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COMMON WEEDS OF KHARIF CROPS OF BLOCK SUNDERBANI DISTRICT RAJOURI (JAMMU AND KASHMIR)

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ABSTRACT

The present communication pertains to the common weeds of Kharif crops of block Sunderbani district Rajouri Jammu and Kashmr. The study was based on extensive and intensive field surveys made during different months of Kharif season 2010. During the course of study the authors have selected 5 important villages of block Sunderbani i.e. Balshama, Bajabain, Chaniprat, Lamman and Thandapani. Three sites were selected in each village. A total of 56 weed species belonging to 3 monocot and 19 dicot families were reported from the study area. Out of these 22 families, the predominance was shown by monocot family Poaceae having 9 weed species followed by families Amaranthaceae and Asteraceae each having 6 weed species.

Key words: Monocot weeds, dicot weeds, maize, rice, Poaceae.

INTRODUCTION

Weeds are unwanted plants growing along with domesticated crops. They are non-indigenous plants that can invade or negatively alter native plant communities. Holm *et al.* (1979) reported 250 weed species which are important for agricultural crops. Dry vegetation types and area affected by road development, grazing, logging, fire and other disturbances are most susceptible to weed invasion (Blackburn, 2008). Weed plants grow faster, spread rapidly, reproduce in high numbers and produce large quantity of seeds which enables them to establish a kingdom of their own within a short period of time (Dangwal *et al*., 2010).

Weeds are unwelcome inhabitants of lawns, gardens, pastures and cultivated fields. They always act as energy drains in the entire managed ecosystem such as agricultural fields, forestry, horticulture, and aquaculture etc. They decrease the yield of crops by competing for water, nutrients, space, CO_2 and sunlight. They provide habitat to harmful insects and may act as alternate host for pathogens and other organisms (Peters, 1955). They reduce human efficiencies by causing allergies, injuries, dermatitis and other health hazards. Weeds choke irrigational and navigational canals thus affecting irrigation and transport respectively. They

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also reduce the quantity of produce and cause economic loss to the producers. Weeds show allelopathic effects on agricultural crops by secreting allelochemicals that inhibit the growth and germination of agricultural crops.

Maize (*Zea mays* L.) is the third most emerging crop after wheat and rice in India. Besides its use for human food it is a source for number of industrial products like animal feed, maize corn starch, corn oil, baby corn and pop corn etc. Being staple food it plays an important role in the economy of India, hence occupies a central position in agricultural policy making. The average per hectare yield of maize in India is less as compared to other advanced countries due to many factors (lack of irrigation, quality of germplasm, availability of fertilizers and ecological factors etc.) out of which the factor of weeds is very prominent. Sharma and Natiyal (1993) studied the weed management in maize and blackgram intercropping in midhills of Himachal Pradesh and reported that weeds reduced the yield of maize crop by 58.80% which is more than the combined losses caused by insects, pests and diseases. Shailey and Gaur (1993) studied the phyto-sociological association of crops and weeds of Pauri district of Utatrakhand. They reported 180 weed species belonging to 50 angiospermic families, the dominance was shown by families Commelinaceae and Poaceae in maize crop. 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 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. Out of 401 weeds, 177 were reported from agricultural crops. Singh and Prasad (1994) studied the control of *Trianthema portulacastrum* L. in fodder maize and reported that it reduces the yield of fodder maize by 68.2% and causes enormous loss to the producers.

The present study area *i.e.* Block Sunderbani is located at an elevation range of 412-633m asl. It lies between the latitude of 33^0 30' N and longitude of 74^0 24' E. As in maize is the major Kharif crop but along with maize, paddy is also grown on small scale in this block.

MATERIALS AND METHODS

The present communication pertains to common weeds of Kharif crops in Block Sunderbani district Rajouri (Jammu and Kashmir). The study was based on extensive and intensive field

surveys made during different months of Kharif season, 2010. During the course of study the authors have selected 05 important villages of Block Sunderbani *i.e.* Balshama, Bajabain, Chaniprat, Lamman and Thandapani. Three sites were selected in each village. Periodic field trips were made twice a month in all the sites for collection of weed species. The interviews were conducted from farmers and agriculturists of each site about seasonal weed species and their flowering and fruiting seasons. The collected weed plants were pressed, dried, preserved and properly identified with the help of available literature and monographs by Sharma and Kachroo (1983), Swami and Gupta (1998), Kaul (1986) and confirmed from the authentic regional herbaria *i.e.* Botanical Survey of India, Northern Circle (BSD), Dehradun, 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

A total of 56 weed species belonging to 3 monocot and 19 dicot families were reported from the study area. In all 56 weed species collected from 5 villages of Block Sunderbani, the predominance was shown by monocot family Poaceae having 9 weed species followed by families Amaranthaceae and Asteraceae each having 6 weed species. The family Euphorbiaceae was represented by 5 weed species and Malvaceae by 4 species. Each of the families Convolvulaceae and Solanaceae contained 3 weed species. The familiesCaesalpiniaceae, Commelinaceae, Cyperaceae, Lamiaceae and Rubiaceae were represented by 2 weed species. The remaining families i.e. Aizoaceae, Cleomaceae, Cucurbitaceae, Fabaceae, Nyctaginaceae, Oxalidaceae, Polygonaceae, Portulacaceae, Tiliaceae and Zygophyllaceae were represented by 1 weed species (Table-1).

Block Sunderbani is an agrarian block of the district Rajouri whose boundaries are attached to the Pakistan. The economy of this block revolves around production of its cash crops. Maize is the major cereal Kharif crop grown in this block but along with maize, paddy and pulses are also grown on small scale. Unfortunately, the per hectare yield of crops is less due to many factors out of which the problem of weeds is serious contributor in the loss of production. The management of weeds involves costs therefore, reduction in net returns make harvesting and threshing of crops costly, laborious and reduces the value of production. Although some of the weeds reported from the study area i.e.

Achyranthes aspera, Boerhavia diffusa, Cassia occidentalis, Cassia tora, Cleome viscosa, Commelina benghalensis, Cynodon dactylon and *Eclipta alba* etc. are of medicinal importance used in pharmaceutical industries. The weeds like *Commelina benghalensis, Cyanotis vaga, Eleusine indica, Setaria glauca, Setaria verticillata, Heteropogon contortus, Digitaria ciliaris and Paspalum distichum* etc. are used as fodder in the study area. The weeds like *Crotolaria medicaginea, Portulaca oleracea* and *Solanum nigrum* etc. are used for certain cooking recipes in the study area. Our findings are in a great analogy with the previous work of Swami and Gupta (1998); Gupta *et al.,* (2008); Shailey and Gaur (1993); Younkin (1942) and Dangwal *et al*., (2010), who represented variability in weed flora in their study sites. The present study may be helpful in identification of common weeds of kharif crops. It may be useful for taxonomists, agriculturists and scientists involved in the management of weeds.

Further research work is needed in the fields of weed control, weed biology and weed utilization as the component of integrated weed management.

Table-1. Showing the 56 weed species along with their families, flowering and fruiting seasons.

S.No.	Family	Botanical Name	Flowering and fruiting season
1.	Aizoaceae	*Trianthema portulacastrum* L.	Jun.-Dec.
2.	Amaranthaceae	*Achyranthes aspera* L.	Mar.-Dec.
		Alternanthera sessilis L.	Feb.-Oct.
		Amaranthus spinosus L.	Jul.-Dec.
		Amaranthus tricolor L.	Aug.-Nov.
		Digera muricata L.	Aug.-Oct.
		Gomphorena celosioides Martius.	Mar.-Dec.
3.	Asteraceae	*Ageratum conyzoides* L.	Mar.-Dec.
		Bidens bipinnata L.	Mar.-Dec.
		Eclipta alba L.	Jan.-Dec.
		Gnaphalium luteo-album L.	Apr.-Dec.
		Parthenium hysterophorus L.	Throughout the year.
		Xanthium stramorium L.	July-Dec.
4.	Caesalpiniaceae	*Cassia occidentalis* L.	May-Nov.
		Cassia tora L.	Apr.-Dec.
5.	Cleomaceae	*Cleome viscosa* L.	July-Oct.
6.	Commelinaceae	*Commelina benghalensis* L.	July-Nov.
		Cyanotis vaga Lour	July-Oct.
7.	Convolvulaceae	*Ipomoea nil* (L.) Roth.	Mar.-Dec.

S.No.	Family	Botanical Name	Flowering and fruiting season
		Ipomoea pis-tigridis L.	July-Dec.
		Ipomoea purpurea L.	Feb.-Oct.
8.	Cucurbitaceae	*Trichosanthes cucumerina* L.	July- Oct.
9.	Cyperaceae	*Cyperus esculentus* L.	July-Dec.
		Cyperus rotundus L.	July-Dec.
10.	Euphorbiaceae	*Euphorbia geniculata* Ortega.	Feb.-Aug.
		Euphorbia hirta L.	Jan.-Dec.
		Euphorbia indica Lam.	Ma.r-Dec.
		Euphorbia prostrata Aiton.	Jan.-Dec.
		Phyllanthus urinaria L.	Apr.- Dec.
11.	Fabaceae	*Crotolaria medicaginea* Lam.	Apr.-Aug.
12	Lamiaceae	*Leucas cephalotes* Roth.	July-Nov.
		Leucas lanata Benth.	Throughout the year.
13.	Malvaceae	*Abutilon indicum* L.	Apr.-Aug.
		Malvastrum coromandelianum L.	Throughout the year.
		Sida cordata Burm.	July-Nov.
		Sida cordifolia L.	Rainy season.
14	Nyctaginaceae	*Boerhavia diffusa* L.	Aug.-Dec.
15.	Oxalidaceae	*Oxalis corniculata* L.	Throughout the year.
16.	Poaceae	*Cynodon dactylon* L.	Jan.-Dec.
		Digitaria ciliaris Retz.	Aug.-Nov.
		Echinochloa colona L.	July-Oct.
		Eleusine indica L.	July-Nov.
		Eragrostis japonica (Thumb) Trinius	July-Oct.
		Heteropogon contortus L.	Aug.-Nov.
		Paspalum distichum Acut.	Mar.-Dec.
		Setaria glauca L.	Aug.-Nov.
		Setaria verticillata L.	Aug.-Oct.
17.	Polygonaceae	*Rumex hastatus* D.Don.	June-Oct.
18.	Portulacaceae	*Potulaca oleracea* L.	Apr.-Sept.
19.	Rubiaceae	*Oldenlandia corymbosa* L.	July-Nov.
		Rubia manjith Roxb.	July-Nov.
20.	Solanaceae	*Physalis minima* L.	July-Nov.
		Solamun nigrum L.	Throughout the year.
		Solanum surattense Burm.	Mar.-Dec.
21	Tiliaceae	*Triumfetta rhomboidea* Jacq.	Aug.-Nov.
22.	Zygophyllaceae	*Tribulus terrestris* L.	July-Nov.

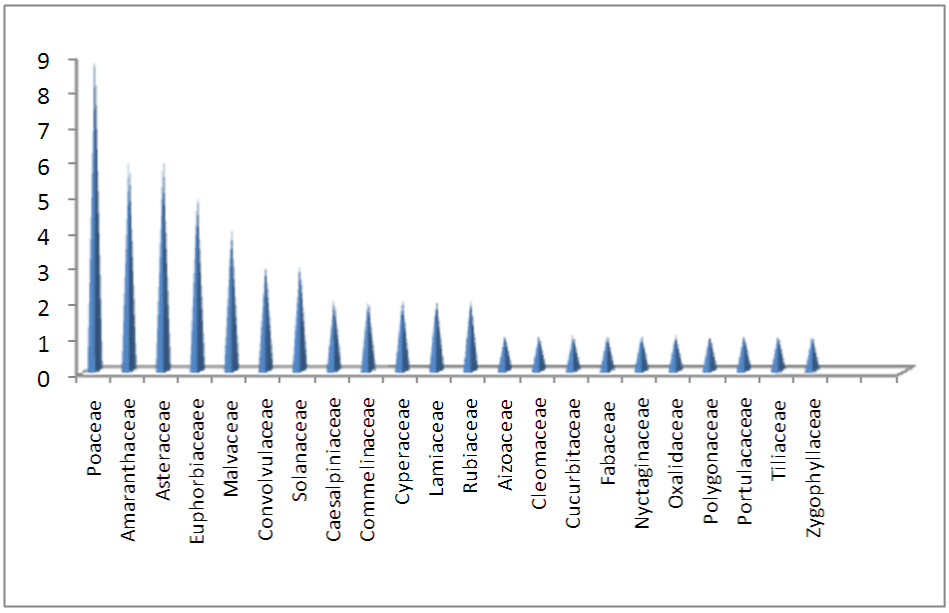

Figure 1. Showing the number of individuals of weeds in each family.

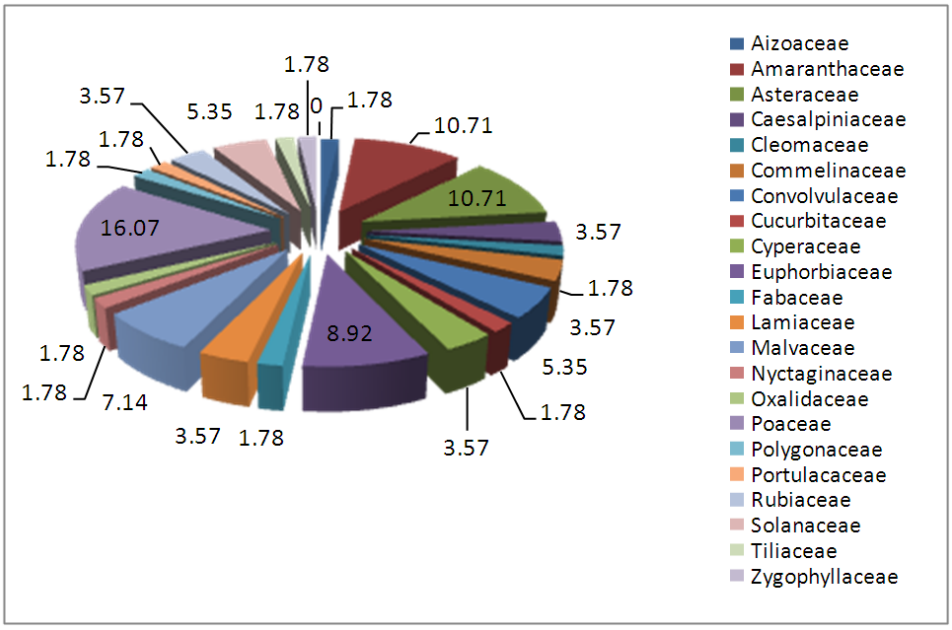

Figure 2. Showing Comparative percentage of weed families of Kharif Crops of Block Sunderbani, District Rajouri (J & K).

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