativa* are used in cooking recipes by Gujjar tribes of the study area. Fruit 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 16 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) studies 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 could be attributed to the varying altitudes studied by those scholars. Hussain et al. (2004) studied the flora of Tehsil Darhal Block Darhal, District Rajouri, 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).

Table-1. The 37 Weed Species Along with their Families, Available Vernacular Names and Flowering and Fruiting Seasons.

S. No	Family	Botanical Name	Vernacular Name	Flowering & Fruiting Season
1	Asteraceae	1. <i>Bidens pilosa</i> L.	Saryala	Sep. – Nov
		2. <i>Cirsium arvensis</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.
2	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.
3	Asclepiadaceae	1. <i>Calotropis procera</i> (Ait.) F.	Aak	April –July
4	Brassicaceae	1. <i>Capsella bursa-pastoris</i> Medik.	-----	Jan–March
		2. <i>Coronopus didymus</i> (L.)Smith	-----	April – Oct.
5	Caesalpiniaceae	1. <i>Cassia occidentalis</i> L.	-----	Sep. – Nov.
6	Cannabie	1. <i>Cannabis sativa</i> L.	Bhang	July – Sept.
7	Caryophyllaceae	1. <i>Silene conoidea</i> L.	Doda ghass	March–April
		2. <i>Stelleria media</i> L.	-----	Feb. – March

8	Chenopodiaceae	1. <i>Chenopodium album</i> L. 2. <i>Chenopodium murale</i> L.	Bathua Laal bathua	April – June May – Oct.
9	Convolvulaceae	1. <i>convolvulus arvensis</i> L.	Bill	April – Sept.
10	Euphorbiaceae	1. <i>Euphorbia dracunculoides</i> Lamk. 2. <i>Euphorbia geniculata</i> Orteg. 3. <i>Euphorbia helioscopia</i> L. 4. <i>Euphorbia hirta</i> L. 5. <i>Euphorbia prostrate</i> Ait.	Doodle Badi doodal Doodal Choti doodi Doodi	Nov. – Jan. may – June May – July Sept. – Oct. July – Sept.
11	Fumariaceae	1. <i>Fumaria parviflora</i> Lamk.	Daniya ghass	Sept. - Nov
12	Malvaceae	1. <i>Malva Parviflora</i> L. 2. <i>Malvastrum coromen delianum</i> Syn.	Sonchal -----	March – April May – Aug.
13	Oxalidaceae	1. <i>Oxalis corniculata</i> L.Syn.	-----	Feb. – Nov.
14	Poaceae	1. <i>Avena fatua</i> L. 2. <i>Cynodon dactylon</i> (L.) Pers 3. <i>Lolium temulentum</i> L. 4. <i>Phalaris minor</i> Retz.	Gandial Ghass ----- Sitti	March – April April – July March – April March – April
15	Primulaceae	1. <i>Anagallis arvensis</i> L.	Krishna neel	Feb. – April
16	Rubiaceae	1. <i>Gallium aparine</i> L.	Chechra	Feb. – March
17	Rosaceae	1. <i>Fragaria indica</i> Andrews	Laal akhra	March – May

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