Weed Flora in Cereal Crops of District Bannu

Rehman Ullah Khan*, Sultan Mehmood Wazir1, Faizan Ullah1, Siraj Ud Din2, Ihsan Ullah2, Saad Ullah Khan1, Asim Muhammad4, Zahid Hussain3, Inam Ali Shah5 and Dilkhuram1

1Department of Botany, University of Science & Technology Bannu
2Department of Botany, University of Peshawar
3Department of Weed Science, KP Agricultural University Peshwar, Pakistan
4Department of Agronomy, Faculty of Crop Production Science, KP Agricultural University Peshawar.
5Department of Botany, GDC No.1 D.I.Khan

*Corresponding author: rehmang4u@gmail.com

Article Published on: 23 September 2019

Abstract

In the present research work (2016-2018), there was reported 100 genera having 114 species distributed among 37 families. Out of which 5 were of monoct families (with 21 genera and 23 spp.) and 32 families of dicot (with 79 genera & 91 spp.). According to percentage data, it was reported that the weed members of family Poaceae was the greatest in cereal crops having 16.666% spp, while the family Asteraceae was next one with 14.912% weeds spp. Family Boraginaceae and Papilionaceae gaining third position having 6.140% weeds spp. Amaranthaceae, Brassicaceae and Solanaceae having 5.263%, Euphorbiaceae (4.385%), Polygonaceae (3.508%), Zygophyllaceae (2.631%), while the remaining families have less then 2.00 % weeds species. It was reported that Cirsium arvense, Convolvulus arvensis, Conyza bonariensis, Cynodon dactylon, Cyperus rotundus, Parthenium hysterophorus and Sonchus asper were the common weed found in all the three important cereal crops i.e wheat, maize and rice.

Keywords: Bannu, biodiversity, weeds, cereal crops.
INTRODUCTION

Bannu Division, located in Khyber Pakhtunkhwa province of Pakistan, is surrounded in North by the Tribal Areas and in the East by Karak district; while in the South by Lakki Marwat. The total area of the district including Bannu is 1227 square kilometers. District Bannu is situated at a distance of 190 km, in the South of Peshawar and lies between 32.43o to 33.06o N and from 70.22o to 70.07o E. Most of the areas of FR Bannu are arid and rainfall dependent. However, some parts of Baka Khel area are irrigated with canals from Tochi river while canals from Baran Dam irrigate some areas of Mamman Khel. Important cereal crops of district Bannu are wheat, maize, rice, gram, sugarcane and fodder and grain sorghum. Khan et al., (2012-14). Biodiversity is the variation of life forms within a given ecosystem, biome, or on the entire Earth. Any plant, which occurs at wrong place, is known as weeds, Shah et al., (2006). The word cereal derives from “Ceres”, the name of the Roman goddess of harvest and agriculture. Cereals are grains producing plants belong to the grass family. They are report for over 50% of human being energy and protein requirements. It inhabits two-thirds of all cultivated land. In their natural form (as in whole grain), they are a rich source of vitamins, minerals, carbohydrates, fats, oils and protein, Wang et al.,(2007). FR Bannu lies just like a bend around the District Bannu from West to East longitude. Weeds are hidden enemies of crops and cause huge losses to crop yields which amount to Rs. 115 to 200 billion annually (Atta & Khaliq, 2002). They are tough contestant to cereal crops due to their abundant growth in different environmental conditions. Weeds decrease crop yields by competing for nutrients, water, space and light. Some weeds are allelopathic which further aggravate the losses in crop yields. Hamid et al., (1998) reported that weed competition in cereal crop decreased yield by 42-56%. Generally, one kilogram of weed biomass corresponds to a loss of one kilogram of crop biomass (Rao, 2000). Grain yield of wheat is significantly increased by use of different chemicals for weed control as compared with weedy check (Tariful et al., 1998; Chaudhry et al., 2008). A number of studies have been conducted on the weed flora of cereal crops from different regions of Pakistan, from Peshawar (Hussain et al., 1985), Abbotabad (Hashim and Marwat, 2002), Chitral (Hussain et al., 2004), District Bannu (Khan et al., 2004), Qambar village from Swat (Akhtar and Hussain, 2007) and District Karak (Wazir et al., 2007), Pakistan (Naveed & Hussain, 2007; Qureshi et al., 2009 and Waheed et al., 2009). The distribution, density and frequency percentage of weed species of wheat and rice crop of Khairpur district was determined by Memon et al., (2003). Present paper is an attempt to provide the checklist of fully identified problematic weeds of cereal crops in the study area which may provide an idea for future strategies for weed management in cereal crops in light of the findings.
MATERIALS AND METHODS

To collect the required data of weed specimens in cereal crops of Bannu, several field trips were arranged during 2016-2018 from time to time to the research area. Wide varieties of weed specimens were collected from the cereal crops. The collected specimens were pressed, dried and mounted on herbarium sheets. Then the specimens were identified by Dr. Sultan Mehmood Wazir, Department of Botany UST Bannu, Mr. Abdur Rehman, Chairman Department of Botany, Govt. Post Graduate College Bannu, Mr. Naveed Akhtar and Mr. Zabih Ullah Department of Botany, University of Peshawar. The identification was also confirmed with the help of available literature (Stewart 1972, Nasir and Ali, 1971-2007), and Flora of Pakistan (Nasir & Ali, 1970-1979, 1980-1989; Ali & Nasir, 1990-1992 and Ali & Qaiser, 1993-2009). Results were rechecked and compared with literature like that of Rubina, 1998; Ali and Fefevre, 1996, Khalid, 1995.

RESULTS AND DISCUSSION

The present research work conducted during 2016-2018, a total of 100 genera and 114 species were identified distributed among 37 families. Among the 37 families, there were about 5 families of monocot (having 21 genera and 23 species) and 32 families of dicot (having 79 genera and 91 species). The most important family in the term of species representation was Poaceae having (17 genera and 19 species). Poaceae was followed by Asteraceae having (15 genera and 17 species), Papilionaceae (7 genera and 7 species), Boraginaceae (4 genera and 7 species), Amaranthaceae (5 genera and 6 species), Brassicaceae (6 genera and 6 species), Solanaceae (5 genera and 6 species), Euphorbiaceae (3 genera and 5 species), Polygonaceae (3 genera and 4 species), Zygophyllaceae (3 genera and 3 species), Apiaceae (2 genera and 2 species), Caryophyllaceae (2 genera and 2 species), Chenopodiaceae (2 genera and 2 species), Convolvulaceae (1 genera and 2 species), Cucurbitaceae (2 genera and 2 species), Malvaceae (2 genera and 2 species), Plantaginaceae (1 genus and 2 species), Aizoaceae (1 genus and 1 species), Apocynaceae (1 genus and 1 species), Asclepiadaceae (1 genus and 1 species), Asphodelaceae (1 genus and 1 species), Cyperaceae (1 genus and 1 species), Fumariaceae (1 genus and 1 species), Gentianaceae (1 genus and 1 species), Iridaceae (1 genus and 1 species), Liniaceae (1 genus and 1 species), Nyctaginaceae (1 genus and 1 species), Orchidaceae (1 genus and 1 species), Orobancheae (1 genus and 1 species), Oxalidaceae (1 genus and 1 species), Papaveraceae (1 genus and 1 species), Primulaceae (1 genus and 1 species), Ranunculaceae (1 genus and 1 species), Resedaceae (1 genus and 1 species), Rubiaceae (1 genus and 1 species), Tiliaceae (1 genus and 1 species) and Verbenaceae (1 genus and 1 species).
**Percentage data of family in cereal crops:**

The important families in the term of percentage data of family in cereal crops were Poaceae having (16.666%). Poaceae was followed by Asteraceae having (14.912%), Boraginaceae and Papilionaceae having (6.140%), Amaranthaceae, Brassicaceae and Solanaceae having (5.263%), Euphorbiaceae having (4.385%), Polygonaceae (3.508%), Zygophyllaceae having (2.631%), Apiaceae, Caryophyllaceae, Chenopodiaceae, Convolvulaceae, Cucurbitaceae, Malvaceae and Plantaginaceae having (1.754%), Aizoaceae, Apocynaceae, Asclepiadaceae, Asphodelaceae, Cyperaceae, Fumariaceae, Gentianaceae, Iridaceae, Linaceae, Nyctaginaceae, Orchidaceae, Orobanchaceae, Oxalidaceae, Papaveraceae, Primulaceae, Ranunculaceae, Resedaceae, Rubiaceae, Tiliaceae and Verbenaceae having (0.877%).

**Common weeds in wheat, maize and rice.** There were 11 genera and 12 species belonging to 8 families in wheat, maize and rice. Among the 8 families there were 2 families of monocot (having 2 genera and 2 species) and 6 families of dicot (having 9 genera and 10 species). The highest family in the term of species distribution was Asteraceae having (4 genera and 4 species). Asteraceae was followed by Euphorbiaceae having (1 genus and 2 species), Amaranthaceae (1 genus and 1 species), Convolvulaceae (1 genus and 1 species), Cyperaceae (1 genus and 1 species), Resedaceae (1 genus and 1 species), Poaceae (1 genus and 1 species) and Solanaceae (1 genus and 1 species).

**Percentage data of family in wheat maize and rice crops:**

In the term of percentage data representation of common families in cereal crop the important family was Asteraceae having (33.333%). Asteraceae was followed by Euphorbiaceae having (16.666%), Amaranthaceae, Convolvulaceae and Cyperaceae, Resedaceae, Poaceae and Solanaceae having (8.333%).
| S.No | Plant Name                        | Family          | Local Name | Maize | Rice | Wheat |
|------|----------------------------------|-----------------|------------|-------|------|-------|
| 1    | Achyranthes aspera L.            | Amaranthaceae   | Shpazhaka  | +     | +    | -     |
| 2    | Aerva javanica (Burm. f.) Juss.  | Amaranthaceae   | kharvorha  | +     | +    | +     |
| 3    | Alhagi maurorum Medic.           | Papilionaceae   | Thunda     | -     | -    | +     |
| 4    | Alopecurus nepalensis Trin. Ex   | Poaceae         | Ozhakaye   | -     | -    | +     |
|      | Steud.                           |                 |            |       |      |       |
| 5    | Anagallis arvensis L.            | Primulaceae     | Peze nenyagul | - | - | + |
| 6    | Amaranthus blitoides S. watson   | Amaranthaceae   | Ranzukka   | -     | -    | +     |
| 7    | Amaranthus viridis L.            | Amaranthaceae   | Ranzukka   | +     | -    | +     |
| 8    | Aristida adscensionis L.         | Poaceae         | Thor lummi | -     | -    | +     |
| 9    | Aristida cyanantha Nees ex       | Poaceae         | Speen lummi | + | - | + |
|      | Steud.                           |                 |            |       |      |       |
| 10   | Arnebia hispidissima DC.         | Boraginaceae    | Unknown    | -     | -    | +     |
| 11   | Asphadelus tunifolius Caven.     | Asphodelaceae   | Piozakai   | -     | -    | +     |
| 12   | Astragalus hamosus L.            | Papilionaceae   | Aezai      | -     | -    | +     |
| 13   | Atriplex stocksii Boiss.         | Chenopodiaceae  | Unknown    | +     | -    | +     |
| 14   | Avena fatua L.                   | Poaceae         | karyana    | -     | -    | +     |
| 15   | Boerhavia procumbens Banks ex    | Nyctaginaceae   | Pandrawash | + | - | + |
|      | Roxb                             |                 |            |       |      |       |
| 16   | Brassica tournefortii Gouan      | Brassicaceae    | Pari woeri | -     | -    | +     |
| 17   | Calendula officinalis L.         | Asteraceae      | Zer gul    | -     | -    | +     |
| 18   | Calotropis procera R. Br.        | Asclepiadaceae  | Spalmuka   | -     | -    | +     |
| No. | Scientific Name                          | Family          | Common Name(s) | Presence A | Presence B | Presence C |
|-----|----------------------------------------|----------------|----------------|------------|------------|------------|
| 19  | *Carduus argentatus* L.                | *Asteraceae*    | Aghzekaye      |            |            |            |
| 20  | *Carthamus persicus* Willd.            | *Asteraceae*    | Conzali        |            |            |            |
| 21  | *Carthamus tinctorus* L.               | *Asteraceae*    | Catasoora      |            |            |            |
| 22  | *Celosia argentea* L.                  | *Amaranthaceae* | Palash gul     |            |            |            |
| 23  | *Cenchrus ciliaris* L.                 | *Poaceae*       | Qarashkai      | +          | -          | -          |
| 24  | *Centaurea iberica* Spreng.            | *Asteraceae*    | Konzalla       |            | -          |            |
| 25  | *Centaurium pulchellum* (Sw.) Druce     | *Gentianaceae*  | Unknown        |            | -          |            |
| 26  | *Chenopodium murale* L.                | *Chenopodiaceae*| Toor sormai    | +          | -          | +          |
| 27  | *Chrozophora plicata* (Vahl) A. Juss. ex Spreng | *Euphorbiaceae* | Kharpunai      | +          | -          | -          |
| 28  | *Cirsium arvense* (L.) Scop.           | *Asteraceae*    | Aghzikaye      | +          | +          | +          |
| 29  | *Cistanche tubulosa* (Shehenk.) Wight. | *Orobanchaceae* | Kherghurn      | -          | -          | +          |
| 30  | *Citrullus colocynthis* (L.) Shred.    | *Cucurbitaceae* | Maraghinya     | +          | -          | +          |
| 31  | *Convolvulus arvensis* L.              | *Convolvulaceae*| Perwatie       | +          | +          | +          |
| 32  | *Convolvulus spicatus* Hallier f.      | *Convolvulaceae*| Perwatie       | -          | -          | +          |
| 33  | *Conyza bonariensis* (L.) Cronquist    | *Asteraceae*    | Shpelaye       | +          | +          | +          |
| 34  | *Corchorus depressus* (L.) Stocks      | *Tiliaceae*     | Gaanda         | +          | +          | -          |
| 35  | *Croton bonplandianus* Bat.            | *Euphorbiaceae* | Lashthee welanaye | +          | -          | -          |
| 36  | *Cymbopogon distense* Schutt.          | *Poaceae*       | Surgurai       | -          | -          | +          |
| 37  | *Cynodon dactylon* (L.) Pers.          | *Poaceae*       | Barawa         | +          | +          | +          |
| 38  | *Cyperus rotundus* L.                  | *Cyperaceae*    | Delai          | +          | +          | +          |
| No. | Species Name | Family | Local Name | Status |
|-----|--------------|--------|------------|--------|
| 39  | *Datura alba* Nees. | Solanaceae | Barbaka | + + + |
| 40  | *Dichanthium annulatum* (Forssk.) | Poaceae | Shpazhora barrawa | + + - |
| 41  | *Digera muricata* (L.) Mart | Amaranthaceae | Chaatt | + + - |
| 42  | *Dinebra retroflexa* (Vahl) Panzer. | Poaceae | Unknown | + + - |
| 43  | *Echinochloa crus-galli* (L.) P. Beauv. | Poaceae | Shenepa | + + - |
| 44  | *Echinops echinatus* L. | Asteraceae | Catasori | - + + |
| 45  | *Eleusine indica* (L.) Gaertn. | Poaceae | Chezi | + - - |
| 46  | *Eragrostis pilosa* (L.) P. Beauv. | Poaceae | Khalipellai | + - + |
| 47  | *Eruca sativa* Mill. | Brassicaceae | Shersham | - - + |
| 48  | *Euphorbia oblongata* Griseb | Euphorbiaceae | Murdor botti | - - + |
| 49  | *Euphorbia helioscopia* L. | Euphorbiaceae | Purparie | + + + |
| 50  | *Euphorbia prostrata* Ait. | Euphorbiaceae | Speni wana | + + + |
| 51  | *Fagonia cretica* L. | Zygophyllaceae | Spelaghzai | - - + |
| 52  | *Farsetia jacquemontii* Jafri | Brassicaceae | Melongay | - - + |
| 53  | *Filago pyramidata* L. | Asteraceae | Unknown | - - + |
| 54  | *Fumaria indica* Hausskn. | Fumariaceae | Sewa | - - + |
| 55  | *Galium tricorne* Stokes | Rubiaceae | Khrwshpazha | + - + |
| 56  | *Heliotropium crispum* Desf. | Boraginaceae | Kharpunai | + - - |
| 57  | *Heliotropium europaeum* Kazmi | Boraginaceae | Kharpunai | + - + |
| 58  | *Heliotropium strigosum* Wild. | Boraginaceae | Unknown | - - + |
| 59  | *Hypecoum pendulum* L. | Papaveraceae | Peray gajara | - - + |
| 60  | *Hyoscyamus niger* L. | Solanaceae | Badelbang | - - + |
| No. | Species Name                           | Family          | Common Name   | Traits |
|-----|---------------------------------------|-----------------|---------------|--------|
| 61  | Iftloga spicata Forssk.               | Asteraceae      | Unknown       | -      |
| 62  | Iris lactea Pallas                    | Iridaceae       | Deloka        | +      |
| 63  | Lactuca serriola L.                   | Asteraceae      | Lewani salad  | +      |
| 64  | Lathyurus aphaca L.                   | Papilionaceae   | mettarraye    | -      |
| 65  | Launaea procumbens Pravin             | Asteraceae      | Piawarie      | -      |
| 66  | Launaea angustifolia Kuntze           | Asteraceae      | Piawarie      | -      |
| 67  | Leptochloa panicea Retz.              | Poaceae         | Shenepa       | +      |
| 68  | Linum corymbulosum Reichenb.          | Linaceae        | Unknown       | -      |
| 69  | Malcomia africana (L.) R.Br.          | Brassicaceae    | Bashtha       | -      |
| 70  | Malva neglecta Wallr.                 | Malvaceae       | Peskie        | -      |
| 71  | Malvastrum coromendelianum (L.) Garcke| Malvaceae       | Unknown       | +      |
| 72  | Medicago polymorpha L.                | Papilionaceae   | Maklendye     | -      |
| 73  | Meliloutus indica (L.) All.           | Papilionaceae   | Unknown       | -      |
| 74  | Nerium indicum Mill.                 | Apocynaceae     | Gandarie      | -      |
| 75  | Neslia apiculata Fisch.               | Brassicaceae    | Unknown       | -      |
| 76  | Nicotiana plumbaginifolia Viv.        | Solanaceae      | Unknown       | +      |
| 77  | Nonea philistaea Boiss.               | Boraginaceae    | Shunstargi    | -      |
| 78  | Nonea pulla (L.) DC.                  | Boraginaceae    | Shunstargi    | -      |
| 79  | Oligomeris linifolia (Vahl.) Macbride | Resedaceae      | Unknown       | +      |
| 80  | Onosma chitralicum I. M. Johnston     | Boraginaceae    | Kakawvie      | -      |
| 81  | Oxalis corniculata L.                 | Oxalidaceae     | Tharwekaye    | +      |
| No. | Scientific Name                                      | Family              | Common Name          | Presence |
|-----|-----------------------------------------------------|---------------------|----------------------|----------|
| 82  | *Oxyria digyna* (L.) Hill.                         | Polygonaceae       | Tassavenye spazha    | -        |
| 83  | *Parthenium hysterophorus* L.                      | Asteraceae         | Kherbotta            | +        |
| 84  | *Pegnum harmala* L.                                | Zygophyllaceae     | Sponda               | -        |
| 85  | *Phalaris minor* Retz.                             | Poaceae            | Chagaa bashtha       | -        |
| 86  | *Plantago lanceolata* L.                           | Plantaginaceae     | Speghol              | -        |
| 87  | *Plantago ovata* Forssk.                           | Plantaginaceae     | Speghol              | -        |
| 88  | *Poa botryoides* (Trin. ex Griseb.) Kom.           | Poaceae            | Samiaka              | +        |
| 89  | *Poa bulbosa* L.                                   | Poaceae            | Bagastha             | -        |
| 90  | *Polygonum biaristatum* Aitch. & Hemsl.            | Polygonaceae       | Ghat bandkaye        | -        |
| 91  | *Polygonum plebejum* R. Br                        | Polygonaceae       | Sherghanday          | -        |
| 92  | *Portulaca oleracea* L.                            | Aizoaceae          | Verkhora             | +        |
| 93  | *Psammogeton biternatum* Edgew.                    | Apiaceae           | Peray gajera         | -        |
| 94  | *Ranunculus muricatus* L.                          | Ranunculaceae      | Zerri gul            | +        |
| 95  | *Rumex dentatus* (Meisn.) Rech.f.                  | Polygonaceae       | Bashta               | -        |
| 96  | *Sacharum arundinaceum* H.K. F.                    | Poaceae            | Kana                 | -        |
| 97  | *Setaria pumila* (Poir.) Roem                      | Poaceae            | Sherakaie            | -        |
| 98  | *Silene vulgaris* (Moench) Garcke,                 | Caryophyllaceae    | Ghorakie             | -        |
| 99  | *Sisymbrium irio* L.                               | Brassicaceae       | Zangli woeri         | -        |
| 100 | *Sonchus asper* (L.) Hill.                         | Asteraceae         | Tharezha             | +        |
| 101 | *Solanum surattense* Burm.f.                       | Solanaceae         | Marraghenye          | +        |
| S.No | Family               | No. of Genus | No. of Species |
|------|---------------------|--------------|---------------|
| 1    | Aizoaceae           | 1            | 1             |
| 2    | Amaranthaceae       | 5            | 6             |
| 3    | Apiaceae            | 2            | 2             |
| 4    | Apocynaceae         | 1            | 1             |
| 5    | Asclepiadaceae      | 1            | 1             |

Table-2. Distribution of genera and species in various families in cereal crops.

Key: + = Presence of weed, - = Absence of weed
| 6 | Asphodelaceae | 1 | 1 |
| 7 | Asteraceae    | 15 | 17 |
| 8 | Boraginaceae  | 4 | 7 |
| 9 | Brassicaceae  | 6 | 6 |
| 10 | Caryophyllaceae | 2 | 2 |
| 11 | Chenopodiaceae | 2 | 2 |
| 12 | Convolvulaceae | 1 | 2 |
| 13 | Cucurbitaceae | 2 | 2 |
| 14 | Cyperaceae    | 1 | 1 |
| 15 | Euphorbiaceae | 3 | 5 |
| 16 | Fumariaceae   | 1 | 1 |
| 17 | Gentianaceae  | 1 | 1 |
| 18 | Iridaceae     | 1 | 1 |
| 19 | Linaceae      | 1 | 1 |
| 20 | Malvaceae     | 2 | 2 |
| 21 | Nyctaginaceae | 1 | 1 |
| 22 | Orchidaceae   | 1 | 1 |
| 23 | Orobanchaceae | 1 | 1 |
| 24 | Oxalidaceae   | 1 | 1 |
| 25 | Papaveraceae  | 1 | 1 |
| 26 | Papilionaceae | 7 | 7 |
| 27 | Plantaginaceae | 1 | 2 |
| 28 | Poaceae       | 17 | 19 |
| 29 | Polygonaceae  | 3 | 4 |
| S.No. | Family         | Genus | Species |
|-------|----------------|-------|---------|
| 30    | Primulaceae    | 1     | 1       |
| 31    | Ranunculaceae  | 1     | 1       |
| 32    | Resedaceae     | 1     | 1       |
| 33    | Rubiaceae      | 1     | 1       |
| 34    | Solanaceae     | 5     | 6       |
| 35    | Tiliaceae      | 1     | 1       |
| 36    | Verbenaceae    | 1     | 1       |
| 37    | Zygophyllaceae | 3     | 3       |
| Total | 37             | 100   | 114     |

Table-3. Monocot families in cereal crops.

| S.No. | Family      | Genus | Species |
|-------|-------------|-------|---------|
| 1     | Asphodelaceae| 1     | 1       |
| 2     | Cyperaceae  | 1     | 1       |
| 3     | Iridaceae   | 1     | 1       |
| 4     | Orchidaceae | 1     | 1       |
| 5     | Poaceae     | 17    | 19      |
| Total | 5           | 21    | 23      |

Table-4. Dicot families in cereal crops.

| S.No | Family         | No. of Genus | No. of Species |
|------|----------------|--------------|----------------|
| 1    | Aizoaceae      | 1            | 1              |
| 2    | Amaranthaceae  | 5            | 6              |
| 3    | Apiaceae       | 2            | 2              |
|    | Family         | 1   | 2   |
|----|---------------|-----|-----|
| 1  | Apocynaceae   | 1   | 1   |
| 2  | Asclepiadaceae| 1   | 1   |
| 3  | Asteraceae    | 15  | 17  |
| 4  | Boraginaceae  | 4   | 7   |
| 5  | Brassicaceae  | 6   | 6   |
| 6  | Caryophyllaceae| 2  | 2   |
| 7  | Chenopodiaceae| 2   | 2   |
| 8  | Convolvulaceae| 1   | 2   |
| 9  | Cucurbitaceae | 2   | 2   |
| 10 | Euphorbiaceae | 3   | 5   |
| 11 | Fumariaceae   | 1   | 1   |
| 12 | Gentianaceae  | 1   | 1   |
| 13 | Linaceae      | 1   | 1   |
| 14 | Malvaceae     | 2   | 2   |
| 15 | Nyctaginaceae | 1   | 1   |
| 16 | Orobancheae   | 1   | 1   |
| 17 | Oxalidaceae   | 1   | 1   |
| 18 | Papaveraceae  | 1   | 1   |
| 19 | Papilionaceae | 7   | 7   |
| 20 | Plantaginaceae| 1   | 2   |
| 21 | Polygonaceae  | 3   | 4   |
| 22 | Primulaceae   | 1   | 1   |
| 23 | Ranunculaceae | 1   | 1   |
| 24 | Resedaceae    | 1   | 1   |
| S.No. | Plant name       | Family | Local name |
|-------|------------------|--------|------------|
| 28    | Rubiaceae        | 1      | 1          |
| 29    | Solanaceae       | 5      | 6          |
| 30    | Tiliaceae        | 1      | 1          |
| 31    | Verbenaceae      | 1      | 1          |
| 32    | Zygophyllaceae   | 3      | 3          |
|       | **Total**        | **32** | **79**     | **91**     |

**Table-5.** Common weeds in wheat, maize and rice crops.

**Fig:1.** Family percentage data of weeds in cereal crops.
### Table-6. Distribution of common genera and species of weeds in wheat, maize and rice crops.

| S.No. | Family       | Genus   | Species |
|-------|--------------|---------|---------|
| 1     | **Amaranthaceae** | 1       | 1       |
| 2     | **Asteraceae**   | 4       | 4       |
| 3     | **Convolvulaceae** | 1       | 1       |
| 4     | **Cyperaceae**   | 1       | 1       |
| 5     | **Euphorbiaceae** | 1       | 2       |
| 6     | Resedaceae      | 1       | 1       |
| 7     | **Poaceae**     | 1       | 1       |
| 8     | **Solanaceae**  | 1       | 1       |
| **Total** | 8               | **11**  | **12**  |
Table-7. Monocot families in wheat, maize and rice crops.

| S.No. | Family     | Genus | Species |
|-------|------------|-------|---------|
| 1     | Cyperaceae | 1     | 1       |
| 2     | Poaceae    | 1     | 1       |
| Total | 2 Families | 2     | 2       |

Table-8. Dicot families in wheat, maize and rice crops.

| S.No. | Family         | Genus | Species |
|-------|----------------|-------|---------|
| 1     | Amaranthaceae  | 1     | 1       |
| 2     | Asteraceae     | 4     | 4       |
| 3     | Convolvulaceae | 1     | 1       |
| 4     | Euphorbiaceae  | 1     | 2       |
| 5     | Nyctaginaceae  | 1     | 1       |
| 6     | Solanaceae     | 1     | 1       |
| Total | 6 Families     | 9     | 10      |
Fig:2 Common family percentage data of weeds in cereal crops.

REFERENCES

Ali, S.I. and M. Qaiser. (Eds.). 1993-2009. Flora of Pak., No. 194-217. Islamabad, Karachi.

Ali, S.I. and Y.J. Nasir. (Eds.). 1990-1992. Flora of Pak., No. 191-193. Karachi and Islamabad.

Akhtar, N. and F. Hussain. 2007. Weeds of wheat fields in village Qambar, District Swat, Pakistan. Pak. J. Weed Sci. Res. 13(1): 31-35.

Ali, A. and J. L. Fefever. 1996. Indigenous Knowledge of plants. A case study in Chitral, Proc. Ethnobot.Workshop, Sep., NARC, Islamabad, pp. 136-151.

Chaudhry, S., M. Hussain, M. A. Ali and J. Iqbal. 2008. Efficacy and economics of mixing of narrow and broad leaved herbicides for weed control in wheat. J. Agric. Res. 46(4): 355-360.

Hamid, E.I., E.E. Hassanein and S.M. Shebl. 1998. Weed/wheat competition in Nile delta, Assiut. J. Agric. Sci. 29: 105-113.

Hussain, F., K.B. Marwat and K. Ahmad. 1985. Eco taxonomic studies on the weeds of Wheat fields in Peshawar Valley. Gomal Univ. J. Res. 5: 27-35.

Hashim, S. and K.B. Marwat. 2002. Invasive weeds a threat to the biodiversity. A case study from Abbottabad district, N-W Pakistan. Pak. J. Weed Sci. Res. 8(1-2): 1-2.
Hussain, F., A. Murad and M.J. Durrani. 2004. Weed communities in wheat fields of Mastuj, District Chitral, Pakistan. Pak. J. Weed Sci. Res., 10: 101-108.

Khalid, S. 1995. Plants in danger. Fifth National Conference of plants Scientist, March, 28-30, NARC, Islamabad.

Khan, N., I. Khan, M. A. Khan and H. Khan. 2004. Major Rabi and Kharif Weeds of agronomic crops of District Bannu. Pak. J. Weed Sci. Res. 10(1-2): 79- 86.

Khan R.U. S. Mehmood, S.U.Khan, A.Muhammad and Z.Hussain. 2014. Comparative Study of Weed Species Recorded In Different Field Crops of Bannu, Khyber Pakhtunkhwa, Pakistan Pak. J. Weed Sci. Res., 20(4): 489-504.

Khan R.U. S.M.Wazir, M.Subhan, S.Ullah, H.Ullah, A.Farooq, F.Jaffar, Shazia, I.A.Shah and M.Kamal 2012. Weed Flora of Sugarcane in District Bannu, Khyber Pakhtunkhwa, Pakistan Pak. J. Weed Sci. Res., 18(4): 541-552.

Khan R.U, S.Mehmood, S.U.Khan* M.Subhan (2013) Ethnobotanical Study Of Common Weed Flora Of Sugarcane In District Bannu, Khyber Pakhtunkhawa, Pakistan. International Journal of Pharmacognosy and Phytochemistry.2013: 1(4) : 49-78

Memon, R.A., G.R. Bhatti and S. Khalid. 2003. Weed diversity of wheat crop in Khairpur District, Sindh. Pak. J. Weed Sci. Res. 9 (1-2): 99-103.

Nasir, E. and S.I. Ali. (Eds.). 1970-1979. Flora of West Pakistan, No. 1-131. Islamabad, Karachi.

Nasir, E. and S.I. Ali. (Eds.). 1980-1989. Flora of Pakistan, No. 132-190. Islamabad, Karachi.

Nasir, E. and S.I. Ali. 1971-2007. Flora of West Pakistan Department of Botany, University of Karachi, Karachi.

Qureshi, R., A. Waheed and M. Arshad. 2009. Weed Communities of Wheat crop in district Toba Tek Singh, Pakistan. Pak. J. Bot., 41(1): 239-245.

Rao, V.S. 2000. Harmful effects caused by weeds. Principles of Weed Science. Oxford and IBH publishing Co. Pvt. Ltd. New Delhi & Calcutta. Pp.1.

Rubina, A. R. 1998. Need of conservation of endangered medicinal Plants. Proc. wild medicinal plants Resource of N. Pakistan. May 11-12, PFI, Peshawar Pakistan.
Shah, S. R. U., M. Qasim, I. A. khan and S.A.U. Shah 2006. Study of medicinal plants among weeds of wheat and maize in Peshawar region. Pak. J. Weed Sce. Res. 121 (3): 191-197.

Stewart, R.R. 1972. Annotated catalogue of vascular plants in West Pakistan and Kashmir. Fakhri Printing Press, Karachi.

Tariful, M. I., A. K. Emran and M. A. Gaffer. 1998. Influence of crop density and weeding frequency on crop growth and grain yield in wheat. *Pertanika J. Agric. Sci.* 21: 123-28.

Waheed, A., R. Qureshi, G.S. Jakhar and H. Tareen. 2009. Weed community dynamics in Wheat crop of district Rahim Yar Khan, Pakistan. Pak. J. Bot., 41(1): 247-254.

Wang, S. L. Duan., J. L., X. Tiam, and Z. Li. 2007. Uv-B radiation increase paraquat tolerance of two broad leaved and two grass weed in relation to changes in herbicide absorption and photosynthesis weed Res. 47 (2): 122-128.