Pak. J. Bot., 40(1): 65-70, 2008.

CHECK LIST OF THE WEEDS FOUND IN COTTON CROPS, CULTIVATED IN TALUKA UBAURO, DISTRICT SUKKUR, PAKISTAN

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Abstract

The weeds in the cotton (*Gossypium hirsutum* L.) crop in the fields of Taluka Ubauro District Sukkur, Pakistan, were identified. Seventy six weed species belonging to 21 families were identified from 10 different cotton fields.

A maximum of 22 weed species are recorded in the family Poaceae. Information on rare and common weed species is also provided.

Introduction

The concept of weed, came with agriculture, as that has long been associated with man's use of plant for food, fibre and recreational purposes. Man has selected certain plants that produce large seed or edible fruits or nuts from the early communities or mixed species and then he gradually domesticated them into his agricultural crops.

To define the concept of weed in early times was not difficult, but now a days with man's way of living become more complex, the concept of weeds becomes more difficult to describe. In this contribution the concept of weed is used in the sense of plant "out of place" or unwanted or non-useful plant species. This concept of weed was also used by Hussain *et al*., (1988), while describing the weeds of wheat of Hazara district Attock.

Plant have been used by man since prehistoric times and many of them used in the past for food drug and fiber are now considered to be weed, because of the discovery of new better species for food, drug and fiber. Many of these plants, would still be useful, but they have been superseded by plants of greater productivity and superior flavor.

Most probably the heaviest loss caused by weed, results from their competition with crops for water, light and mineral nutrients. It may be that weeds cause more loss to agriculture crops than plant diseases and insect, pests. Many methods of weed control and weed eradication have been devised such as mechanical methods, biological methods and chemical methods, but before the use of any weed control method it is necessary to know the identify the weed itself.

In Pakistan a fair amount of research has been done in N.W.F.P. and Baluchistan on weeds found in tobacco, (Marwat *et al*., 1979; Hussain *et al.,* 1984, 1985), sugar beets, (Hussain *et al.,* 1985) and wheat (Hussain *et al.,* 1988, 1985), but in Sindh no research work has been done on the weeds of cotton crop.

The species of *Gossypium* have seeds which are densely covered with long usually white hairs, forming the material known as cotton. The soft hairy covering of the seeds of the cotton plants are called fibres and are also universally known as Silver fibre. From the seeds of *Gossypium* cotton-seed oil is obtained by crushing, and the oil-cake (Khalli) left behind is largely used for feeding cattle etc.

Taxonomy and distribution of cotton

The cotton plant belongs to the genus *Gossypium* of the dicot., family Malvaceae. Both cultivated and wild species are known, having chromosome numbers 13, 26.

The distribution of cotton species is world-wide and wild species are found in all the continents except Europe. The genus *Gossypium* consists of 35 species (Fryxell, 1969), distributed in tropical and subtropical regions. It is represented in Pakistan by 4 species viz.. *G. stocksii* Mast., *G. arboreum* L., *G. herbaceum* L and *G. hirsutum* L., (S. Abedin, 1979). In Pakistan G. *hirsutum* L., is extensively cultivated as cotton crop, the other three above cited species are not commercially cultivated (S. Abedin, 1979).

Cotton is a summer crop, usually sown between April and June in different parts of the country and picking starts from the middle of September and is finished by the middle of January (Afzal 1969).

Materials and Methods

The living weeds were collected from the following localities viz., Kamoo Shaheed, Village Kehar Khan, Village Nasir Dhandoo, Village Maroowala, Reti Irrigation Bungalow, Khenju, Poh, Village Chand Mari, Deh Sehja and Mureed Minor, which are located within the radius of about 10 Km. of taluka Ubauro, district Sukkur, Sindh, Province of Pakistan. For every weed species, 3-5 samples were collected and their herbarium sheets were developed, following the standard techniques. A voucher specimen has been deposited in the Sindh University Herbarium.

The weed species were identified with the help of Flora of Pakistan (Nasir & Ali, 1974-1991), Stewart (1972), Ali & Qaisar (1992-2006) and other available literature. The grasses were mainly identified with in Poaceae, (Cope, 1982). The nomenclature has been brought up to date, following in general the Flora of Pakistan, and other taxonomic literature.

The families of the weed species are arranged in alphabetical order, following the scientific names of the weeds. Local or vernacular names wherever available of the weeds are provided. The months during which a weed usually blossoms in taluka Ubauro are indicated for each kind. Ubauro is agriculturally very fertile taluka of district Sukkur, and is located in the north east of Sindh, forming the border area of the province with Punjab, (Lat. 27^{o}. 30" N. Long. 69^{o}. 00'. E.).

Results and Discussion

The weed compete with crop for water, nutrients and light and has been a matter of great concern to the cotton growers. According to Makhan Kova & Voceodin (1984), the losses in cotton yield due to weeds could be in the range of 50 to 70%. They exhibit allopathy, competition and parasitism (Hussain, 1980, 1983; Hussain *et al.*, 1984, 1985, 1987 and Hussain & Khan, 1987).

During the study 76 species of weeds belonging to 21 families were collected and identified from 10 different cotton field localities in taluka Ubauro, district Sukkur, Sindh Pakistan (Table 1).

Atleast 22 monocot. Species, of weeds belonging to Poaceae, Liliaceae and Cyperaceae; 57 dicot weeds species belonging to families Aizoaceae, Amaranthaceae, Asclepiadaceae, Asteraceae, Capparidaceae, Caesalpinaceae, Chenopodiaceae, Convolvulaceae, Cucurbitaceae, Euphorbiaceae, Fabaceae, Malvaceae, Portulaceae, Solanaceae, Tamaricaceae, Tiliaceae, Verbanaceae and Zygophylaceae were identified from the area. (Table1).

Table 1. The detail of the weeds found in cotton fields of taluka Ubauro, District Sukkur, Pakistan.

Botanical family/Species	Local or Vern. name	Habit	Flowering / Fruiting period
Dicotyledons			
Aizoaceae			
Sesuvium sesuvioides (Fenzl) Verdc.	Waho	AH	Nov.-Dec.
Trianthema portulacstrun L.	Waho	AH	Sep.-Oct.
Trianthema triquetra Rottl & Willd	Alettie	AH	July-Oct.
Amaranthaceae			
Alternanthera sessilis (L.)D.C.		AH	Sep.-Oct.
Aerva javanica (Bura. F.). *Juss.* ex. J.A. Schultes		AH	July-Sept.
Amaranthus hybridus L.	Mariro	AH	July-Sept.
A. viridis Linn.	Mariro	AH	May-Nov.
Digera auricata (L.) Mart.	Lular	AH	Aug.-Oct.
Asclepiadaceae			
Calotropis procera (Ait.) Ait. f.,	Aak	PS	July-Sept.
Leptodenia pyrotechnica (Forssk) Decne.	Khip	PS	Nov.-Dec.
Asteraceae			
Erigeron canadensis L.	Gidewar	AH	July-Sept.
Launae audicaulis (L.) Hook.	Bhattar, Bathal	AH	Feb.-Sept.
Sonchus asper (L.) Hill.	Bhattar, Pili Dodak	AH	Feb.-Sept.
Vernonia cinerea (L.) Less.		AH	Aug.-Oct.
Xanthium strumariun L.	Mohabbat botti Cocklebar	AH	Aug.-Nov.
Caesalpiniaceae			
Cassia accidentalis L.	Chawar, Kasondi	PS	April-Oct.
Capparidaceae			
Capparis deciduas (Forssk.) Edgew.	Karir.	PS	March-April.
C, cartilaginea Decne	Golaro	PS	March-April.
Cleome brachycarpa Vahl ex D.C.	Dhanar, Khathoori, Ponwar	AH	April-Aug.
Chenopodiaceae			
Chenopodium album L.	Jhill	AH	Round the year.
C. nurale L.	Gadah Jhill,	AH	Round the year.
Salsola baryosna (R. & S.) Dandy		PS	Aug.-Oct.
Sueda fruticosa (L.) Forssk.	Lani	PS	Dec.-Jan.
Convolvulaceae			
Convolvulus arvensis L.	Hiran padi	AH	Round the year.
Argyreia nervosa (Burm, f.) Bojer.	Samandar-Ka-pat	AH	July-Oct.
Cressa critica L.	Oin	AH	Round the year.
Cucurbitaceae			
Cucunis melo L.	Chibbar	AH	July-Nov.
Mukia maderaspatana (Linn.) M.J.Roem.	Chirati	AH	April-Oct.
Euphorbiacae			
Euphorbia indica L.	Dodak	AH	May-July
E. prostrata Ait.	Dodak	AH	Sept-Dec.
Phyllanthus maderaspatenis L.	Hazardani	AH	July-Jan.
Fabaceae			
Alhagi maurorum Medic.	Kandero	PS	April-Sept.
Indigofera cordifolia Heyne ex Roth.	Near	AS	Aug.-Oct.
Melilotus alba Desr.	Sinjh	AH	April-Sept.
M. indica (L.) All.	Ran-methi, Sinjh	AH	April-Aug.
Rhyncosia minima (L). Dc.	Wan Verhi	AH	July-Aug.
Sesbania sesban (L.) Merrill.	Ikar	PS	Nov.-Feb.
Malvaceae			
Abutilon indicun (L). Sweet.	Patir, Peeli buti	AH	March-April
Hibiscus obtusilobus Garke	Jhangli bhindi	AH	Aug.-Oct.

Table 1. (Cont'd.).

Botanical family/Species	Local or Vern. name	Habit	Flowering / Fruiting period
Portulacacae			
Portulaca quadrifida L.	Lunak	AH	Aug.-Dec.
Solanaceae			
Physalis peruviana L.	Ras Bhari	AH	July-Oct.
Solanum nigrun L.	Kanwal. Mako.	AH	July-Sept.
S. surratausa Burm.	Aderi, Mokri	AH	Round the year
Withania somnifera (L.) Dunal	Asgadh, Aksan.	PS	Round the year
Tamaricaceae			
Tamarix dioica Roxb. ex Roth.	Lai	PS	May-Nov.
Tiliaceae			
Corchorus depressus (Linn.)Stocks	Mandheri, Bahu phali	AH	Feb.-Nov.
C. olitorius L	Mandheri	AH	Feb-Nov.
C. tridens L	Mandheri, Kawava torai	AH	July-Nov.
Verbenaceae			
Phyla nodiflora (L.) Greene	Buken, Jalnin Waken	PS	Round the year
Zygophylaceae			
Fagonia indica Burm.		AH	April-Aug.
Tribulus longipetalus Viv.	Bhurt, Gokhru Kalan	AH	July-Sept.
T. terrestris L.	Bhurt, Gokhru,	AH	Round the year
Zygophyllum simplex L.	Alethi, Putlani	AH	May-Aug.
Monocotyledons			
Cyperaceae			
Cyperus rotundus L	Kabbah, Motha	PH	Round the year.
Liliaceae			
Asphodelus tenunfolius Cavan.	Piazi, Basri	AH	Jan.-March.
Poaceae			
Alloteropsis cinicina (L.) Stapf.		AG	Sept.-Oct.
Brachiaria reptans (L.) Gardner & Hubbard		AG	Aug.-Oct.
Briza minor L.		AG	June-Sept.
Cenchrus ciliaris L.		PG	April-Oct.
Chloris barbata Sw	Ganni, Jargigh	PG	June-Oct.
Cymbopogoa commutatus (Steud.) Stapf.	Sargarah, Hawai	PG	July-Oct.
Cynodon dactylon (L.) Pers.	Chhaber	PG	Round the year
Dactyloctenium aegyptium (L.) Willd.	Madhana	AG	Round the year.
Desmostachya bipinnata (L.) Stapf.	Dubh	PG	July-Oct.
Dichanthium annulatum (Forssk.) Stapf.	Denoi, Palwan	PG	Round the year
Digitaria nodosa Parl.		PG	March-Oct.
D. stricta Roth ex Roen. & Schult.		AG	Aug-Oct.
Echinochlao colona (L.) Link	Sawari, Sanwak	AG	Aug-Nov.
Eriochloa procera (Retz.) C.E. Hubbard.		PG	Aug-Oct.
Imperata cylindrica (L.) Raeuschel.	Drabhuri. Siru.	PG	Round the year.
Leptochloa panacea (Retz.) Ohwi		AG	April-Nov.
Ochthochloa compressa (Forssk.) Hilu.	Pholwan, Chimber	PG	April-Sept.
Paspalidium geninatum (Forssk.) Stapf.		PH	Round the year
Paspalidium punctatum (Burm.) A. Camus.		PG	Sept.-Oct.
Pennisetum divisum (Gmel) Hear.		PG	April & Sept.-Oct.
Saccharum bengalense Retzs.	Kana, Sarkanada.	PS	Oct.-Nov.
S. bspontaneum L.	Kilk, Kahu, Kans.	PS	Aug.-Sept.
Sporobolus coromendelianus (Ritz.) Kunth	Katograss	AG	April-Oct
Vetiveria zizanioides (L.) Nash	Khas Khas	PG	Sept.-Oct.

Abbreviations: AH = Annual herb, BH = Biannual shrub, PS = Perennial shrub

In this study it has been examined that the species *Cyperus rotundus, Cynodon dactylon, Dicanthium annulatum, Erogristic poaeids, Chenopodium murale, C. alba, Meliolotus parvifolora, M. alba, Sporobolus cormendialens* and *Trianthema* are the most frequent weeds found in all the cotton field of study area.

The most common and densely populated weed species is a nut grass (*Cyperus rotundus*) in the field of study area. *Cyperus rotundus* is a creeping perennial member of the sedge family Cyperaceae and as widely distributed as agricultural weeds in the warm regions of the world. Raw crops especially cotton and potatoes are more seriously affected than are grains and hay crops. In this weed species the production of flowers is good and regular, but setting of seed and viability is very low. The propagation is mainly by the tubers. The tuber germinates and it sends out a rhizome that grows to the surface and terminates in an aerial shoot.

The species which are very common, and are found in all the fields of cotton crop are mostly herbs, it might be possible that the seeds of these weeds come through the cattle manure, which is commonly used in the study area by local farmers.

A few species e.g., *Argyreia nervosa, Mukia seabrella, Rhynocosia minima, Tephorosia coconia, Vicia hirta, Hibiscus punctalus* and *Solanum surretense* are the weeds which are rarely found in the cotton fields. These species were found in one or two out of ten fields.

Hussain & Rashid (1989) published a checklist to the monocotyledonous weeds of Pakistan of family Poacae, in different crops except cotton crop mentioned.

Eleven weeds species viz., *Briza minor* L., *Cenchrus ciliaris* L., *Cynodon dactylon* (L.) Pers., *Dactylotenium aegyptium* (L) Willd., *Digitaria nodosa* L., *Echinochloa colona* (L) L., *Eriocholoa procera* (Retz) Hubbard., *Imperata cylindrica* (L.) Roeuschel,. *Leptochloa panicea* (Retz) Ohwi., *Ochthochloa compressa* (Forssk) Hilu., *Pennisetum divisum* (Gmel). Henr., and *Sporobolus coromendelianus* (Retz.). Kunth., were reported by Hussain & Rashid (1989) from the crops of wheat, corn, sugar cane, orchards, tobacco, vegetables, melons and rice.

Besides the above cited monocot weed species of the family Poaceae, another 11 species are also found in the fields of cotton crops (Table1).

Acknowledgements

We are grateful to Mr. Habibullah Syial, Mukhtiarkar of taluka Ubauro, district Sukkur, for his cooperation, in providing information on the cultivation of cotton crop in taluka Ubauro. We are also thankful to Professor Dr. S.I. Ali and Professor Dr. Muhammad Qaisar, Department of Botany of Karachi University, for helping us in the identification of weed species.

The authors especially wish to acknowledge the encouragement and guidance offered from time to time by Professor Dr. Farrukh Hussain, of Botany Department, Peshawar University, during this research work, and also for providing the literature on weeds.

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(Received for publication 28 November 2007)