

## RESEARCH ARTICLE

# Weed Diversity in Rabi Wheat Crop of Bhandara District (MS), India

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Manuscript details:	ABSTRACT
<p>Date of publication 18.10.2014</p> <p>Available online on <a href="http://www.ijlsci.in">http://www.ijlsci.in</a></p> <p>ISSN: 2320-964X (Online) ISSN: 2320-7817 (Print)</p> <p><b>Editor: Dr. Arvind Chavhan</b></p> <p><b>Cite this article as:</b> Khobragade DP and Sathawane KN (2014) Weed Diversity in Rabi Wheat Crop of Bhandara District (MS), India, <i>Int. J. of Life Sciences</i>, Special Issue A2: 128-131.</p> <p><b>Copyright:</b> © Author(s), This is an open access article under the terms of the Creative Commons Attribution-Non-Commercial - No Derives License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.</p>	<p>The present communication deals with the diversity of common weeds in wheat crop cultivation during Rabi season of Bhandara district (M.S.), India. In this study 76 weed species belonging to 24 dicotyledons and 03 monocotyledons families are reported. Among dicotyledons families the maximum dominance shown by Asteraceae, Fabaceae, Amaranthaceae, and Euphorbiaceae while monocotyledons families with 15 weed species, having dominance of Cyperaceae and Poaceae. The common dominant weeds of Rabi wheat crop are <i>Anagalis arvensis</i>, <i>Chenopodium album</i>, <i>Portulaca oleracea</i>, <i>Melilotus indica</i>, <i>Phaselous aconitifolius</i>, <i>Parthenium heterosporus</i>, <i>Tridax procumbence</i>, <i>Rumex dentatus</i>, <i>Alternanthera spinosus</i>, <i>Euphorbia thymifolia</i>, <i>Cyprus rotundus</i> and more</p> <p><b>Key words:</b> - Wheat crop, Weed, Rabi season, Bhandara district.</p>
	<p><b>INTRODUCTION</b></p> <p>Jethro (1731) for the first time defined 'a weed as a plant can grow where it is not desired' in his much esteemed 'Horse Hoeing Husbandry'. 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 <i>et al.</i>, 2010). However, some weeds are also allelopathic in nature (Oudhia and Tripathi, 1997; 1998). While Holm <i>et al.</i>, (1977; 1979) estimated that about 8000 weed species growing in world, of which only 250 are of particular importance to agricultural crops.</p> <p>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 in India. Wheat (<i>Triticum aestivum</i> L.) is the second important staple food crop, next to rice in India. Rice - Wheat cropping system is predominant in our country of which 40% wheat is grown. The grasses and broad leaf weeds flourish luxuriantly because of availability of moisture and nutrient in abundance and lesser competitive ability of wheat cultivars. In general, seasonal long competition for major weeds culminates in yield reduction to an extent of 15- 40 % in this context Kaul (1986) studied the weed flora in Kashmir valley and reported 401 weed species belonging to 251 genera and 56 angiosperm families. Shailey and Gaur (1993) studied 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 and Commelinaceae and Poaceae from monocot families. Singh <i>et</i></p>

al., (2007) studied the phytosociological association of weeds in winter crops of Kashmir valley. 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, 31 families; 57 weeds were reported from rice, 77 from maize and 71 from wheat fields. As the Bhandara district separated then there is only the taxonomical and Ethnobotanical exploration is done by some workers as Gadpayale *et al.* (2011a, 2011b, 2013a, 2013b), Tiwari *et al.* (2013), but the studies on weed plants is still unscreened. Hence in the present study attempts were made to screen the weed plants associated with rabi wheat crop of Bhandara district (M.S.).

The Bhandara district is situated on the bank of Wainganga River. It lies between the latitudes 20°39' and 21°38' North and longitudes 79°27' and 80°42' East and has an area of 3716.65 sq. kilometer. The district is surrounded on the north by Balaghat district of Madhya Pradesh, on the east by Gondia district, on the south by Chandrapur district while on the west by Nagpur district and along a small strip on the south and east by Gadchiroli district.

Administratively, Bhandara district has seven sub divisions or Talukas (Tahsils) as-Bhandara, Tumsar, Mohadi, Sakoli, Lakhani, Lakhandur and Pauni. The district has an average elevation between 271.42 meters and 300 meters above sea level and its relief features are characterized by the small or residual hill ranges of Satpuda and Bhimsen.

## MATERIALS AND METHODS

The present study was undertaken to find out common weeds of Rabi wheat crop in Bhandara District. (M. S.) India. Extensive field surveys were conducted during different months of Rabi crop season of 2011-12 in Bhandara district. Randomly three sites were selected in each tehsil of seven subdivisions. Weeds were collected from all the sites of the study area at seedling, premature & mature stages of crop. During this period survey of wheat field, interviews with farmers and agriculturists were conducted to collect information about the seasonal weed plants and their vernacular names if known. The collected weed plants were Photograph and properly identified with the help of available literature, monographs and confirmed from the authentic regional floras (flora of

Maharashtra Vol. I, II & III by Singh N. P. and S. Karthikeyan, 2000).

## RESULTS AND DISCUSSION

During wheat cropping season in all 76 weed species belonging to three monocot and twenty four dicot families were found under the survey of the cropping session from five tehsil of Bhandara district (M.S.) India. The predominance was shown by Asteraceae, Acanthaceae, poaceae, Papilionaceae, Caesalpiniaceae Euphorbiaceae, which included major weed species, while Amaranthaceae, Polygonaceae, Brassicaceae, Caryophyllaceae, Chenopodiaceae, Malvaceae and Solanaceae Asclepiadaceae, Convolvulaceae, Oxalidaceae, Primulaceae, were represented as minor weeds.

The yield losses due to weeds are generally more than the combined losses caused by insects and pathogens together (Hassan and Marwat, 2001). The impact of weeds is always obscure and it becomes visible when the critical time has gone; whereas that of insects and pathogens is visible at all times. This is the reason the why the weeds are mostly ignored and on contrary the insects and pathogens attacks are given proper heed.

It is astonishing to note that grasses existed only to the extent of 9.5% among the weed flora of the target site. Out of weed species reported from the study area, weeds like *Anagallis arvensis*, *Cyperus rotundus*, *Fumaria parviflora*, *Lathyrus aphaca*, *Melilotus indica*, *Parthenium hysterophorus*, *Rumex dentatus*, and *Vicia indica* are common weeds of Rabi wheat crops dominated spin the study area. The weeds like species of *Euphorbia*, and *Polygonum barbatum*, *Polygonum persicaria* *Melilotus alba*, 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* are of medicinal importance. The weeds like *Amaranthus viridis*, *Chenopodium album*, *Lathyrus aphaca*, *Vicia hirsuta* and *V. sativa* are used in cooking recipes by Gond and other local tribes of the study area. The present study may be helpful in identification of some common weeds of Wheat Rabi crops.

It may be helpful for taxonomists, agriculturists and scientists involved in the management of weeds. Two monocot and eighteen 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) and Singh *et al.* (2007), moreover, the recent studies of Hussain *et al.* (2004 & 2009) also show a varying flora.

**Table 1: List of weed plants in Bhandara district.**

Sr. no	Name of weed plant	family	Local name	Propagation
1	<i>Cochlearia cochlearioides</i> (Roth) Sant.	Brassicaceae		Seeds
2	<i>Cleome viscosa</i> L.	Cleomaceae	Tilvan	Seeds
3	<i>Hybanthus enneaspermus</i> (L.) F. Muell.	Violaceae	Ratanparas	Seeds
4	<i>Polycarpaea corymbosa</i> (L.) Lamk.	Caryophyllaceae		Seeds
5	<i>Spergula arvensis</i> L.	Caryophyllaceae		Seeds
6	<i>Vaccaria pyramidata</i> Medik.	Caryophyllaceae		Seeds
7	<i>Portulaca oleracea</i> L.	Portulacaceae		Seeds
8	<i>Portulaca quadrifida</i> L.	Portulacaceae		Seeds
9	<i>Biophytum sensitivum</i> (L.) DC	Oxiladaceae		Seeds
10	<i>Oxalis corniculata</i> L.	Oxiladaceae	Tipani	Seeds
11	<i>Cardiospermum helicacabum</i> L.	Sapindaceae	Kapalphodi	Seeds
12	<i>Cassia occidentalis</i> L.	Caesalpinaceae	Rantarota	Seeds
13	<i>Cassia tora</i> L.	Caesalpinaceae	Tarota	Seeds
14	<i>Clitoria ternatea</i> L.	Pappilionaceae	Gokarni	Seeds
15	<i>Melilotus alba</i> Desr.	Pappilionaceae	Ranmethi	Seeds
16	<i>Melilotus indica</i> (L.) Att.	Pappilionaceae	ranmethi	Seeds
17	<i>Phaseolus aconitifolius</i> Jacq.	Pappilionaceae	Moth	Seeds
18	<i>Rhynchosia bracteata</i> Benth	Pappilionaceae		Seeds
19	<i>Rhynchosia capitata</i> DC.	Pappilionaceae	Papra	Seeds
20	<i>Ammannia baccifera</i> L.	Lythraceae	Dhanbhaji	Seeds
21	<i>Bidens biternata</i> (Lour.) Merr. & Sherff.	Asteraceae	Putiyam	Seeds
22	<i>Conyza aegyptica</i> Ait.	Asteraceae		Seeds
23	<i>Conyza ambigua</i> DC.	Asteraceae		Seeds
24	<i>Eclipta prostrata</i> (L.) L.	Asteraceae	Maka	Seeds
25	<i>Parthenium hysterophorus</i> L.	Asteraceae	Gajargavat	Seeds
26	<i>Sphaeranthus indicus</i> L.	Asteraceae	Godri	Seeds
27	<i>Tridax procumbens</i> L.	Asteraceae	Kambarmodi	Seeds
28	<i>Vicoa indica</i> (L.) DC.	Asteraceae	Sonuli	Seeds
29	<i>Anagallis arvensis</i> L.	Primulaceae		Seeds
30	<i>Calotropis procera</i> (Ait.) R. Br.	Asclepiadaceae	Rui	Seeds
31	<i>Centaurium centauriodes</i> (Roxb.) Rao & Hemadri.	Gentianaceae		Seeds
32	<i>Convolvulus arvensis</i> L.	Convolvulaceae	Chandvel	Seeds
33	<i>Evolvulus alsinoides</i> (L.) L.	Convolvulaceae	Shankaveli	Seeds
34	<i>Evolvulus nummularius</i> L.	Convolvulaceae		Seeds
35	<i>Physalis minima</i> L.	Solanaceae	Kamini	Seeds
36	<i>Solanum nigrum</i> L.	Solanaceae	Kamuni	Seeds
37	<i>Lindernia ciliata</i> (Colsm.) Penn.	Scrophulariaceae		Seeds
38	<i>Lindernia parviflora</i> (Roxb.) Haines	Scrophulariaceae		Seeds
39	<i>Hemigraphis latebrosa</i> (Roth.) Nees.	Acanthaceae		Seeds
40	<i>Rungia pectinata</i> (L.) Nees.	Acanthaceae		Seeds
41	<i>Leucas aspera</i> (Willd) Spreng.	Lamiaceae	Kumbha	Seeds
42	<i>Leucas utricifolia</i> R. Br.	Lamiaceae		Seeds
43	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Khaparkuti	Seeds
44	<i>Achyranthes aspera</i> L.	Amaranthaceae	Aghada	Seeds
45	<i>Aerva lanata</i> (L.) Juss.	Amaranthaceae	Pandharafeda	Seeds
46	<i>Alternanthera pungens</i> Humb.	Amaranthaceae		Seeds
47	<i>Amaranthus spinosus</i> L.	Amaranthaceae	Katemath	Seeds
48	<i>Amaranthus viridis</i> L.	Amaranthaceae	Chavali	Seeds
49	<i>Celosia argentea</i> L.	Amaranthaceae	kukada	Seeds
50	<i>Gamphrena celosioides</i> Mart.	Amaranthaceae		Seeds
51	<i>Chenopodium album</i> L.	Chenopodiaceae	Chakwat	Seeds
52	<i>Rumex dentatus</i> L.	Polygoniaceae	Ranpalak	Seeds

Table 1: Continued.

Sr. no	Name of weed plant	family	Local name	Propag ation
53	<i>Crozophora rottleri</i> (Geis.) Juss.	Euphorbiaceae	Bothri	Seeds
54	<i>Euphorbia dracunculoides</i> Lamk.	Euphorbiaceae	Pisola	Seeds
55	<i>Euphorbia geniculata</i> Orteg.	Euphorbiaceae	Dudhani	Seeds
56	<i>Euphorbia heterophylla</i> L.	Euphorbiaceae		Seeds
57	<i>Euphorbia laeta</i> Heyne ex Roth.	Euphorbiaceae		Seeds
58	<i>Euphorbia prostrata</i> Ait.	Euphorbiaceae		Seeds
59	<i>Euphorbia thymifolia</i> L.	Euphorbiaceae		Seeds
60	<i>Phyllanthus maderaspatensis</i> L.	Euphorbiaceae	Ranavati	Seeds
61	<i>Commelina benghalensis</i> L.	Commelinaceae	Kena	Seeds
62	<i>Cyanotis cristata</i> (L.) D. Don.	Commelinaceae		Seeds
63	<i>Cyperus compressus</i> L.	Cyperaceae		Seeds
64	<i>Cyperus iria</i> L.	Cyperaceae		Seeds
65	<i>Cyperus rotundus</i> L.	Cyperaceae	Nagarmotha	Seeds
66	<i>Apluda mutica</i> L.	Poaceae		Seeds
67	<i>Arundo donax</i> L.	Poaceae		Seeds
68	<i>Chrysopogon fulvus</i> (Spreng) Chiov	Poaceae		Seeds
69	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Durva	Seeds
70	<i>Eleusine indica</i> L.	Poaceae	Pandur	Seeds
71	<i>Eragrostiella bifaria</i> (Vahl) Bor	Poaceae		Seeds
72	<i>Eragrostis coarctata</i> Stapf.	Poaceae		Seeds
73	<i>Hetropogon contort</i> L.	Poaceae	Kasuri	Seeds
74	<i>Paspalum geminatum</i> (Forssk) Stapf.	Poaceae		Seeds
75	<i>Rottboellia exaltata</i> L.	Poaceae	Bursali	Seeds
76	<i>Setaria intermedia</i> Roem & Shult.	Poaceae		Seeds

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