



Diversity Analysis and Ethnobotanical Study of Weeds in Mustard Crop in Two Districts of Haryana, India

Amarjit Singh and Varsha Nigam*

Department of Botany, Guru Nanak Khalsa College, Yamuna Nagar 135001 (Haryana), India.

(Corresponding author: Varsha Nigam*)

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ABSTRACT: The present study explores weed diversity and its ethnobotanical importance in the mustard crops of Ambala and Yamuna Nagar districts of Haryana. The selected areas have been designated as sites I and II respectively. A total of 29 weed species belonging to 14 families were identified from site I. Similarly, 26 weeds belonging to 14 families were found to be growing in mustard fields at site II. Family Asteraceae had the highest number of weed species at both sites, and *Phalaris minor* Retz. was the most frequent species in the two study sites. *Parthenium hysterophorus* L. and *Trifolium resupinatum* L. were the most abundant species at sites I and II, respectively. The highest Importance Value Index of weed species was for *Coronopus didymus* (L.) Sm. at site I and *Trifolium resupinatum* L. at site II. Although the two selected sites were at a distance of about 30 kilometres from each other, most of the species were common in them, indicating the dispersal behaviour and adaptation of weed plants. For ethnobotanical uses, a total of 34 plant species at both places were recorded, out of which 31 had medicinal value for the local people, while 3 were being used as fodder for their animals. Most of the weed species were found to be utilised for dermatological and digestive problems. Diversity analysis of weeds and their ethnobotanical use is important in planning the management strategy for crop production in the changing environmental scenario.

Keywords: Weeds diversity, Ethnobotany, Mustard crop, Ambala, Yamuna Nagar.

INTRODUCTION

Weeds are plants that emerge in places where they are not required. A major trait that allows them to spread across many environments is their capacity to withstand both harsh and ideal conditions for crop cultivation. In certain species, their seeds can stay dormant while still remaining viable in soil for 20–40 years (Conn *et al.*, 2006). A number of investigations have been carried out to study the diversity and use of weed plants. In a study on weed diversity in maize crop in South Western Cameroon, Ndam *et al.* (2014) concluded that such studies were important for the formulation of weed management plans. Aher (2015), in a study in Maharashtra, found that weed plants were predominantly from dicot families. Sinha (2017), in a survey in rice fields in Chhattisgarh, observed that monocot weeds had the highest importance value indices. Several other studies have indicated the importance of exploring weed diversity and their utility in daily life (Pusparani *et al.*, 2022; Saeed *et al.*, 2025; Singh and Nigam 2026).

In an investigation on weeds in Nepal, Bhatt *et al.* (2021) found that district Kanchanpur was a rich reservoir of valuable wild medicinal plants. Various studies highlight the medicinal importance of these overlooked plants and

stress the need to raise awareness so that future generations can recognise and utilise their therapeutic value. Joshi (2021) emphasised that recording the ethnobotanical uses of weeds can provide important knowledge for the effective utilisation of plant resources that are often labelled as harmful or unwanted in crop fields. These weeds are also utilised by traditional healers in various herbal preparations, and many pharmaceutical companies use them to develop different medicines. Therefore, medicinal plants can become an important source of livelihood for rural communities in developing countries (Aher, 2015). Agricultural weeds are commonly valued in traditional healing because they contain abundant bioactive compounds that support the treatment of many ailments. In addition to their medicinal role, these recorded plants also serve as sources of food, fodder, fuel, and vegetables, highlighting their multiple contributions to sustaining rural livelihoods (Shah, 2026). Cocarico *et al.* (2025) conducted a detailed study on the medicinal importance of agrobiodiversity among Aymara communities in the Bolivian Andean Altiplano. Their findings emphasised the vital role of cultivated crops, weeds in crops, and wild-harvested plants in traditional healthcare, with

home gardens acting as important reservoirs of introduced and locally domesticated plant species. Kayarkar and Mohture (2025) documented some weeds from the paddy field and noted that weeds act as formidable pests for rice, leading to significant production losses in rice globally, just because of their capability to compete for carbon dioxide, moisture, sunlight, necessary nutrients and space.

Parab and Vaidya (2014) studied some weeds of Ulhasnagar and found that medicinal weeds of the region should be conserved through diverse, community-based strategies. Protecting weed biodiversity can support phytoremediation, reduce soil erosion, improve rainwater infiltration into groundwater, slow surface runoff to rivers, enhance oxygen production through photosynthesis, and strengthen carbon sequestration. Weeds are transformed by local people into valuable resources that support livelihoods, serving purposes such as food, human and veterinary medicine, organic manure, and roles in rituals and belief systems (Taram *et al.*, 2019). According to Fedoniuk *et al.* (2025), the study assessed advanced tools for weed detection and management that support agroecological approaches in organic farming, with a strong focus on agricultural digitalisation and remote sensing. The research aimed to develop methods for monitoring and forecasting weed spread using satellite and drone imagery, eliminating the need for chemical inputs.

Weeds in farmland can harm crop yield and quality, yet they also support biodiversity by sustaining beneficial organisms and holding ecological value. Therefore, weed control decisions should consider both their negative and positive roles (Bensch *et al.*, 2025). Arable weeds serve as important resources for herbivores, which feed on their leaves and roots and often use them as sites for egg laying. The developing larvae continue to rely on these plants for food as they progress through their life cycles. Consequently, a decline in weed diversity can disrupt higher trophic levels and broader ecological interactions (Seibold *et al.*, 2019). The scientific naming and the status of nativity of the recorded species should be carefully verified by the use of trusted plants' databases, including Plants of the World Online (POWO, 2025). For uncertain or unfamiliar plant species, further validation can be carried out through global plant resources such as the International Plant Names Index (IPNI, 2025).

MATERIAL AND METHODS

The present study on weeds has been conducted in the districts Ambala (Latitudes 30° 03' to 30° 33' North and Longitudes 76° 32' to 77° 13' East) and Yamuna Nagar (Latitudes 29° 55' to 30° 28' North and Longitudes 77° 04' to 77° 36' East) of Haryana, India (Fig. 1). The total area of district Ambala is 1576 square kilometres, and that of Yamuna Nagar is 1768 square kilometres (DCOH, 2011). The selected sites were village Dera Salimpur in district Ambala and Village Sugh in Yamuna Nagar, and have been designated as sites I and II, respectively. The climate in these sites is subtropical, and a majority of rainfall takes place in the monsoon season, starting from mid-June and lasting till mid-September. Mustard crop was selected for the study, which is sown in the month of October and matures in March. This crop was selected as generally no weedicides are sprayed in it and mostly sown by the broadcast method. Field visits were paid every month from mid-October 2025 to mid-March 2026, but the data on weeds was collected during the last month only as the weeds were in the flowering stage. Five fields were selected for the study at each site. Ten random samples of one square meter each were used to collect the data from each field. The data from all the fields in a study area were pooled, and thus a total of fifty quadrats were used at each site.

The data collected on weeds was analysed for quantitative analysis. Frequency, density and abundance of each weed species have been calculated as per Misra (1968). The values obtained were further analysed for calculating their relative frequency, relative density and relative abundance. The dominance of different weeds (Importance Value Index, IVI) was also calculated. For the collection of data on ethnobotanical use of weeds, local medicine men, vaidyas, hakims and herbal medicine practitioners were contacted. The plant's common names, parts used, methods and uses were listed and presented in tabular form. Different formulae used in the diversity analysis of weeds are given below.

$$\begin{aligned} \text{Frequency (\%)} &= \frac{\text{Count of quadrats in which the species was found}}{\text{Total number of quadrats studied}} \times 100 \\ \text{Density} &= \frac{\text{Total individuals of a species in all the quadrats}}{\text{Total number of quadrats studied}} \\ \text{Abundance} &= \frac{\text{Total individuals of a species in all the quadrats}}{\text{Count of quadrats in which the species was found}} \\ \text{Relative frequency (RF)} &= \frac{\text{Frequency of a particular species}}{\text{Total of all the species frequency}} \times 100 \\ \text{Relative Density (RD)} &= \frac{\text{Density of a particular species}}{\text{Total of all the species density}} \times 100 \\ \text{Relative Abundance (RA)} &= \frac{\text{Abundance of a particular species}}{\text{Total of all the species abundance}} \times 100 \\ \text{Importance Value Index (IVI)} &= \text{R.F.} + \text{R.D.} + \text{R.A.} \end{aligned}$$

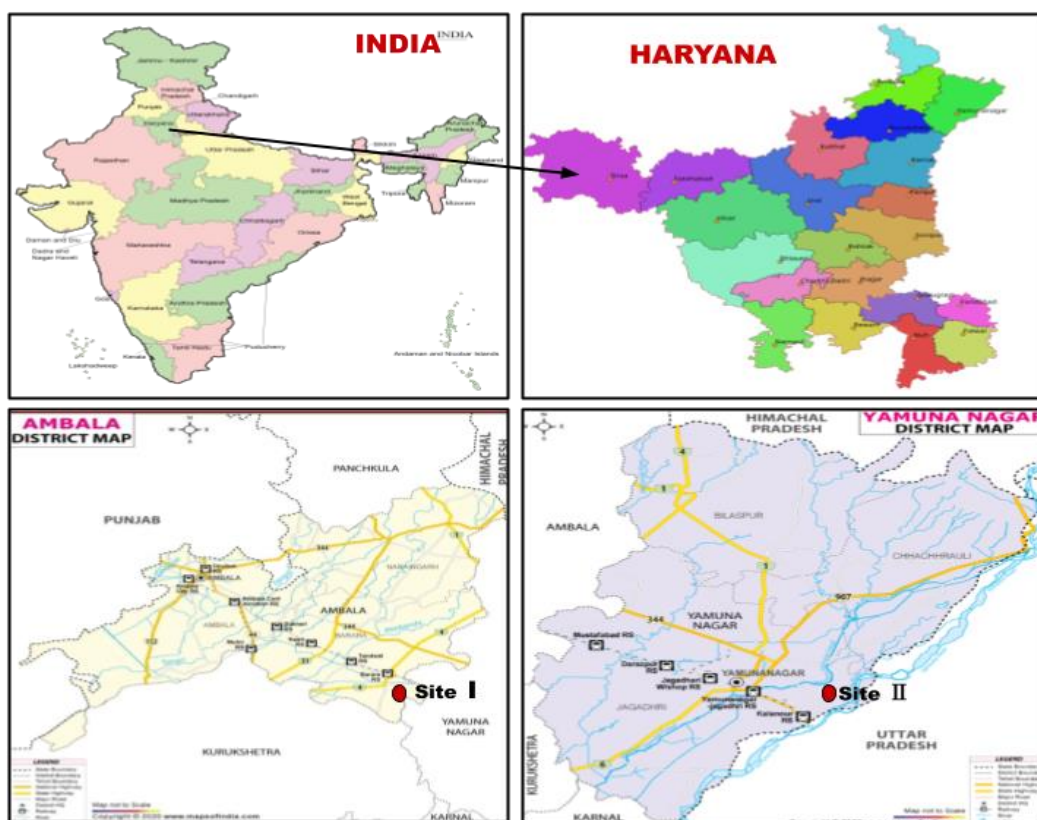


Fig. 1. Map and location of two study sites.

RESULTS AND DISCUSSION

Diversity Analysis. The data on the diversity of weed species in mustard crops at two sites has been given in tables 1 to 3. A total of 29 weed plants belonging to 14 families (13 dicots and 1 monocot) have been reported from site I. At site II, 26 weed species from 13 dicot and 1 monocot families have been recorded. The highest number of weeds have been reported from the family Asteraceae at both sites. Families Fabaceae and Amaranthaceae each had 4 plant species as weeds at site I. Similarly, at site II, Fabaceae and Poaceae had 4 and 3 weed species, respectively. At these two sites, the weeds belonged to the families in which 12 families were common. Two weeds from the family Plantaginaceae and one from Cannabaceae were found at site I only, whereas one plant species each from the families Malvaceae and Euphorbiaceae were reported at site II only.

As regards to diversity analysis, *Phalaris minor* Retz. had the highest frequency at both sites (Tables 1 and 2). The most abundant weeds at site I and at site II were *Parthenium hysterophorus* L. and *Trifolium resupinatum* L., respectively. The highest Importance Value Index at site I has been reported for *Coronopus didymus* (L.) Sm. followed by *Poa annua* L. and *Trifolium resupinatum* L. Similarly, at site II, the highest Importance Value Index has been for *Trifolium resupinatum* L., *Phalaris minor* Retz. and *Coronopus didymus* (L.) Sm. IVI for dominant species from both sites has been shown in Table 4.

Ethnobotanical Study. The information collected from the local communities and herbal medicine practitioners regarding the use of weeds has been presented in table 4. A total of 20 informants from the two sites were

contacted, and since the informants share the traditional knowledge about the use of plants, different plant species have been put together. From both sites, a total of 34 weed plants have been found to be used for different purposes. These plants belong to 16 families (15 dicots and 1 monocot). At both sites, 21 plants were common while 8 plants, including *Antirrhinum majus* L., *Veronica anagallis-aquatica* L., *Physalis minima* L., *Alternanthera sessilis* (L.) R.Br.exDC., *Acmella oleracea* (L.) R.K.Jansen, *Amaranthus viridis* L., *Cirsium arvense* (L.) Scop., and *Cannabis sativa* L. were found at site I only. Similarly 5 weeds- *Argemone mexicana* L., *Cichorium intybus* L., *Solanum xanthocarpum* Schrad. & J.C. Wendl., *Malva verticillata* L. and *Euphorbia helioscopia* L. were reported from site II only. All these plants have one or another use for the local communities. Roots, aerial parts, leaves and fruits were commonly used plant parts. Aerial parts of 17 (47.2%) weed species were in use by the local people. Similarly, leaves from 14 (38.9%) species, roots and fruits of 3 (8.3%) and 2 (5.6%) plants, respectively, were used for different purposes (Figure 2). As regards to different uses, 14 weed species (35%) were utilised to treat dermatological problems, while for digestion-related issues, 13 plants (32.5%) were used. Different ethnobotanical uses of these weeds have been shown in Fig. 3.

In the present research, it was found that in the mustard crop at both sites, the number of weed species was 29 and 26, respectively and from 14 families at each site. Most of the species were common, although both the sites of investigation were about 30 kilometres apart. There was only one monocot family at both sites, indicating that the weed flora comprised mainly of

dicotyledons in the mustard crop of Rabi growing season in both the districts. Asteraceae and Fabaceae were found to be the dominant families. Awasthi *et al.* (2025) in their study on weeds in Ghaziabad district of Uttar Pradesh found that family Asteraceae was having the dominance over others. In this study on ethnobotanical utilisation of weeds, the most common use of the plants was to address dermatological and digestive-related

disorders. Although other health issues, including fever, respiratory problems and use as fodder, was a common practice at both sites. In a study on weeds of rice fields by Joshi (2021) in Nepal, the most common use was to cure skin-related issues. So it has been a common practice to use these weed species as primary sources of health care using indigenous knowledge by different societies in different parts of the world.

Table 1: Weed species diversity in mustard crop at site I.

Sr. No.	Plant name	F	D	A	RF	RD	RA	IVI
1.	<i>Trifolium resupinatum</i> L.	68	1.20	1.76	7.52	7.73	3.56	18.71
2.	<i>Antirrhinum majus</i> L.	18	0.32	1.78	1.99	2.04	3.60	7.63
3.	<i>Rumex dentatus</i> L.	22	0.38	1.73	2.43	2.42	3.49	8.34
4.	<i>Coronopus didymus</i> (L.) Sm.	64	1.36	2.13	7.08	8.65	4.30	20.03
5.	<i>Poa annua</i> L.	60	1.26	2.10	6.64	8.02	4.24	18.90
6.	<i>Veronica anagallis-aquatica</i> L.	18	0.32	1.78	1.99	2.04	3.60	7.63
7.	<i>Gnaphalium luteoalbum</i> L.	32	0.60	1.88	3.54	3.82	3.80	11.16
8.	<i>Vicia faba</i> L.	30	0.54	1.80	3.32	3.44	3.64	10.40
9.	<i>Chenopodium album</i> L.	34	0.60	1.76	3.36	3.82	3.56	11.14
10.	<i>Fumaria parviflora</i> Lam.	22	0.34	1.55	2.43	2.16	3.13	7.72
11.	<i>Anagallis arvensis</i> L.	56	0.84	1.50	6.19	5.34	3.03	14.56
12.	<i>Phalaris minor</i> Retz.	74	1.08	1.46	8.19	6.87	2.95	18.01
13.	<i>Parthenium hysterophorus</i> L.	28	0.60	2.14	3.10	3.82	4.32	11.24
14.	<i>Melilotus indicus</i> (L.) All.	54	0.98	1.81	5.97	6.23	3.66	15.95
15.	<i>Physalis minima</i> L.	12	0.20	1.67	1.33	1.27	3.37	5.97
16.	<i>Oxalis corniculata</i> L.	14	0.20	1.43	1.55	1.27	2.89	5.71
17.	<i>Solanum nigrum</i> L.	18	0.34	1.89	1.99	2.16	3.82	7.97
18.	<i>Convolvulus arvensis</i> L.	24	0.34	1.42	2.65	2.16	2.87	7.68
19.	<i>Alternanthera sessilis</i> (L.) R. Br.ex.DC.	24	0.44	1.83	2.65	2.80	3.70	9.15
20.	<i>Achyranthes aspera</i> Linn.	16	0.26	1.63	1.77	1.65	3.29	6.71
21.	<i>Polypogon monspeliensis</i> (L.) Desf.	44	0.74	1.68	4.87	4.71	3.39	12.97
22.	<i>Acmella oleracea</i> (L.) R.K.Jansen	10	0.14	1.40	1.11	0.89	2.83	4.83
23.	<i>Lathyrus aphaca</i> L.	36	0.58	1.61	3.99	3.69	3.25	10.93
24.	<i>Amaranthus viridis</i> L.	20	0.36	1.80	2.21	2.29	3.64	8.14
25.	<i>Stellaria media</i> (L.) Vill.	16	0.24	1.50	1.77	1.53	3.03	6.33
26.	<i>Cirsium arvense</i> (L.) Scop.	14	0.22	1.57	1.55	1.40	3.17	6.12
27.	<i>Ageratum conyzoides</i> L.	28	0.44	1.57	3.10	2.80	3.17	9.07
28.	<i>Cannabis sativa</i> L.	26	0.46	1.77	2.88	2.93	3.58	9.39
29.	<i>Sonchus asper</i> (L.) Hill	22	0.34	1.55	2.43	2.16	3.13	7.72

Abbreviations: F-Frequency, D- Density, A- Abundance, RF- Relative frequency, RD- Relative density, RA- Relative abundance.

Table 2: Weed species diversity in mustard crop at site II.

Sr. No.	Plant name	F	D	A	RF	RD	RA	IVI
1.	<i>Coronopus didymus</i> (L.) Sm.	66	1.28	1.94	7.55	8.59	4.47	20.61
2.	<i>Lathyrus aphaca</i> L.	44	0.62	1.41	5.03	4.16	3.25	12.44
3.	<i>Phalaris minor</i> Retz.	72	1.26	1.75	8.24	8.46	4.03	20.73
4.	<i>Trifolium resupinatum</i> L.	62	1.38	2.23	7.09	9.26	5.14	21.49
5.	<i>Anagallis arvensis</i> L.	64	1.24	1.94	7.32	8.32	4.47	20.11
6.	<i>Solanum nigrum</i> L.	20	0.28	1.40	2.29	1.88	3.23	7.40
7.	<i>Ageratum conyzoides</i> L.	22	0.32	1.45	2.52	2.15	3.34	8.01
8.	<i>Poa annua</i> L.	54	1.02	1.89	6.18	6.85	4.35	17.38
9.	<i>Parthenium hysterophorus</i> L.	18	0.32	1.78	2.06	2.15	4.10	8.31
10.	<i>Melilotus indicus</i> (L.) All.	60	1.18	1.97	6.86	7.92	4.54	19.32
11.	<i>Vicia faba</i> L.	46	0.48	1.04	5.26	3.22	2.40	10.88
12.	<i>Rumex dentatus</i> L.	28	0.32	1.14	3.20	2.15	2.63	7.98
13.	<i>Fumaria parviflora</i> Lam.	36	0.46	1.28	4.12	3.09	2.95	10.16
14.	<i>Achyranthes aspera</i> Linn.	18	0.22	1.22	2.06	1.48	2.81	6.35
15.	<i>Gnaphalium luteoalbum</i> L.	26	0.46	1.77	2.97	3.09	4.08	10.14
16.	<i>Polypogon monspeliensis</i> (L.) Desf.	48	0.88	1.83	5.49	5.90	4.22	15.61
17.	<i>Stellaria media</i> (L.) Vill.	18	0.32	1.78	2.06	2.15	4.10	8.31
18.	<i>Oxalis corniculata</i> L.	20	0.38	1.90	2.29	2.55	4.38	9.22
19.	<i>Cichorium intybus</i> L.	14	0.26	1.86	1.60	1.74	4.28	7.62
20.	<i>Argemone mexicana</i> L.	20	0.36	1.80	2.29	2.42	4.15	8.86
21.	<i>Solanum xanthocarpum</i> Schrad.& J.C.Wendl	24	0.34	1.42	2.75	2.28	3.27	8.30
22.	<i>Convolvulus arvensis</i> L.	12	0.22	1.83	1.37	1.48	4.22	7.07
23.	<i>Malva verticillata</i> L.	10	0.14	1.40	1.14	0.94	3.23	5.31
24.	<i>Euphorbia helioscopia</i> L.	26	0.32	1.23	2.97	2.15	2.83	7.95
25.	<i>Chenopodium album</i> L.	32	0.46	1.44	2.66	3.09	3.32	10.07
26.	<i>Sonchus aspera</i> (L.) Hill	14	0.38	2.71	1.60	2.55	6.22	10.39

Abbreviations: F-Frequency, D- Density, A- Abundance, RF- Relative frequency, RD- Relative density, RA- Relative abundance.

Table 3: Dominant weed species and their Importance Value Index (IVI) at the two sites.

Site-I			Site-II	
Sr. No.	Name of the Species at Site -1	IVI	Name of the Species at Site -2	IVI
1.	<i>Coronopus didymus</i> (L.) Sm.	20.03	<i>Trifolium resupinatum</i> L.	21.49
2.	<i>Poa annua</i> L.	18.90	<i>Phalaris minor</i> Retz.	20.73
3.	<i>Trifolium resupinatum</i> L.	18.71	<i>Coronopus didymus</i> (L.) Sm.	20.61
4.	<i>Phalaris minor</i> Retz.	18.01	<i>Anagallis arvensis</i> L.	20.11
5.	<i>Melilotus indicus</i> (L.) All.	15.95	<i>Melilotus indicus</i> (L.) All.	19.32

Table 4: Weed species in mustard crop at the two sites and their ethnobotanical uses.

Sr. No.	Plant name	Vern. name	Family	Part used	Uses
1.	<i>Achyranthes aspera</i> Linn.	Puthkanda	Amaranthaceae	Roots, leaves	Roots in dental care, leaves in skin diseases
2.	<i>Acmella oleracea</i> (L.) R.K.Jansen	Akarkara	Asteraceae	Leaves, flowers	Paste in throat infection and toothache
3.	<i>Ageratum conyzoides</i> L.	Jangli podina	Asteraceae	Leaves	Leaves paste on skin infection
4.	<i>Alternanthera sessilis</i> (L.) R. Br.ex.DC.	Garundi	Amaranthaceae	Leaves	Decoction for eye treatment
5.	<i>Amaranthus viridis</i> L.	Jangli chaulai	Amaranthaceae	Aerial parts	Decoction as a diuretic, dysentery
6.	<i>Anagallis arvensis</i> L.	Krisnaneel	Primulaceae	Aerial parts	Poultice applied to treat eczema
7.	<i>Antirrhinum majus</i> L.	Shwanmukh	Plantaginaceae	Aerial parts	Paste used in wound healing
8.	<i>Argemone mexicana</i> L.	Satyanasi	Papaveraceae	Leaves	Leaves paste for skin disease, and decoction for liver disorders
9.	<i>Cannabis sativa</i> L.	Bhaang	Cannabaceae	Leaves	Decoction for intestinal disorders
10.	<i>Chenopodium album</i> L.	Bathua	Amaranthaceae	Leaves	Leaves paste used in the treatment of digestive problems
11.	<i>Cichorium intybus</i> L.	Kasni	Asteraceae	Roots, leaves	Roots for liver disorders, leaves for skin infection
12.	<i>Cirsium arvense</i> (L.) Scop.	Kandai	Asteraceae	Roots	Decoction for liver diseases
13.	<i>Convolvulus arvensis</i> L.	Hirankhuri	Convolvulaceae	Aerial parts	Decoction in jaundice, fever
14.	<i>Coronopus didymus</i> (L.) Sm.	Jangli halon	Brassicaceae	Leaves	Decoction used to treat fever
15.	<i>Euphorbia helioscopia</i> L.	Chhatridodak	Euphorbiaceae	Aerial parts	Paste to expel skin insects of animals
16.	<i>Fumaria parviflora</i> Lam.	Pittapapra	Papaveraceae	Leaves	Leaves decoction for liver diseases
17.	<i>Gnaphalium luteoalbum</i> L.	Kharsia	Asteraceae	Aerial parts	To treat skin infection
18.	<i>Lathyrus aphaca</i> L.	Jangli matar	Fabaceae	Leafy stipules	Decoction used for fever
19.	<i>Malva verticillata</i> L.	Lapha	Malvaceae	Leaves	Leaves decoction for digestion problems
20.	<i>Melilotus indicus</i> (L.) All.	Ban methi	Fabaceae	Aerial parts	Poultice of leaves, flowers and stem used on wounds
21.	<i>Oxalis corniculata</i> L.	Changeri	Oxalidaceae	Leaves	Paste used to treat scurvy, burns, and bites
22.	<i>Parthenium hysterophorus</i> L.	Congress ghaas	Asteraceae	Leaves	Paste used in dermatitis, insecticidal
23.	<i>Phalaris minor</i> Retz.	Mandoosi	Poaceae	Aerial parts	Fodder for animals
24.	<i>Physalis minima</i> L.	Chirpati	Solanaceae	Leaves	Decoction for abdominal disorders
25.	<i>Poa annua</i> L.	Pode ghaas	Poaceae	Aerial parts	Used as fodder for animals
26.	<i>Polypogon monspeliensis</i> (L.) Desf.	Malhar	Poaceae	Aerial parts	Aerial parts as fodder
27.	<i>Rumex dantatus</i> L.	Jangli palak	Polygonaceae	Leaves	Decoction used to treat liver disorders
28.	<i>Solanum nigrum</i> L.	Makoh	Solanaceae	Leaves, berries	Leaves in skin infection, berries as a laxative tonic, and liver disorders
29.	<i>Solanum xanthocarpum</i> Schrad.& J.C.Wendl	Kanteli	Solanaceae	Leaves, berries	Leaves paste in skin problems, berries for respiratory issues
30.	<i>Sonchus asper</i> (L.) Hill	Dodak	Asteraceae	Leaves	Juice with honey for bloating
31.	<i>Stellaria media</i> (L.) Vill.	Buch-bucha	Caryophyllaceae	Aerial parts	Decoction for respiratory problems
32.	<i>Trifolium resupinatum</i> L.	Shaftal	Fabaceae	Leaves	Paste used in rheumatism as a pain reliever
33.	<i>Veronica anagallis-aquatica</i> L.	Sadevi	Plantaginaceae	Aerial parts	Decoction for respiratory disorders
34.	<i>Vicia faba</i> L.	Bakla	Fabaceae	Leaves	Paste is applied topically to the skin

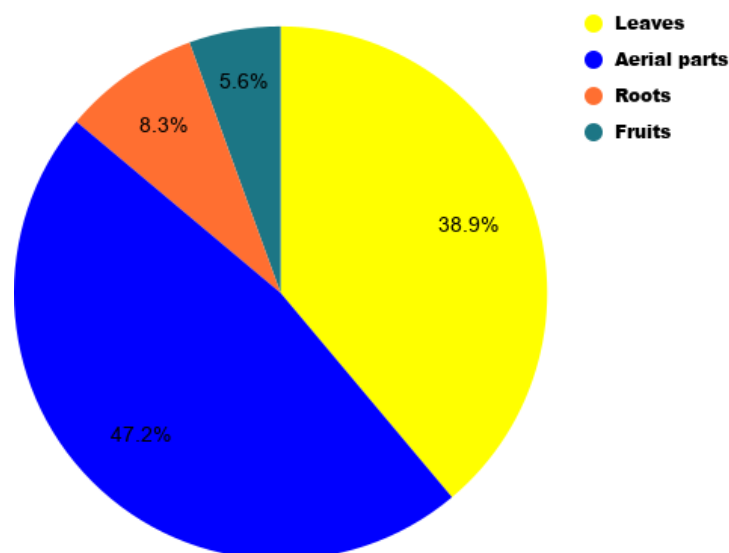


Fig. 2. Ethnobotanical use of plant parts by local communities.

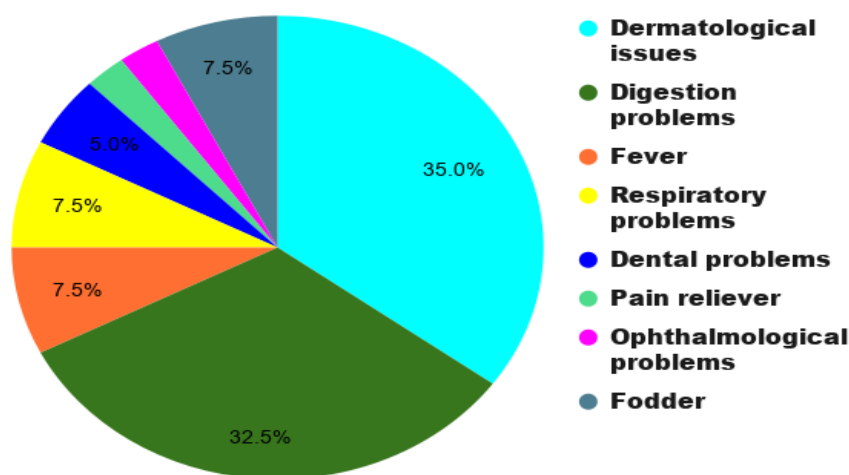


Fig. 3. Different ethnobotanical uses of weeds by the local communities.

CONCLUSION

Weeds are generally considered as competitors for the cropping systems. But they constitute an important part of the phytodiversity of any area and are the potential source of various products, including local health remedies and fodder for animals. As the agronomic practices are fast changing due to the demand for higher output from agro-ecosystems, the management and control of these weed plants becomes very important. Diversity analysis of these plants is important for the conservation of floral richness of the area and maintaining ecological balance.

FUTURE SCOPE

Further research should include larger areas in other districts and regions of the state for broader comparison and build a comprehensive regional database. Long-term multi-season monitoring is needed to understand temporal changes in weed flora and their response to climate variability. Future strategies for growing crops must include the ecological and ethnobotanical importance of these species, as they contribute a lot to

floral abundance and are a potential source of drug development for the time to come.

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