



Original Research Article

Studies on weed diversity of Wheat (*Triticum aestivum* L.) crop fields of Marathwada Region

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ABSTRACT

Keywords

Weed diversity;
Nanded district;
wheat;
Specific weeds;
common weeds;
occasional
weeds;
Rare weeds.

Total 30 weed species were collected which related to 15 families and 26 genera from the rabbi wheat field in the Marathwada region. The weed survey of this region was made during December, 2007 to December, 2010. Maximum number of species (07) belongs to family Euphorbiaceae, followed by Family Asteraceae (04 species), Amaranthaceae and Cyperaceae (03 each species). Two species were found to be Poaceae, Solanaceae and Molluginaceae. One species were found to be remaining families. In floristic survey, two weeds were found to be climber, seven were prostrate and remaining was erect. Thirteen weeds were found to be common, ten were occasional and seven were rare in rabbi season wheat fields. From this survey the two weed species specific for the rabbi wheat field only and not from other crop fields the Nanded district i.e. *Chenopodium album* L. and *Boerhavia erecta* L.

Introduction

Wheat (*Triticum aestivum* L.) belongs to family "Graminae". Among the food crops, wheat is a staple food and one of the most important cereals of the world. It is grown approximately one-third of the total world population (Johnson, 1984). The average per hectare yield of wheat in india of 2.71 tons per hectare (Anonymous, 1997). Weed interference is one of the most important factors to decrease the yields of wheat (Hassan and Marwat, 2001). In India many unwanted plants so called weeds. Weeds are very common, dominant and wide spread in the

crop fields. In India particular in Marathwada region of the Maharashtra state, diversity of unwanted plant in crop fields is very common, dominant and easily available. Marathwada region comprising of seven districts viz. Aurangabad, Beed, Jalna, Latur, Nanded, Osmanabad and Parbhani forms the part of the vast Deccan plateau of India and its located at 70° 5 -78° 5 E longitude and 17° 5 -20° 5 N longitude. The major part of the region has deep black soil with pH ranging from 6.5 to 8.5. The average temperature of these regions is from 27.7° C to 38° C.

Weeds are undesirable on account of their competitive and allelopathic behavior and providing habitats for harmful organisms (Zaman *et al.*, 2011). Weeds present in crop field that compete with crop plants for light, moisture and other essential nutrients, resulting reduce quality and yield of crops and increase the cost of production (Samad *et al.*, 2008). Marwat (2002) however reiterated that weeds are the major source of yield reduction in wheat crop resulting in loss of billions of rupees at national as well as provincial level. Some weeds are specific for the particular crop fields only. Before going to make any decision about a solution to a problem we need to survey, identification and documentation of the weed diversity and also to visually confirm the existing situation of wheat field. The aim of the present study is the diversity of weeds in the Wheat fields and find out the common and dominant, occasional and rare weeds in wheat crop fields of Marathwada region.

Materials and Methods

The weed diversity of wheat crop fields in Marathwada region was studied as per the methods described by Rahman *et al.*, (2007). Accordingly, the weed survey of Marathwada region was made during December, 2007 to December, 2010. For convenience the Marathwada region was divided into seven agricultural zones such as Nanded, Aurangabad, Beed, Jalna, Latur, Osmanabad and Parbhani.

All the seven agricultural zones were surveyed and weeds were collected from different wheat crop fields. For this regular excursions were arranged to different wheat crop fields of each and every agricultural zone in the Rabbi (October, November, December, January) seasons at least twice in a month and later on once in

a month. The excursions were arranged in such a way that it covered the entire study regions. As a result of this most of the weeds could be collected in different growth stages. The identified weeds were categorized as herbs and climbers as per the methods described by Bisht *et al.*, 2004 and also separated into common, occasional and rare weeds described methods by IUCN Red Data Book (2006); Siddique *et al.*, (2005); Dalvi (2010).

Identification

The collected weeds were identified on the spot and in the laboratory on the basis of their natural characters with the help of identification keys, flora of Marathwada (Naik, 1998) and other relevant literature.

Herbarium

Prepared herbarium from identified weeds and stored in Herbarium Section of Department of Botany, Yeshwant Mahavidyalaya, Nanded (M.S.).

Results and Discussion

From the table, total thirty weeds were collected which belong to fifteen families and twenty six genera from the rabbi season of wheat fields. Two weeds were found to be climber, seven were prostrate and remaining was erect. Thirteen weeds were found to be common and dominant, ten were occasional and seven were rare in rabbi season wheat fields. The *Chenopodium album* L. and *Boerhavia erecta* L. were collected from Wheat fields of rabi season only and not from other crop fields. The *Chenopodium album* L. is very dominant weed in wheat field (Table 1). Similarly Gupta *et al.*, (2008) studied the dynamics of cereal crop weeds of Doon valley of Uttarakhand with special

Table.1 Studies on weed diversity in the field of Wheat crop of Rabbi Season

S. No.	Name of the weeds	Family	Habit	Category
1.	<i>Ageratum conyzoids</i> L.	Asteraceae	Erect	Rare
2.	<i>Alternanthera sessilis</i> (L.) R.Br,ex DC	Amaranthaceae	Prostrate	Occasional
3.	<i>Amaranthus polygamus</i> L.	Amaranthaceae	Prostrate	Common
4.	<i>Boerhavia erecta</i> L.	Nyctaginaceae	Erect	Rare
5.	<i>Calotropis gigantea</i> (L.) R. Br.	Asclepiadaceae	Erect	Rare
6.	<i>Cardiospermum helicacabum</i> L.	Sapindaceae	Climber	Common
7.	<i>Cassia tora</i> L.	Caesalpiniaeeae	Erect	Occasional
8.	<i>Chenopodium album</i> L.	Chenopodiaceae	Erect	Common
9.	<i>Chrozophora rotterli</i> (Geis.) Juss.ex	Eupobiaceae	Erect	Rare
10.	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Prostrate	Common
11.	<i>Cyperus rotundus</i> L.	Cyperaceae	Erect	Common
12.	<i>Cyperus triceps</i> Endl.	Cyperaceae	Erect	Rare
13.	<i>Digera muricata</i> (L.) Mart.	Amaranthaceae	Erect	Common
14.	<i>Eragrotis tenella</i> Roem. & Schult.	Poaceae	Erect	Common
15.	<i>Euphorbia heterophylla</i> L.	Eupobiaceae	Erect	Common
16.	<i>Euphorbia hirta</i> L.	Eupobiaceae	Erect	Common
17.	<i>Euphorbia prostrata</i> Ait.	Eupobiaceae	Prostrate	Occasional
18.	<i>Fembristylis aestivalis</i> Retz.	Cyperaceae	Erect	Occasional
19.	<i>Grangea maderaspatana</i> (L.) Poir.	Asteraceae	Prostrate	Rare
20.	<i>Mollugo disticha</i> L.	Molluginaceae	Erect	Occasional
21.	<i>Mollugo nudicaulis</i> Lamk.	Molluginaceae	Erect	Occasional
22.	<i>Parthenium hysterophorus</i> L.	Asteraceae	Erect	Common
23.	<i>Phyllanthus amarus</i> Schumach. & Thonn.	Eupobiaceae	Erect	Common
24.	<i>Phyllanthus madewraspatensis</i> L.	Eupobiaceae	Erect	Occasional
25.	<i>Portulaca oleracea</i> L.	Portulacaceae	Prostrate	Common
26.	<i>Solanum nigrum</i> auct.	Solanaceae	Erect	Occasional
27.	<i>Solanum xanthocarpum</i> Schrad. &	Solanaceae	Erect	Rare
28.	<i>Tragia plukenetii</i> A.R.Sm	Eupobiaceae	Climber	Occasional
29.	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Prostrate	Occasional
30.	<i>Vicoa indica</i> (L.) DC.	Asteraceae	Erect	Common

reference to rice maize and wheat fields. The various studies have been conducted on the weed flora of wheat. The researchers determined weed species composition and the level of weed infestation in organically grown spring cereals including wheat of southern and central finland (Salonen *et al.*, 2001). Kirec and Yarci (1999) recorded 93 weeds occurring in wheat from the agricultural areas of Enez (Edirne), Turkey.

In wheat crop of Kahramanmaras, turkey *Avena* spp., *Convolvulus* spp. *Vicia* spp., most dominant weeds (Tursun, 2002). Alina *et al.*, (2009) documented 112 weeds in winter wheat fields of Timis County (2006, and 2007). Sixty two species of weeds including 15 monocots and one pteridophyte of 24 families were recorded for the first time as weeds of wheat in the University of Peshawar Botanical Garden at Azakhel, District Nowshera, Pakistan (Farrukh *et al.*, 2009). Similar work has been carried out by different workers such as Haseler (1976), Groves (1991), Bukun *et al.*, (2002), Reddy *et al.*, (2005). In india similar work has been carried out by different workers such as Rice, (1986), Jain *et al.*, (1996), Pandey and Mishra (2002), Singh *et al.*, (2004), Dangwal *et al.*, (2011), Kunja *et al.*, (2012), Manzoor *et al.*, (2012).

This study is based on diversity of weeds of rabbi wheat crop fields, which provides a preliminary data of the different categories of weeds in wheat crop fields. It will be helpful to farmers, students and researchers related to this field for identification of weeds and their weed specificity. Further study is required for distribution and quantification of weeds for ecological management.

Acknowledgement

The authors are very thankful to the university Grants Commission (UGC) New Delhi for providing the financial assistance in the form of Rajiv Gandhi National Fellowship. Thanks to the Principal and Head, Department of Botany, Yeshwant Mahavidyalaya, Nanded for providing all necessary facilities.

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