



Research Article

WEED SPECIES IN SUGARCANE CROP FIELDS OF CHODAVARAM MANDAL OF VISAKHAPATNAM DISTRICT, ANDHRA PRADESH, INDIA

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ABSTRACT

A field survey was conducted during 2013-14 in sugarcane fields of Chodavaram Mandal, Visakhapatnam District, Andhra Pradesh to study the weed flora. A total of 63 weed species were recorded, of these 63 species, 52 dicot families, 10 monocot families and 1 Pteridophyte. Asteraceae 9, Amaranthaceae 9, Poaceae 8, Euphorbiaceae 6, Aizoaceae 3, Capparaceae 3, Convolvulaceae 2, Fabaceae 2, Malvaceae 2, Portulacaceae 2, Solanaceae 2, Tiliaceae 2 species, remaining families each one had single species. Among the weeds, *Panicum repens* is the most dominant followed by *Cyperus rotundus*, *Echinochloa colona*, *Ageratum conyzoides* and *Imperata cylindrica*. The survey also revealed that creepers like *Passiflora foetida*, *Ipomoea aquatica*, *Hemidesmus indicus*, *Tinospora cardifolia* etc. are dominant.

KEY WORDS: Sugarcane, weed flora, Chodavaram Mandal, Visakhapatnam.

INTRODUCTION

Sugarcane is an important commercial crop grown in Chodavaram Mandal of Visakhapatnam District, Andhra Pradesh mostly under irrigated conditions. Among several problems faced in sugarcane cultivation, weeds are identified as one of the serious problems resulting in low yields in sugarcane. Slow germination of sugarcane sets, initial slow pace of growth, wider row spacing, frequent irrigations and excessive use of fertilizers and long duration of the crop are some of the reasons for severe weed problem which ultimately reduce growth and cane yield ranging from 38 to 76% by [15,3]. Changes in the weed flora exposed to cultural, mechanical and chemical control make it necessary to study weed communities and determine their composition to improve methods of their control by [10]. Keeping this in view, the present survey was undertaken in sugarcane crop in Chodavaram Mandal, Visakhapatnam District, and Andhra Pradesh.

STUDY AREA

Chodavaram is located in Visakhapatnam District, Andhra Pradesh, geographically lies between 17° 49' 59.88" to 17° 83' 33" N latitude and 82° 57' 0" to, 82° 95' 0" E longitudes. It has an average elevation of 39 meters (131 feet). It is well connected to the nearest city and district headquarters- Visakhapatnam (46KM). Major occupation of the population is agriculture and sugarcane got major stake in it. The Chodavaram Co-operative Sugars Limited, Govada is the major agriculture based industry in the vicinity. The surrounding farmers are the shareholders in the said factory and are running successfully to the utmost satisfaction of the farmers and workers, by updating with latest technologies and gaining maximum sugar recovery from the qualitative cane supplied by the farmers.

MATERIALS AND METHODS

The exploration of the area under study includes the planned field trips to the various places for crop weed collection. The study was carried out during the period of

2013 - 2014. The random quadrat method was adopted for this study to note down the presence of the weed species among the crop fields. Several field trips have been made to cover the interior villages of Chodavaram mandals of plain areas. In the crop fields, notes were written on habitat, habit, flower colour, aroma, associated plants, abundance and general distribution. The data was gathered from villagers regarding local names of the weed plants. The plant specimens were collected in both vegetative and

reproductive stages in order to record the distribution pattern of weeds. After completing the weed collection from the crop fields the specimens were identified by comparing with the authentic certified specimens at the Andhra University herbarium, Department of Botany Later these identifications were checked again at the regional herbarium or in the laboratory with help of floras, Monographs and other relevant literature and the correct name were provided to each plant.

Figure 1: Weed flora in Sugarcane crop of Chodavaram Mandal of Visakhapatnam District.

S.No.	Name of the weed	Trade Name	Vernacular Name	Family
1	<i>Abutilon indicum</i> (L.) Sweet	Bead tree	Thutturabenda	Malvaceae
2	<i>Acalypha indica</i> L.	Indian acalypha	Muripinda	Euphorbiaceae
3	<i>Achyranthes aspera</i> L.	Rough chatt tree	Uttareni	Amaranthaceae
4	<i>Aerva lanata</i> (L.) Juss.	Guana bana	Pindikura	Amaranthaceae
5	<i>Ageratum conyzoides</i> L.	Goat weed	Pumpulla	Asteraceae
6	<i>Alternanthera sessilis</i> (L.) R. Br.	Alternanthera	Ponnaganti aku	Amaranthaceae
7	<i>Amaranthus spinosus</i> L.	Prickely	Mullathotakura	Amaranthaceae
8	<i>Amaranthus viridis</i> L.	Amaranthus	Chilakathotakura	Amaranthaceae
9	<i>Ammannia baccifera</i> L.	Blistering	Agnivendrapaku	Lythraceae
10	<i>Barleria cristata</i> L.	Crested purple	Gobbi	Acanthaceae
11	<i>Biophytum sensitivum</i> (L.) DC.	Chumi	Pedda attipati	Oxalidaceae
12	<i>Cassia angustifolia</i> Vahl.	Indian senna	Senna	Fabaceae
13	<i>Celosia argentea</i> L.	Cockscomb	Kodiguttuaku	Amaranthaceae
14	<i>Chenopodium album</i> L.	Drought weed	Pappukura	Amaranthaceae
15	<i>Chloris barbata</i> F.	Chloris	Jadakunchula gaddi	Poaceae
16	<i>Chrozophora rotleri</i> (Geisel) A.Juss.	Turnole	Lingamirapa	Euphorbiaceae
17	<i>Cleome chelidonii</i> L.F.	Cleome	Thotavovinta	Capparaceae
18	<i>Cleome gynandra</i> (L.) Briq.	Spider flower	Vominta	Capparaceae
19	<i>Cleome viscosa</i> L.	Sticky cleome	Kukkavominta	Capparaceae
20	<i>Coccinia grandis</i> (L.) Voigt.	Ivy gourd	Kakidonda	Cucurbitaceae
21	<i>Commelina benghalensis</i> L.	Vennedra	Yanadra aku	Commelinaceae
22	<i>Corchorus olitorius</i> L.	Tossa jute	Janumu	Tiliaceae
23	<i>Corchorus trilocularis</i> L.	Corchorus	Bankaku	Tiliaceae
24	<i>Croton bonplandianum</i> Baill.	Vanamokka	Galivanamokka	Euphorbiaceae
25	<i>Cynodon dactylon</i> (L.) Pers.	Bahama grass	Garika	Poaceae
26	<i>Cyperus rotundus</i> L.	Cuperus	Gaddi	Cyperaceae
27	<i>Dactyloctenium aegyptium</i> (L.) Beauv	Crow foot	Nela ragi	Poaceae
28	<i>Digera arvensis</i> Forsk.	Digera	Chenchalkoora	Amaranthaceae
29	<i>Echinochloa colona</i> (L.) Link	Shama millet	Oodaragaddi	Poaceae

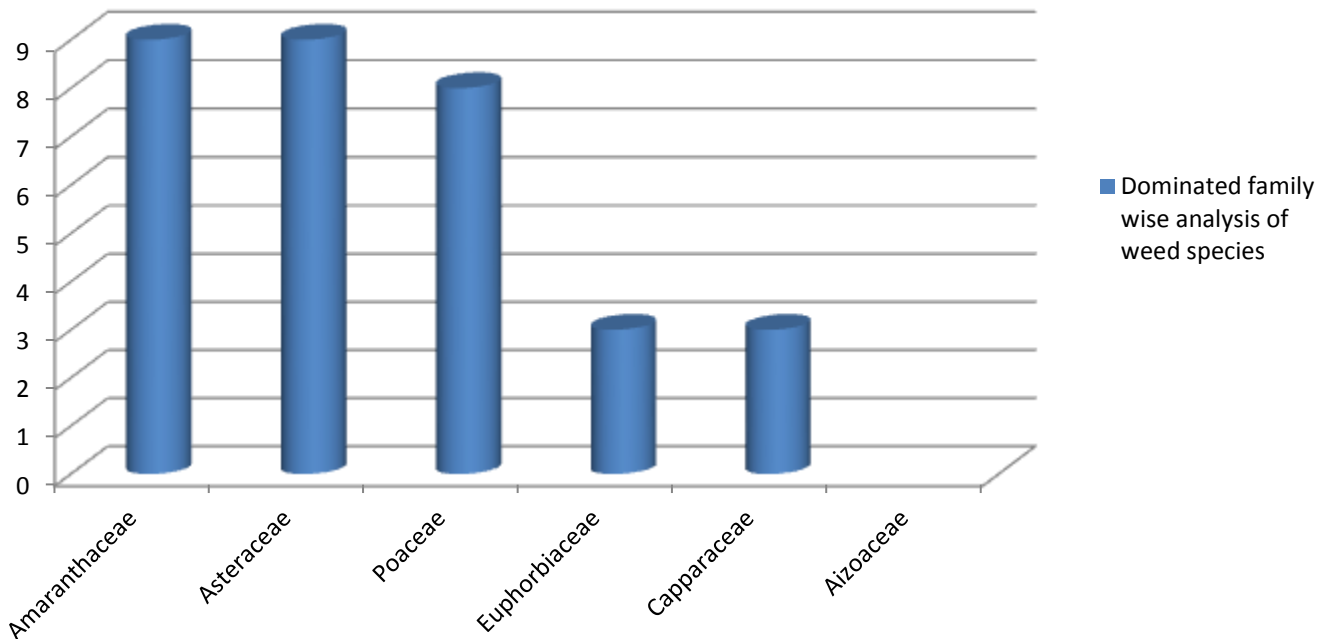
30	<i>Eclipta alba</i> (L.)	Prickly leaves elephant's foot	Guntagalagara	Asteraceae
31	<i>Eleusine indica</i> (L.) Gaertn.	Goose grass	Thippa ragi	Poaceae
32	<i>Euphorbia hirta</i> L.	Snake weed	Reddivari nanubalu	Euphorbiaceae
33	<i>Gnaphalium polycaulon</i> L.	Gnaphalium	Tella nugu patri	Asteraceae
34	<i>Hemidesmus indicus</i> (Linn.) R.Br.	Indian sarasaparilla	Sugandapala	Asclepiadaceae
35	<i>Imperata cylindrical</i> P.Beauv.	Cogon grass	Darbagaddi	Poaceae
36	<i>Ipomoea aquatica</i> Forssk.	Water spinach	Thootikoora	Convolvulaceae
37	<i>Leptochloa chinensis</i> (L.) Nees	Leptochloa	Todelutoka gaddi	Poaceae
38	<i>Lippia nodiflora</i> (L.) Greene	Lippia	Mosalipappu	Verbenaceae
39	<i>Ludwigia parviflora</i> L.	Ludwigia	Lavangakaya mokka	Onagraceae
40	<i>Marsilea quadrifolia</i> L.	Marselia	Marsilea	Marsileaceae
41	<i>Merremia emarginata</i> (Burm f.) Hall. f.	Merremia	Nallakulateega	Convolvulaceae
42	<i>Mollugo nudicaulis</i> Lamk.	Mollugo	Peddaparipata	Aizoaceae
43	<i>Ocimum americanum</i> Sims	Rosary	Kukkathulasi	Lamiaceae
44	<i>Panicum repens</i> L	Ginger grass	Karigaddi	Poaceae
45	<i>Parthenium hysterophorus</i> L.	Congress weed	Vayyaribhama	Asteraceae
46	<i>Passiflora foetida</i> L.	Sinking fashion flower	Gajuteega	Passifloraceae
47	<i>Phaseolus trilobus</i> Ait.	Pillipesar	Pillipesara	Fabaceae
48	<i>Phyllanthus niruri</i> Linn.	Bhunelli	Nelausiri	Euphorbiaceae
49	<i>Physalis minima</i> L.	Sunberry	Budda bhusada	Solanaceae
50	<i>Portulaca oleracea</i> L.	Common purselane	Pappukura	Portulacaceae
51	<i>Portulaca quadrifida</i> L.	Portulaca	Sannapappukura	Portulacaceae
52	<i>Sida acuta</i> Burm. F.	Sida	Medasbirusaku	Malvaceae
53	<i>Solanum surattense</i> Schrad. & Windl.	Dwarf wild brinjal	Nelamulaka	Solanaceae
54	<i>Sphaeranthus indicus</i> L.	Indian spheranthus	Bodasaram	Asteraceae
55	<i>Tinospora cardifolia</i> (Wild.)Hook. F. & Thamson.	Bulonga	Tippateega	Menispermaceae
56	<i>Tragia involucrata</i> L.	Indian stinging nettle	Chinnadulagondi	Euphorbiaceae
57	<i>Trianthema decandra</i> Linn.	Galijeru	Tellagalijeru	Aizoaceae
58	<i>Trianthema portulacastrum</i> L.	Horse purselane	Neerubailaku	Aizoaceae
59	<i>Tridax procumbens</i> L.	Tridox	Gaddichamanthi	Asteraceae
60	<i>Vernonia cinerea</i> (L.) Less.	Fiebane-purple	Sahadevi	Asteraceae
61	<i>Vicoa indica</i> L.	Vicoa	Adavipoduthirugudu	Asteraceae
62	<i>Waltheria indica</i> L.	Waltheria	Nallabenda	Sterculiaceae
63	<i>Xanthium strumarium</i> L. Cocklebur	Cocklebour	Marulamathangi	Asteraceae

RESULTS AND DISCUSSION

In India, weeds pose a serious problem in crop production. Because of lack of knowledge and financial resources, the smaller farmers cannot afford to remove them from their fields. Sugar cane weed fields are severely infested with 63 weed species belonging to 58 genera and 26 families. Of these 63 species, 52 dicot families, 10 monocot families and 1 Pteridophyte, Asteraceae 9, Amaranthaceae 9, Poaceae 8, Euphorbiaceae 6, Aizoaceae 3, Capparaceae 3, Convolvulaceae 2, Fabaceae 2, Malvaceae 2, Portulacaceae 2, Solanaceae 2, Tiliaceae 2 species, remaining families each one had single species. Among the weeds, Panicum repens is the most dominant followed by Cyperus rotundus, Echinochloa colona, Ageratum conyzoides and Imperata cylindrica. The survey also revealed that creepers like Passiflora foetida, Ipomoea aquatica, Hemidesmus indicus, Tinospora cardifolia, etc. [11] enumerated 88 species in Sugarcane fields of Visakhapatnam district which *Cyperus rotundus* and *Malvastrum*

coromandelianum are dominant species in the area. [16] Reported weed flora in the sugarcane crop fields, a total of 78 species (67 dicots, 11 monocots) were recorded in all the randomly thrown 60 quadrats. Merremia hederacea, Acalypha lanceolatas were the most abundant species followed by Phyllanthus amarus, Boerhaavia diffusa and Gomphrena serrata. Importance Value Index (IVI) of individuals weed species encountered in the sugarcane crop fields was identified. Cyperus rotundus was the most important species followed by Phyllanthus amarus, Dactyloctenium aegyptium, Tribulus terrestris and Parthenium hysterophorus. [19] Studied the weeds in sugarcane crop in the fields of Nizamabad district were identified and their ethnomedicinal uses documented. Thirty nine weed species belonging to 17 families were identified from different mandals. Out of thirty nine weeds 18 are medicinally useful in the cure of various ailments

Dominated family wise analysis of weed species



CONCLUSION

The frequently occurring species viz. Cyperus rotundus, Cyperus difformis, Elytraria acaulis, Cynodon dactylon, Amaranthus viridis, Tridox procumbens, Bidens pilosa, Ageratum conyzoides and Euphorbia hirta are also found in other crops where they are known to cause heavy yield losses due to competition for nutrients, water, and space. Cyperus rotundus is one of the prominent weed of the present study. It is one of the most noxious weeds of cultivation and its spread is so great and its ravages are so serious that in certain places, cultivation of fields has been

actually abandoned in despair. The weed control before the flowering time the flower stalks should be chopped off with grass-cutting swords. The tubers are roasted and eaten by some people. Cynodon dactylon is one of the best and the worst grasses and its fodder is much relished by cattle and horses. But unfortunately it is the most troublesome weed in cultivated places. The eradication of the weed is extremely difficult on account of the underground stems which are very hardy and are not easy to destruct.

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