



Weed Flora of Some Cultivated Fields of Parbhani District (M.S.) India

Deshmukh RS

Department of Botany, B. Raghunath Arts, Commerce & Science College, Parbhani, MS, India

Email: rsdeshmukh19@gmail.com

Manuscript details:

Received: 07.09.2023
Accepted: 28.09.2023
Published: 30.09.2023

Cite this article as:

Deshmukh RS (2023) Weed Flora of Some Cultivated Fields of Parbhani District (M.S.) India, *Int. J. of Life Sciences*, 11 (3): 237-242.

<https://doi.org/10.5281/zenodo.8395638>

Available online on <http://www.ijlsci.in>
ISSN: 2320-964X (Online)
ISSN: 2320-7817 (Print)



Open Access This article is licensed under a Creative Commons

Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license, and indicate if changes were made. The images or other thirdparty material in this article are included in the article's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this license, visit <http://creativecommons.org/licenses/by/4.0/>

ABSTRACT

Weed flora of some cultivated fields of Parbhani district was studied during *Kharif* and *Rabi* season. In *Kharif* season crops (Soybean & Cotton), total 21 weed species belonging to 13 families were recorded in soybean field whereas in cotton field 40 weed species belonging to 20 families were recorded. In *Rabi* season crops (Jowar & Wheat) total 16 weed species belonging to 09 families were recorded in jowar field whereas in wheat field, total 30 weed species belonging to 14 families were recorded. Maximum number of weed species were found in Cotton fields (40) followed by Wheat (30), Soybean (21) and Jowar (16). In all, maximum weed species were found in *Kharif* season crop fields (61) as compared with *Rabi* season crop fields (46). Some of the weed species were found growing only in particular crop field and in particular season.

Keywords: *Weed, Kharif, Rabi.*

INTRODUCTION

Parbhani district is known as semi backward region of Maharashtra State. The climatic condition of the district is semi-arid type. The soil is less fertile. Permanent irrigation is negligible due to minimum network of canals. Few areas of the district are irrigated by temporary and perennial canals, tube wells, tanks and wells. Therefore, various types of weeds are observed under different climatic and soil conditions. They grow along with crop plants and cause serious damage to them. The weeds grow more vigorously than crop plants and they reduce the yield (Samad *et al.*, 2008). Weeds are more resistant to climatic and edaphic conditions. They produce large number of seeds. Most of the seeds are viable so that the growth of the weeds is more rapid. They are competing successfully with crop plants and ultimately they reduce quality and quantity of the crops (Dhole *et al.*, 2013). Therefore, the farmers are to be well educated about the weeds.

During botanical excursions in this region, it was observed fact that weeds produce a huge biomass and thus the study of weed flora in the crop fields feels to be a most urgent need of this study region.

METHODS AND MATERIALS

Selection of the Fields/Sites:

The different fields in Parbhani district were selected to study the weed flora. Many different fields of different crops viz. Soybean, Cotton, Jowar and Wheat were selected for the study.

Field Work:

The weed flora of some cultivated crops in Parbhani district was studied as per the method described by Rahmen *et al.*, (2007). Regular excursions were arranged to different crop fields viz. Soybean & Cotton in the *Kharif* (June, July, August, and September) and Jowar & Gram in *Rabi* (October, November, December and January) seasons at least twice in a month for the survey of weed species in Parbhani district. 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.

Collection of Weeds:

For the collection of weeds, plastic or polythene bags were used. Some delicate and rare specimens were immediately pressed on the spot. Other plants were brought to the laboratory dried and pressed properly with the help of wooden plant press. A tag with botanical name was attached with each plant. The number, date of collection, locality and habit, flower color and other natural characters were recorded in the field

notebook. The flowers and fruits which were not possible to collect along with the plant were collected separately. The same weeds collected from different crop fields were also studied to find out the variations. The identified weeds were categorized as herbs and climbers as per the methods described by Bisht *et al.*, (2004), Siddique *et al.*, (2005) and Dalvi (2010).

Identification:

The collected weed were identified on the spot and in the laboratory on the basis of their natural characters with the help of identification keys, floras, sketches, photographs internet and other relevant literature. The flora of Marathwada (Naik, 1998) was extensively used for the identification of collected weeds.

RESULTS

Study of weed flora in crop fields of *Kharif* season:

During the present studies, the regular excursions were arranged to the various crop fields namely Soybean and Cotton in *Kharif* season. The weeds from fields of the above-mentioned crops were collected and identified on the basis of their natural characters with the help of identification key and floras. They were categorized in groups like common, occasional and rare weeds. They were also grouped as erect, prostrate and climbing weeds. The results are presented in table-1 and 2.

Table-1: Study of weed flora in the field of Soybean crop (*Kharif* season).

Sr. No.	Name of the weeds	Family	Habit	Category
1.	<i>Acalypha india</i> L.	Euphorbiaceae	Erect	Common
2.	<i>Achyranthus aspera</i> L.	Amaranthaceae	Erect	Occasional
3.	<i>Ageratum conyzoids</i> L.	Asteraceae	Erect	Rare
4.	<i>Alternanthera sessilis</i> (L.) R.Br,ex DC	Amaranthaceae	Prostrate	Occasional
5.	<i>Amaranthus tricolor</i> L.	Amaranthaceae	Erect	Common
6.	<i>Cassia tora</i> L.	Caesalpiniaeeae	Erect	Occasional
7.	<i>Celosia argentea</i> L.	Amaranthaceae	Erect	Common
8.	<i>Commelina benghalensis</i> L.	Commelinaceae	Erect	Common
9.	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Prostrate	Common
10.	<i>Cyperus rotundus</i> L.	Cyperaceae	Erect	Common
11.	<i>Digera muricata</i> (L.) Mart.	Amaranthaceae	Erect	Common
12.	<i>Eclipta prostrata</i> (L.) L.	Asteraceae	Prostrate	Rare
13.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Erect	Common
14.	<i>Ipomaea quamoclit</i> L.	Convolvulaceae	Climber	Occasional
15.	<i>Merremia emarginata</i> (Burm.f.) Hall.f.	Convolvulaceae	Prostrate	Common
16.	<i>Oxalis corniculata</i> L.	Oxalidaceae	Erect	Common
17.	<i>Phyla nodiflora</i> (L.)Green	Verbenaceae	Prostrate	Rare
18.	<i>Phyllanthus amarus</i> Schumach. & Thonn.	Euphorbiaceae	Erect	Occasional
19.	<i>Portulaca oleracea</i> L.	Portulacaceae	Prostrate	Common
20.	<i>Sida acuta</i> Burm.f.	Malvaceae	Erect	Occasional
21.	<i>Vigna triloba</i> L.	Fabaceae	Prostrate	Occasional

Table-2: Study of weed flora in the field of Cotton crop (Kharif season).

Sr. No.	Name of the weeds	Family	Habit	Category
1.	<i>Acalypha india</i> L.	Euphorbiaceae	Erect	Occasional
2.	<i>Ageratum conyzoids</i> L.	Asteraceae	Erect	Occasional
3.	<i>Alternanthera sessilis</i> (L.) R.Br,ex DC	Amaranthaceae	Prostrate	Common
4.	<i>Amaranthus tricolor</i> L.	Amaranthaceae	Erect	Common
5.	<i>Anisomeles indica</i> (L.)O.Ketz.	Lamiaceae	Erect	Rare
6.	<i>Argemone maxicana</i> L.	Papaveraceae	Erect	Occasional
7.	<i>Biophytum reinwardtii</i> (Zucc.) Klotz.	Oxalidaceae	Erect	Occasional
8.	<i>Boerhavia diffusa</i> L.	Nyctaginaceae	Prostrate	Rare
9.	<i>Calotropis gigantea</i>	Asclepiadaceae	Erect	Rare
10.	<i>Cassia occidentalis</i> L.	Caesalpiniaee	Erect	Rare
11.	<i>Celosia argentea</i> L.	Amaranthaceae	Erect	Common
12.	<i>Corchorus aestuans</i> L.	Tiliaceae	Erect	Occasional
13.	<i>Corchorus deccanensis</i> H.B.Singh & Vishwanathan	Tiliaceae	Erect	Occasional
14.	<i>Corchorus olitorius</i> L.	Tiliaceae	Erect	Common
15.	<i>Cynodon dactylon</i> (L.) Pers.	Poaceae	Prostrate	Common
16.	<i>Cyperus rotundus</i> L.	Cyperaceae	Erect	Common
17.	<i>Datura metal</i> L.	Solanaceae	Erect	Occasional
18.	<i>Digera muricata</i> (L.) Mart.	Amaranthaceae	Erect	Common
19.	<i>Eragrotis tenella</i> Roem. & Schult.	Poaceae	Erect	Common
20.	<i>Euphorbia heterophylla</i> L.	Euphorbiaceae	Erect	Common
21.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Erect	Occasional
22.	<i>Euphorbia prostrata</i> Ait.	Euphorbiaceae	Prostrate	Rare
23.	<i>Euphorbia pulcherrima</i> Willd.ex Klotzsch	Euphorbiaceae	Erect	Rare
24.	<i>Evolvulus alsinoides</i> (L.) L.	Convolvulaceae	Prostrate	Rare
25.	<i>Indigofera linnaea</i> Ali	Fabaceae	Prostrate	Common
26.	<i>Leonotis nepetifolia</i> (L.).R..Br.	Lamiaceae	Erect	Rare
27.	<i>Leucas cephalotes</i> (Roth) Spreng.	Lamiaceae	Erect	Occasional
28.	<i>Merremia emarginata</i> (Burm.f.) Hall.f.	Convolvulaceae	Prostrate	Occasional
29.	<i>Mimosa pudica</i> L.	Mimosaceae	Prostrate	Rare
30.	<i>Mollugo disticha</i> L.	Molluginaceae	Erect	common
31.	<i>Mollugo lotoides</i> (L.) O.Ktze	Molluginaceae	Prostrate	Common
32.	<i>Parthenium hysterophorus</i> L.	Asteraceae	Erect	Occasional
33.	<i>Phyllanthus amarus</i> Schumach.& Thonn.	Euphorbiaceae	Erect	Occasional
34.	<i>Portulaca oleracea</i> L.	Portulacaceae	Prostrate	Common
35.	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Prostrate	Occasional
36.	<i>Trianthema decandra</i> L.	Aizoaceae	Erect	Occasional
37.	<i>Trianthema portulastrum</i> L.	Aizoaceae	Prostrate	Common
38.	<i>Tridex procumbens</i> L.	Asteraceae	Erect	Rare
39.	<i>Vernonia cinera</i> (L.)Less	Asteraceae	Erect	Occasional
40.	<i>Vicoa indica</i> (L.) DC.	Asteraceae	Erect	Occasional

Table-3: Study of weed flora in the field of Jowar crop (Rabbi Season).

Sr. No.	Name of the weeds	Family	Habit	Category
1.	<i>Acalypha indica</i> L.	Euphorbiaceae	Erect	Occasional
2.	<i>Alternanthera sessalis</i> (L.) R.Br,ex DC	Amaranthaceae	Prostrate	Common
3.	<i>Alysicarpus rogosus</i> L.	Fabaceae	Erect	Occasional
4.	<i>Ameranthus tricolor</i> L.	Amaranthaceae	Erect	Occasional
5.	<i>Cardiospermum helicacabum</i> L.	Sapindaceae	Climber	Occasional
6.	<i>Clitoria ternatea</i> L.	Fabaceae	Climber	Rare
7.	<i>Comelina benghalensis</i> L.	Commelinaceae	Erect	Occasional
8.	<i>Corchorus olerius</i> L.	Tiliaceae	Erect	Common
9.	<i>Cynodon dactylon</i> L.	Poaceae	Prostrate	Common
10.	<i>Digera muricata</i> (L.) Mart.	Amaranthaceae	Erect	Common
11.	<i>Eragrotis tenella</i> Roem. & Schult.	Poaceae	Erect	Common
12.	<i>Euphorbia heterophylla</i> L.	Euphorbiaceae	Erect	Common
13.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Erect	Common
14.	<i>Merremia emarginata</i> (Burm.f.) Hall.f.	Convolvulaceae	Prostrate	Common
15.	<i>Phyllanthus amarus</i> Schumach.& Thonn.	Euphorbiaceae	Erect	Common
16.	<i>Portulaca oleracea</i> L.	Portulacaceae	Prostrate	Common

Table 4: Study of weed flora in the field of Wheat crop of Rabbi Season

Sr. 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 rottleri</i> (Geis.) Juss.ex Spreng.	Euphorbiaceae	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.	Euphorbiaceae	Erect	Common
16.	<i>Euphorbia hirta</i> L.	Euphorbiaceae	Erect	Common
17.	<i>Euphorbia prostrata</i> Ait.	Euphorbiaceae	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.	Euphorbiaceae	Erect	Common
24.	<i>Phyllanthus madewraspatensis</i> L.	Euphorbiaceae	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. & Wendl.	Solanaceae	Erect	Rare
28.	<i>Tragia plukenetii</i> A.R.Sm	Euphorbiaceae	Climber	Occasional
29.	<i>Tribulus terrestris</i> L.	Zygophyllaceae	Prostrate	Occasional
30.	<i>Vicoa indica</i> (L.) DC.	Asteraceae	Erect	Common

Study of weed flora in the field of Soybean (*Glycine max* (L.) Merr.) (Kharif season):

From the results presented in table-1, total twenty-one weeds were collected from the fields of Soybean. They belong to the thirteen families and twenty-one genera. One weed was (*Ipomaea quamoclit* L.) found to be climber, seven were prostrate herbs and remaining (13) were found to be erect herbs. Eleven weeds were found to be common; seven weeds were occasional and three weeds were rare in the Soybean fields.

Study of weed flora in the field of Cotton (*Gossypium* spp. L.) (Kharif season):

Various weeds growing in Cotton fields were studied in Kharif season and results are presented in table-2. Total forty weeds were collected which belong to twenty families and thirty-three genera from the Cotton fields. In all the weeds, twenty-eight weeds were erect herbs and twelve weeds were found to be prostrate herbs.

Fourteen weeds were common, sixteen weeds were occasional and ten were rare in the cotton fields.

The weeds such as *Corchorus aestuans* L., *Corchorus deccanensis* H.B. Singh & Vishwanathan, *Trianthema decandra* L., *Mimosa pudica* L., *Boerhavia diffusa* L., *Leonotis nepetifolia* (L.) R. Br., *Anisomeles indica* (L.) O. Ketz., *Leucas cephalotes* (Roth) Spreng. belonging to the family Tiliaceae, Aizoaceae, Mimosaceae, Nyctaginaceae and Lamiaceae respectively were recorded only in the Cotton fields and not in the other fields.

Study on weed flora in crop fields of Rabi season:

During the present studies, weed flora of various crop fields of Rabi season was studied. For these regular excursions were arranged to the fields namely Jowar and Wheat in Rabi season. The weeds from the fields of these crops were collected and identified on the basis of their natural characters with the help of identification keys and floras. They were categorized as common, occasional and rare weeds. They were also sub grouped as erect, prostrate and climbing weeds. The results are presented in table-3 and 4.

Study of weed flora in the field of Jowar (*Sorghum vulgare* Pers.) crop of Rabi Season:

Different weeds growing in Jowar field in Rabi season are presented in table 3. It is evident that total sixteen weeds belonging to the nine families and fifteen

genera were collected from Jowar fields. Out of the total weeds two were found to be climbers, four were prostrate herbs and remaining found to be erect herbs. Ten weeds were found to be common and five weeds were occasional.

Study of weed flora in the field of Wheat (*Triticum aestivum* L.) (Rabi Season):

The results of weed diversity of wheat fields in rabbi season are presented in table-4. The total thirty weeds were collected which belong to fifteen families and twenty-four 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, seven were prostrate herbs and 21 were erect herbs. Ten weeds 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 rabbi season only and not from other crop fields.

CONCLUSION

Study of weed flora in crop fields were undertaken to reveal weeds of this region. The present study describes the detailed weed diversity in soybean, cotton, jowar and wheat. This investigation will be helpful to make effective weed management and high yield production. It is also highly helpful to agriculturists, taxonomists and policy makers to make suggestions for farmers in the weed management and for high crop production. The study is a preliminary attempt made to document the weed flora in some crop fields further research work is needed to carry for inventory of weeds in other crops and its control.

It was also found that some of the weeds resides medicinal properties. Further studies regarding medicinal properties of certain weeds is required by which national and international markets of common medicinal weeds will be opened for farmers and they can earn additional income, which can distract the farmers from suicide which due to low income in agriculture, especially in Maharashtra.

Acknowledgements

We are grateful to Dr. V.Y. Sonawane, Principal, B. Raghunath College, Parbhani for providing the necessary facilities required during this work. I am also thankful to Dr. S.S. Bodke, Head, Dept. of Botany, Yeshwant Mahavidyalaya, Nanded and Dr. Jyoti Dhole for their help in identification of weed species.

REFERENCES

- Bisht T, Shah S, Tiwari B, Tiwari A (2004) Study of important medicinal trees, shrubs, and herbs for some vegetational parameters between 300-2000 m elevations. *Ecol. Env. & Cons.*, 10(1): 43-46.
- Dalvi SM (2010). Studies on Diversity, Utilization and Conservation of Rare Flowering Plants in Nanded District. *Ph.D. thesis, S.R.T. Marathwada University, Nanded (M.S.) India.*
- Dhole JA, KD Lone, NA Dhole and SS Bodke (2013) Studies on weed diversity of wheat (*Triticum aestivum* L.) crop fields of Marathwada region. *Int. J. Microbiol. App. Sci.*; 2(6), 293-298.
- Naik VN (1998) *Flora of Marathwada*, Vol. I-II. Amrut Prakashan, Aurangabad.
- Rahman AHMM, Anisuzzaman M, Ferdous A, Naderuzzaman ATM and Rafiul IAKM, (2007) A floristic study in the graveyards of Rajshahi city. *Research Journal of Agriculture and Biological Sciences*, 3(6): 670-675.
- Samad MA, MM Rahman, AKMM Hossain, MS Rahman, Rahman SM (2008) Allelopathic effects of five selective weed species on seed germination and seedling growth of Corn. *J. Soil. Nature*. 2(2):13-18.
- Siddique NA, Bari MA, Pervin MM, Nahar N, Banu LA, Paul KK, Kabir MH, Huda AK, MN Mollah MU, Ferdous KMK (2005) Screening of endangered medicinal plant species by Questionnaire survey in Barind tract in Bangladesh. *Pakistan Journal of Biological Sciences*. 8(12):1783-1793.