



Phytosociological study of weeds in selected wheat crop fields in Sharaqpur, District Sheikhpura

Yasir Ali Mirza¹, Muhammad Waheed^{2*}

¹Institute of Botany, University of the Punjab, Lahore-54590, Pakistan

²Department of Botany, Govt. College University, Lahore, Pakistan

*Muhammad Waheed

✉ tabassum.ravian@gmail.com

☎ Mobile: +92 345 6610958

► Received: 11-08-2026 / Accepted: 22-09-2026 / Published: 24-09-2026

Abstract

The present study was conducted to investigate the weed flora of wheat (*Triticum aestivum* L.) of three villages, viz Thabal, Ghazipur and Sahjowal in Tehsil Sharaqpur, Sheikhpura, Punjab, Pakistan. The quadrat of 1m square was used to investigate and to collect weed flora. The plants were collected from the studied site, dried, preserved and identified. The status of each species was determined by measuring different parameters like percent frequency, relative frequency, density, relative density, importance value, importance value index and family importance index. During the survey, 12 weed species belonging to 11 families were reported from the studied area. Out of the 11 weed families, 9 were dicots, one was monocot, and one was pteridophyte. The most important families in terms of species representation were *Fabaceae* with 2 species only. *Amaranthaceae*, *Brassicaceae*, *Caryophyllaceae*, *Cannabaceae*, *Fumariaceae*, *Primulaceae*, *Marsiliaceae*, *Poaceae* and *Ranunculaceae* were represented by only one species each. *Anagallis arvensis*, *Coronopus didymus*, *Chenopodium album*, *Medicago lupulina*, *Phalaris minor*, and *Ranunculus bulbosus* were the most dominant species. The most frequent species was *Chenopodium album* with 66.66% frequency, 13.33 relative frequency, and 1.46 density.

Keywords: *Chenopodium album*, phytosociology, plant community, vegetation science, weeds in wheat

Abbreviations: NA

1. Introduction

Phytosociology is a geobotanical method that deals with the study of plant communities and their classification (Pott, 2011). It helps to understand the mutual relationships between plants and their environment for quantitative and qualitative attributes. Vegetation is an ecological scientific discipline consisting of various populations and biomes, needed for the quantitative measurement of plant species (Pott, 2011; Ali *et al.*, 2018; Badshah *et al.*, 2016). A weed is an undesirable plant when growing in crop fields (Zimdahl,

2007). These plants may be perennial, annual, and biennial, but most of them are annuals because of their great reproductive ability (Eberlein *et al.*, 1988).

Weed analyses are important to know the value and frequency of weeds in agricultural land (Frick *et al.*, 1992). About 800 species are considered weed species, 250 of which are harmful to plant growth at different stages of their life (Perrins *et al.*, 1992). Commonly, weeds are strong competitors, grow vigorously in crop fields, reduce the availability of nutrients leads to loss of yield and low quality of crops. Weeds can reduce 80% of yield production if they are left



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uncontrolled (Monteiro and Santos, 2022). The presence of weed seeds in crop seeds taken from other areas is the main source of their distribution. Weeds generally interfere with crop production by reducing yield and crop production, encouraging diseases on plants, harboring pests, and making agricultural practices difficult. They are powerful competitors and hidden enemies of crops because of their abundance of growth under different environmental conditions. Hence causing a vast reduction to crop yield amounting to Rs. 120 to 250 billion per year (Ullah *et al.*, 2011; Shedayi *et al.*, 2011; Khan *et al.*, 2012; Marwat *et al.*, 2013). In the subcontinent, limited information is available on the relative assessment of weed multiplicity in different cropping systems. To study the weed range, it is helpful to know the presence or absence of a weed species in a particular crop system.

Agriculture is a primary source of revenue and livelihood for agrarian societies. The standards of life of people can be improved by making agriculture a profitable sector and it contributes 10.2% towards value added and 2.2% of a country's GDP (Srivastava *et al.*, 2005). Wheat is a staple food grown on more land than any other food crop in the world. Wheat is one of the main crops in Pakistan (8th largest wheat producer in the world). About 80% of farmers grow wheat on 9 million hectares, which is 40% of country's total cultivated land. Wheat covered 0.904 million hectares of cultivated area with 2.528 million tons of production. The average yield 2787 kg ha⁻¹ for wheat in Pakistan is much lower than the actual potential compared to other wheat-growing countries, e.g., Germany 8087 kg, China 4762 kg ha⁻¹ etc. (Gustafsson *et al.*, 2013).

Thabal, Ghazipur, Sahjowal are three villages of Tehsil Sharaqpur Sharif, District Sheikhpura. The city is the Tehsil headquarters of District Sheikhpura. It is located at [31°27'48"N 74°6'0"E](#) and lies on the Jaranwala Road, 32 kilometers (20 mi) from Lahore and 20 kilometers (12 mi) from the third exit of the M2. These villages are situated 20-25 km northwest of Lahore. The average temperature of the sites is almost 21.7 °C. 31 °24'57 "North, 74 °1'9 "East, 31 °29'22 "North, 74 °6'36 "East and 31 °28'40 "North, 74 °7'29 "East are the coordinates of three villages Thabal, Ghazipur and Sahjowal. Water from the tube-well system and the canal is used for irrigation.

The quadrat method is very useful and easy technique for quantitative measurement of various plant communities in wheat crops (Pala *et al.*, 2020). Species frequency, density, cover, and importance value are

determined to analyze weed distribution in field crops (Waheed, 2009; Ain *et al.*, 2026; Elangovan Vennila *et al.*, 2026). The objective of the present study was to investigate the weed flora of wheat crop field of three villages of Tehsil Sharaqpur to know the floristic composition of different plant communities.

2. Materials and Methods

The present study aims to know the floristic composition of weeds in selected wheat fields of Tehsil Sharaqpur Sharif, District Sheikhpura. In Tehsil, the number of selected villages were Thabal, Ghazipur, and Sahjowal. In each village, one field was selected. The quadrat method of 1 m square was used to investigate and to collect weed flora. The plants were collected from the studied site, dried, preserved, and identified by Dr. Zaheer-ud-din Khan and Dr. Sultan Ahmed, Herbarium, GC University, Lahore.

2.1 Percentage Frequency

Percentage frequency is said to be the possibility of any single member of any species to be found in a randomly located quadrat. This study was done using a 1 m × 1m quadrat size. The formula for % frequency was determined following the method of Oasting, (1956):

$$\% \text{ Frequency} = \frac{\text{No. of quadrat in which sp. were present}}{\text{Total no. of quadrat sampled}} \times 100$$

2.2 Percent Relative Frequency

The ratio of the frequency of an individual species to the total frequency of all species, multiplied by 100, is called relative frequency. Relative frequency was determined by using the following formula:

$$\% \text{ R.F.} = \frac{\text{Frequency of an individual species}}{\text{total frequency of all species}} \times 100$$

2.3 Density

The ratio of the total number of individuals of each species is divided by the total number of quadrats studied (Cottam and Curtis, 1956):

$$D = \frac{\text{Total no. of individuals of sp. In all quadrat}}{\text{Total no. of quadrat sampled}}$$

2.4 Percent Relative Density

Relative density was calculated using the following formula.

$$\% R.D = \frac{\text{No.of individuals of the sp.in all quadrat}}{\text{No.of individual of all sp. in all quadrat}} \times 100$$

2.5 Importance Value (IV)

The sum of 2 variables, Relative Frequency and Relative Density, is known as Importance Value (IV) after Curtis (1959):

$$IV = R.F. + R.D.$$

2.6 Importance Value Index (IVI)

The Importance Index Value of given data can be calculated by dividing the sum of all variables by the total number of variables. Calculated by the formula (Risser and Rice, 1971).

$$IVI = \frac{R.F.+R.D.}{2}$$

2.7 Soil Analysis

There were two types of analysis performed on soil: one was physical, and the other was chemical soil analysis. In physical soil analysis, two things were determined: one was soil moisture content, and the other was soil texture, following the procedure.

2.7.1 % Soil Moisture Content

Soil was taken from the studied sites about 6 inches deep in the soil and saved in air tight bag. Soil moisture content was calculated by noting the wet weight of soil and dry weight of soil. The soil was dried by placing the wet soil in an oven for 24 hours at 105 °C. After 24 hours, when the soil dried, it weighed, and the soil moisture was calculated using the following formula:

$$\% \text{ moisture content} = \frac{\text{wet weight} - \text{dry weight}}{\text{dry weight}} \times 100$$

2.7.2 Soil Texture

Soil texture can be determined by using Bouyoucus Hydrometer method. For this purpose, 40g air dried soil was taken, and its paste was prepared by adding some amount of distilled water. Transferred the paste in 1000 ml cylinder with 20 ml of dispersing solution. Raised the final volume to 1000 ml and shook the cylinder up and down two to three times. Then added a thermometer and hydrometer to the cylinder and noted the readings of temperature of both the room and the solution. After this procedure, the temperature readings were noted, and the soil texture was

determined using the USDA triangular diagram for soil texture by USDA.

2.7.3 Chemical Soil Analysis

In chemical soil analysis, different parameters like pH, Electrical Conductivity (EC), Percentage Organic Matter, Carbonates (CO_3 meq/l), Bicarbonates (HCO_3^- meq/l), Chloride content (Cl meq/l), Calcium (Ca meq/l), Magnesium (Mg meq/l), by the given arrangement of soil.

2.7.4 Soil Saturated Extract

The soil saturated extract is prepared to determine the soluble cations and anions in the soil sample. For making saturated extract, weighed 200g soil and transferred into a plastic beaker, and distilled water was slowly added while mixing with a spatula until a saturated paste formed having shinny appearance. After 1 hour, the paste was filtered with a vacuum filtration system using a Buchner funnel fitted with Whatman No. 42 filter paper. The extract was collected in a small bottle for further experiments.

2.7.5 pH

The pH was determined by placing pH meter in the soil-saturated extract and noting the reading (Allen, 1974).

3. Results

3.1 Weed flora of the wheat field

3.1.1 Village Thabal

In fields of village Thabal, 10 weed species were reported, belonging to 8 different families. Among these 8 families, 3 were monocots and 5 were dicots. Fabaceae was the dominant family, with 2 species. Marsileaceae and Chenopodiaceae, Fumariaceae, Amaranthaceae, Brassicaceae, Caryophyllaceae, Cannabiaceae and Poaceae had only one species each (Table 1).

The most frequent species in selected wheat fields were *Sysimbrium irio* and *Anagallis arvensis*. The least frequent species were *Cerastium vulgatum* and *Medicago lupulina*, with 20% frequency. The species with the highest density in wheat fields was *Sisymbrium irio*, with 1.8 density. The species with the

Table 1. Weed floristic composition of wheat fields of village Thabal.

Sr. No	Family	Plant species	%F	D	% RF	% RD	IV	IVI
1	Brassicaceae	<i>Sisymbrium irio</i>	60	1.8	15	21.42	36.42	10.71
2	Caryophyllaceae	<i>Cerastium vulgatum</i>	20	0.6	5	7.14	17.5	8.75
3	Chenopodiaceae	<i>Chenopodium murale</i>	40	1.2	10	14.28	15	7.5
4	Cannabaceae	<i>Cannabis sativa</i>	40	0.4	10	4.76	7.5	3.75
5	Fabaceae	<i>Medicago denticulata</i>	40	0.8	10	9.52	30	15
		<i>Medicago lupulina</i>	20	0.4	5	4.76	27.5	13.75
6	Fumariaceae	<i>Fumaria indica</i> L.	40	0.8	10	9.52	15	7.5
7	Marsilieaceae	<i>Marselia quadrifolia</i>	40	0.6	10	7.14	30	15
8	Primulaceae	<i>Anagalis arvensis</i>	20	0.6	5	7.14	20	10
9	Poaceae	<i>Cynodon dactylon</i>	20	0.4	5	4.76	7.5	3.75

%F = Percentage Frequency, D= Density, %RD= Percentage Relative Density, %RF= Percentage Relative Frequency, IV= Importance Value, IVI= Importance Value Index

Table 2. Floristic composition of the wheat field of village Sahjowal.

Sr. No	Family	Plant species	%F	D	%RF	%RD	IV	IVI
1	Brassicaceae	<i>Sisymbrium irio</i>	80	1.6	10	20.51	30.51	15.255
2	Caryophyllaceae	<i>Cerastium vulgatum</i>	40	0.6	7.5	7.692	15.192	7.592
3	Chenopodiaceae	<i>Chenopodium murale</i>	60	1	12.5	12.82	25.32	12.66
4	Cannabinaceae	<i>Cannabis sativa</i>	40	0.4	7.5	7.692	15.192	7.592
5	Fabaceae	<i>Medicago denticulate</i>	60	0.6	10	10.25	20.25	10.125
		<i>Medicago lupulina</i>	60	0.6	12.5	10.25	22.75	11.375
6	Fumariaceae	<i>Fumeria indica</i>	60	0.6	12.5	12.82	25.32	12.66
7	Marsileaceae	<i>Marselia quadifolia</i>	60	0.6	7.5	0.076	7.576	3.788
8	Primulaceae	<i>Anagalis arvensis</i>	60	0.6	7.5	10.25	17.75	8.875
9	Poaceae	<i>Cynodon dactylon</i>	40	0.4	5	5.128	10.128	5.064

%F = Percentage Frequency, D= Density, %RD= Percentage Relative Density, %RF= Percentage Relative Frequency, IV= Importance Value, IVI= Importance Value Index

lowest density were *Cannabis sativa*, *Medicago lupulina*, and *Cynodon dactylon*, with 0.4 density. The species with high importance index value was *Medicago lupulina* 3.75 IVI, while the species with least importance value index was *Cannabis sativa* and *Cynodon dactylon* 3.75 IVI.

3.1.2 Village Sahjowal

In the fields of village Sahjowal, 10 weed species were reported belonging to 8 different families. Among the 10 families, 3 were monocots, and 5 were dicots. Fabaceae was the dominant family, having 2 species. Similarly, Brassicaceae, Caryophyllaceae, Chenopodiaceae, Cannabinaceae, Fumariaceae, Poaceae, Marsiliaceae and Primulaceae had 1 species each.

The most frequent species in selected wheat fields of Sahjowal was *Sisymbrium irio* with 80% frequency. The least frequent species *Cerastium vulgatum*, *Cannabis sativa* and *Cynodon dactylon* with 40% frequency. The species with the highest density in

wheat fields was *Sisymbrium sp.*, having 1.6 density. The species with the lowest density were *Cannabis sativa* and *Cynodon dactylon*, with 0.4 density. The species with high importance index value was *Sisymbrium irio* 15.255 IVI. The species with the lowest IVI had 3.78 (Table 2).

3.1.3 Village Ghazipur

In the fields of village Ghazipur, 11 weed species were reported, which belong to 9 different families. Among these 11 species, 3 were monocots, and 5 were dicots. Fabaceae was the dominant family, with 2 species. On the other hand, Amaranthaceae, Brassicaceae, Chenopodiaceae, Cannabinaceae, Fumariaceae, Poaceae, Marsiliaceae, Ranunculaceae and Primulaceae had 1 species (Table 3).

The most frequent species reported in selected wheat fields were *Chenopodium album*, *Sisymbrium irio*, *Chenopodium murale*, *Cannabis sativa* and *Anagalis arvensis* with 60% Frequency. The species with the highest density in wheat fields were

Chenopodium album and *Chenopodium murale*, having density 1.0. The species with the lowest density were *Medicago denticulate*, *Medicago lupulina*, *Anagallis arvensis* and *Cynodon dactylon*, with 0.2 density.

The species with high importance index value were *Chenopodium album* and *Chenopodium murale* with 14.33 IVI. The species with the lowest importance value index was *Cynodon dactylon* with 2 IVI.

Table 3. Floristic composition of wheat field of Ghazipur.

Sr. No	Family	Plant species	%F	D	%RF	%RD	IV	IVI
1	Amaranthaceae	<i>Chenopodium album</i>	60	1	12	16.66	28.66	14.33
2	Brassicaceae	<i>Sisymbrium irio</i>	60	0.6	12	10	22	11
3	Chenopodiaceae	<i>Chenopodium murale</i>	60	1	12	16.66	28.66	14.33
4	Cannabaceae	<i>Cannabis sativa</i>	60	0.8	12	13.33	25.33	12.66
5	Fabaceae	<i>Medicago denticulate</i>	20	0.2	4	3.33	7.33	3.66
		<i>Medicago lupulina</i>	20	0.2	4	3.33	7.33	3.66
6	Fumariaceae	<i>Fumaria indica</i>	40	0.6	8	10	18	9
7	Marsiliaceae	<i>Marselia quadrifolia</i>	40	0.8	8	13.33	21.33	10.66
8	Ranunculaceae	<i>Ranunculus bulbosus</i>	40	0.4	8	6.66	14.66	7.33
9	Primulaceae	<i>Anagallis arvensis</i>	20	0.2	4	3.33	7.33	3.66
10	Poaceae	<i>Cynodon dactylon</i>	20	0.2	4	0	4	2

%F = Percentage Frequency, D= Density, %RD= Percentage Relative Density, %RF= Percentage Relative Frequency, IV= Importance Value, IVI= Importance Value Index

Table 4. Weed floristic composition of Tehsil Sharaqpur.

Sr. No.	Family	Plant species	%F	D	%RF	%RD	IV	IVI
1	Amaranthaceae	<i>Chenopodium album</i>	66.66	1.46	13.33	20	33.33	16.66
2	Brassicaceae	<i>Sysymbrium irio</i>	40	0.6	8.00	10	18	9
3	Caryophyllaceae	<i>Cerastium vulgatum</i>	53.33	1.06	10.66	14.54	25.2	12.6
4	Chenopodiaceae	<i>Chenopodium murale</i>	40	0.6	8.00	8.18	16.18	8.09
5	Fabaceae	<i>Medicago denticulate</i>	40	0.6	8.00	8.18	16.18	8.09
		<i>Medicago lupulina</i>	40	0.8	8.00	8.18	16.18	8.09
6	Fumariaceae	<i>Fumaria indica</i>	46.66	0.8	9.33	10	19.33	9.66
7	Marsiliaceae	<i>Marselia quardifolia</i>	40	0.66	8.00	6.27	26.27	13.13
8	Primulaceae	<i>Anagallis arvensis</i>	33.33	0.6	6.66	8.18	14.84	7.42
9	Poaceae	<i>Cynodon dactylon</i>	26.66	0.26	5.33	1.81	7.14	3.57
10	Ranunculaceae	<i>Ranunculus bulbosus</i>	20	0.13	4.00	0.90	4.90	2.45

%F = Percentage Frequency, D= Density, %RD= Percentage Relative Density, %RF= Percentage Relative Frequency, IV= Importance Value, IVI= Importance Value Index

3.1.4 Tehsil Sharaqpur

In Tehsil Sharaqpur, 11 weed species were reported to belong to 11 different families. Among these, 1 family was monocot and 8 were dicot. Fabaceae was the dominant family with only 2 species. On the other hand, Amaranthaceae, Brassicaceae, Chenopodiaceae, Cannabaceae, Fumariaceae, Marsiliaceae, Primulaceae, Poaceae, and Ranunculaceae had 1 species each (Table 4).

The most frequent species was *Chenopodium album* with 66.66%. The least frequent species was *Ranunculus bulbosus* with 20% frequency. The species with the highest density in wheat fields was *Chenopodium album* having 1.46 density. The species with the lowest density was *Anagallis arvensis*, with 0.6 density. The species with high importance index value was *Chenopodium album* having 16.665 IVI. The species with the lowest importance value index was *Ranunculus bulbosus* with 2.45 IVI.

Table 5. Soil analysis of wheat crop fields of Village Ghazipur.

Sample No.	Soil Texture	pH	% Moisture Content	% Organic Matter	CO ₃ ⁺⁺ meq/l	HCO ₃ ⁻ meq/l	Cl ⁻ meq/l	Ca ⁺⁺ & Mg ⁺⁺ meq/l	Ca ⁺⁺ meq/l	Mg ⁺⁺ meq/l
1	Loamy Sand	7.8	21.1	0.17	A	0.228	0.45	2.3	1.2	1.1
2	Loamy Sand	7.7	22.3	0.19	A	0.213	0.49	2.5	1	1.5
3	Loamy Sand	7.8	19.9	0.15	A	0.209	0.56	2.1	1.1	1
Mean	----	7.77	21.1	0.17	----	0.217	0.5	2.3	1.1	1.2
S.E	----	±0.03	±0.69	±0.012	----	±0.006	±0.03	±0.12	±0.06	±0.15

Table 6. Soil analysis of wheat crop fields of village Sahjowal.

Sample No.	Soil Texture	pH	% Moisture Content	% Organic Matter	CO ₃ ⁺⁺ meq/l	HCO ₃ ⁻ meq/l	Cl ⁻ meq/l	Ca ⁺⁺ & Mg ⁺⁺ meq/l	Ca ⁺⁺ meq/l	Mg ⁺⁺ meq/l
1	Loamy Sand	8.5	15.7	0.13	A	0.24	0.6	2.3	1.8	0.5
2	Loamy Sand	8.7	14.4	0.12	A	0.22	0.7	2.2	1.5	0.7
3	Loamy Sand	8.6	15.2	0.15	A	0.21	0.5	2.5	1.6	0.9
Mean	----	8.6	15.1	0.13	----	0.223	0.6	2.33	1.63	0.7
S.E	----	±0.06	±0.38	±0.009	----	±0.009	±0.06	±0.09	±0.09	±0.12

3.2 Soil analysis of wheat crop fields

3.2.1 Soil analysis of village Thabal

The soil texture of the fields was loamy sand, and the pH was 7.77. The percent moisture content was about 21.10%, while organic matter was 0.17%. Moreover, carbonates were absent, and bicarbonates were 0.217 Meq/L. Similarly, chloride content was 0.5 Meq/L, while calcium and magnesium were 2.3 Meq/L collectively. Calcium 1.10 and Magnesium 1.20 Meq/L were estimated (Table 5).

3.2.2 Soil analysis of Sahjowal

The soil texture of the fields was loamy sand, pH was 8.6 and the moisture content was about 15.1% and organic matter was 0.13%. Likewise, Carbonates were absent and Bicarbonates were 0.22 meq/L. The Chloride contents was 0.6 meq/L and Calcium and magnesium were 2.33 meq/L collectively. Calcium

1.63 and Magnesium 0.7 meq/L were reported (Table 6).

3.2.3 Soil Analysis of village Ghazipur

The soil texture of the fields was loamy sand and pH was 8.1. The moisture content was about 14.7% and organic matter was 0.167%. Similarly, carbonates were absent and Bicarbonates were 0.467 meq/L. Chloride content was 0.73 meq/L and calcium and magnesium were 2.467 meq/L collectively. Calcium 2.067 and magnesium (0.4 meq/L were estimated (Table 7).

4. Discussion

Weeds are powerful competitors and hidden enemies of crops because of their abundant growth under different environmental conditions, hence causing a vast reduction in crop yield amount to Rs. 120 to 250 billion per year (Ullah *et al.*, 2011; Shedayi *et al.*, 2011;

Table 7. Soil analysis of wheat crop fields of village Ghazipur.

Sample No.	Soil Texture	pH	% Moisture Content	% Organic Matter	CO ₃ ⁺⁺ meq/l	HCO ₃ ⁻ meq/l	Cl ⁻ meq/l	Ca ⁺⁺ & Mg ⁺⁺ meq/l	Ca ⁺⁺ meq/l	Mg ⁺⁺ meq/l
1	Loamy Sand	8.1	14.6	0.17	A	0.3	0.9	2.5	2.1	0.4
2	Loamy Sand	8.2	15.7	0.15	A	0.5	0.7	2.3	2	0.3
3	Loamy Sand	8	13.8	0.18	A	0.6	0.6	2.6	2.1	0.5
Mean	----	8.1	14.7	0.167	----	0.467	0.73	2.467	2.067	0.4
S.E	----	±0.06	±0.55	±0.009	----	±0.09	±0.09	±0.09	±0.033	±0.06

Khan *et al.*, 2012; Marwat *et al.*, 2013). Weeds are unwanted and undesired plants present at a certain place (Muhammad *et al.*, 2009). Weeds emerging with the crop have been reported to absorb fertilizers faster than the crop and that too in larger amounts (Guneqli *et al.*, 1969).

In the present study, twenty weed species were identified, which belonged to twelve families. The weeds were nearly the same in all wheat crop fields of three villages. Monocots and pteridophytes were represented by one family each, i.e., Poaceae and Marsileaceae, respectively. Moreover, eight dicot families named as Amaranthaceae, Brassicaceae, Caryophyllaceae, Cannabaceae, Chenopodiaceae, Fabaceae, Poaceae and Ranunculaceae were reported in the study field. The dominant weeds species in wheat, maize and potato crop fields of Tehsil Gojra, District Toba Tek Singh were *Convolvulus arvensis* L. and *Cynodon* as reported by Muhammad *et al.* (2009). The dominant families in different fields of cereal crops of wheat, rice, maize, and sugarcane of District Bannu, Khyber Pakhtunkhwa were Chenopodiaceae and Poaceae reported by Khan *et al.* (2014). In 2015, Hadi and Muhammad reported about 59 weed species belonging to 25 families in wheat crops in Kalash valley, District Chitral. Chenopodiaceae, Fumariaceae, and Poaceae were the most dominant families of these sites. *Chenopodium album*, *Fumaria indica*, *Cynodon dactylon*, *Ranunculus bulbosus*, *Coronopus didymus*, and *Silybum marianum* reported by Khan (2016) in wheat crops of four different localities in Abbottabad District, KPK.

In 2011, Ullah *et al.* surveyed wheat crop fields in Lower Dir, Pakistan and reported about 40 weed species belonging to plant families. The dominant families in the study sites were Asteraceae and Papilionaceae. The most dominant families in maize crop at Chargarh Matti, Peshawar were Poaceae,

Solanaceae, and Euphorbiaceae, as reported by Muhammad *et al.* (2009). *Chenopodium album* and *Cyperus rotundus* were the most dominant weed species in onion crop fields of Lahore, Kasur, and Sheikhupura districts of Punjab, Pakistan (Tahira *et al.*, 2017). Poaceae was the most dominant family in wheat crop in Kohat, Khyber Pakhtunkhwa, reported by Begum & Ahmad (2018).

In 2018, Ali *et al.* studied the floristic composition and ecological characteristics of the plant resources of Hazara Nao hills, district Malakand, Pakistan. They reported 242 species belonging to 88 families. Poaceae, Asteraceae, Euphorbiaceae, Amaranthaceae, Brassicaceae, and Caryophyllaceae families were reported at the study sites by Ali *et al.* (2018). In the wheat crop fields of Charbagh Valley, District Swat. The above-mentioned families and species were also reported in the present studies of weed flora of Wheat crop fields of three villages of Tehsil Sharaqpur, District Sheikhupura.

The present study demonstrated that weeds are a general cosmopolitan flora occurring in wheat, like that of other crops, which usually can be determined and controlled to increase the yield of crops.

Author(s) contribution Conceptualization, MW; methodology, MW; validation, MW; formal analysis and investigation, YA; data curation, YA; writing—original draft preparation, YA; writing—review and editing, YA; supervision, MW. All authors have reviewed and approved the manuscript.

Conflict of interest The authors declare no conflict of interest.

Data availability All data supporting the findings of this study are available within the paper. There is no research data outside the submitted manuscript file.

Declarations

Consent for publication Not applicable.

Competing interests The authors declare no competing interests.

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