Journal of Plant Development Sciences
Meerut, India

RESEARCH ARTICLE

SURVEY OF COMMON WEED SPECIES WITH HABITAT RANGE, INVASIVENESS AND ETHNOBOTANICAL USES FROM GHAZIABAD DISTRICT

Anupam Awasthi[1]*, Amar Singh Kashyap[1] and Sandeep Kumar Pal[2]

[1]Department of Botany, Multanimal Modi (PG) College, Chaudhary Charan Singh University, Meerut – 201204, India
[2]Department of Botany, Dayanand Brajendra Swarup (PG) College, Chhatrapati Shahu Ji Maharaj University, Kanpur – 208006, India
Email: anupambotany@gmail.com

Received-25.04.2025, Revised-16.05.2025, Accepted-29.05.2025

Abstract: The present study provides a systematic documentation of commonly occurring weed species in the Ghaziabad district of Uttar Pradesh, India. A comprehensive field survey was carried out over a two-year period (2023–2024), resulting in the identification of 78 weed species belonging to 68 genera and 29 families. Among these, 37 species were associated primarily with Rabi crops and 28 with Kharif crops. The family Asteraceae emerged as the most dominant, followed by several other prominent families. Herbaceous species formed the bulk of the recorded flora, underscoring their ecological adaptability and prevalence in the region. Each species was further categorized based on origin and ecological behavior—classified as native, introduced, noxious, or interfering. This preliminary inventory not only enriches the floristic understanding of Ghaziabad's weed flora but also offers valuable insights into the invasiveness and ethno botanical relevance of commonly encountered weeds across the district's agrarian and peri-urban habitats.

Keywords: Weeds, Ethnobotany, Invasive, Taxonomy, Ghaziabad

INTRODUCTION

Weeds are plants that grow in locations where they are not desired. One of the key characteristics that enable weeds to colonize a wide range of habitats is their ability to survive under both unfavorable and favorable conditions for crop growth. In some species, weed seeds can remain dormant yet viable for as long as 20 to 40 years (Conn *et al*., 2006). These are typically unwanted plant species that grow abundantly in environments disturbed by human or natural activities. Though often considered a nuisance due to their ability to outcompete desirable crops and plants, some weeds have ecological, medicinal, and nutritional importance. Weeds are especially relevant to the study of plant diversity and community structure in both rural and urban settings. Among these, invasive species, plants that are non-native to a particular ecosystem and cause significant harm, are a particular concern. They are known to alter ecosystem dynamics, threaten native biodiversity, and negatively impact agricultural productivity and ecosystem services.

The present study was conducted to assess and document the diversity of common weed species across various habitats within Ghaziabad district. The survey encompassed multiple ecological niches, including agricultural fields cultivated with *rabi* and *kharif* crops, disturbed and undisturbed sites, moist and arid regions, forest fringes and other environments conducive to weed growth. The primary objectives of this study were to systematically survey, identify, and document the common weed diversity along with their growth habits, habitats, ethnobotanical uses and invasiveness status. This investigation represents a preliminary attempt to comprehensively catalogue the common weed species in the region.

Weeds represent a significant component of global plant diversity, with approximately 8,000 species classified as weeds out of an estimated 250,000 species of flowering plants worldwide (Heywood, 1993; Holm, 1979; Tomar & Singh, 2006). Unlike many cultivated medicinal plants, these non-cultivated species (Baker, 1965) possess untapped potential as valuable resources for future drug discovery and development.

Globally, about 8,000 weed species are associated with diverse cropping systems, of which nearly 250 are considered agriculturally significant due to their impact on crop productivity (Holm *et al*., 1979). Weeds contribute to substantial agricultural losses, estimated at approximately 34% reduction in global crop production. In India, weeds have been reported to cause potential yield losses of about 31.5% (Bhan

*Corresponding Author

et al., 1999). Specifically in Uttar Pradesh, major crops such as wheat, pigeon pea, groundnut, and soybean face yield reductions of approximately 33.5%, 33.6%, 45.5%, and 50%, respectively, due to weed infestation (Gharde *et al*., 2018).In Uttar Pradesh, various research studies have documented the state's weed diversity across multiple aspects, including weeds associated with different cropping systems, agrestal weeds, invasive alien species and species with ethnopharmacological significance (Khanna, 2009; Singh *et al*., 2012; Srivastava *et al*., 2014; Kashyap *et al*., 2024) etc.

Many weeds negatively impact crop growth, certain species release toxic or growth-inhibiting compounds into the soil, adversely affecting plants, humans and livestock While Weeds, though often overlooked, can similarly serve as potent sources of medicinal compounds when subjected to comprehensive characterization and phytochemical investigations. (Patil and Jadhav, 2013). Furthermore, weeds compete with crops for essential growth resources, including nutrients, water, sunlight, and space. Despite these harmful effects, numerous beneficial aspects of weeds have also been documented. When utilized as green manure, their biomass enhances soil organic matter and nutrient availability. In arid, wasteland, or sloped regions, tall weed species help in controlling wind and water erosion, contributing to environmental sustainability. Additionally, some weeds serve as fodder for livestock and are even consumed as leafy vegetables by humans.

Different habitats of weeds: (A,B)Agricultural fields, (C,D)Railway tracks, (E) Abandoned area, (F) Vacant plots.

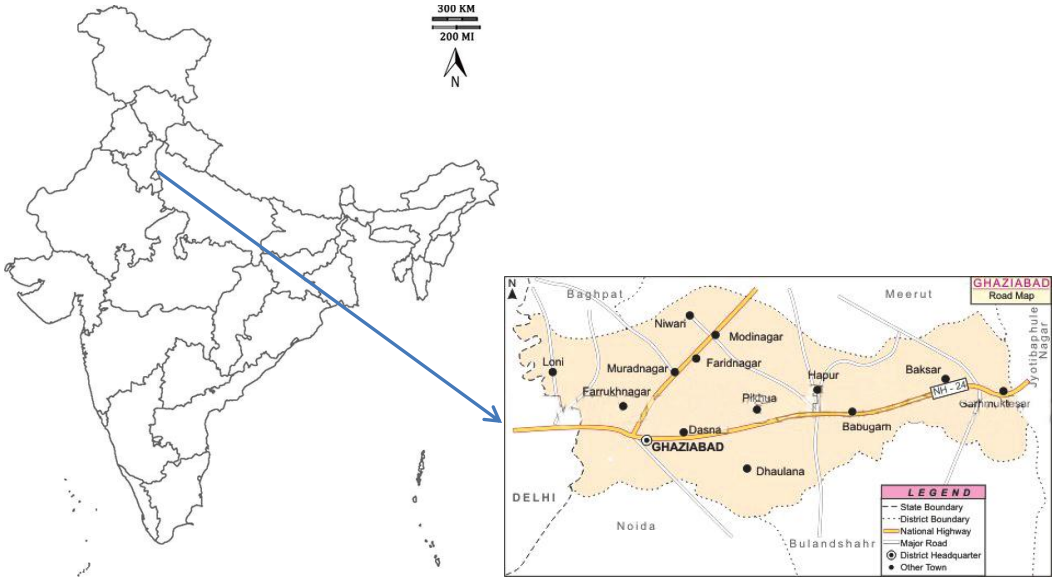
In many areas, including Uttar Pradesh, multiple crops are cultivated throughout the kharif, rabi, and zaid seasons, with wheat and rice being the dominant crops alongside maize, sugarcane, millets, pulses and

oilseeds. However, comprehensive studies on weed diversity across different cropping systems remain limited, particularly in regions practicing diverse agricultural patterns. Only some references on weeds of the area are available in some floristic and ethnobotanical work carried out in the area (Gupta, 1986; Gupta and Chaudhary, 2010; Mishra *et al.*, 2014; Chaudhary and Kumar, 2015; Pawar, 2015; Vardhana, 2018).

The weed species recorded in the area were divided into two main groups: native species, which naturally grow in the country, and alien species, which have been introduced from outside. The alien species were further categorized into naturalized, interfering and noxious types. Naturalized species are those that can grow and reproduce on their own without any external help, forming stable populations. Noxious species are harmful weeds that seriously affect crop production, especially in disturbed areas like farmlands. Interfering species are not directly harmful but grow in very large numbers, taking up space and resources, which makes it difficult for crops or native plants to grow properly.

Study Area

The present study was conducted in Ghaziabad district, which covers an area of approximately 2,571.3 square kilometers. Geographically, the district lies between 28°22' to 29°20' N latitude and 76°10' to 78°47' E longitude. It is bordered by Meerut district to the north, Bulandshahar district to the south, Moradabad district to the east, and the Delhi metropolitan region to the west. Ghaziabad forms a part of the northwestern segment of the Indo-Gangetic Plain. The soil types in the district primarily include sandy, silty, and clay loam textures, supporting a variety of cropping systems. The region receives the majority of its annual rainfall during the monsoon season, typically between the months of July and September. This ecological diversity makes Ghaziabad an ideal site for studying the distribution and ecological impact of weeds. The selected study sites include a variety of habitats such as cultivated fields, fallow lands, roadsides, water margins, urban open spaces and abandoned plots which harbor a rich and diverse weed flora.



MATERIALS AND METHODS

The present study was carried out in Ghaziabad district between January 2023 and December 2024. Extensive field surveys were conducted throughout different seasons, including dry, pre-monsoon and monsoon periods, to capture the seasonal variations in weed diversity. Field visits covered various habitats such as agricultural fields (both *rabi* and *kharif* crop lands), roadside verges, gardens, water bodies, disturbed and undisturbed lands, abandoned plots, moist areas, dry arid zones and forest fringes, where weed species naturally proliferate.

In addition to recording the common weed diversity, ethnobotanical information was gathered through personal interviews and interactions with local residents, traditional healers, *Vaidhyas*, *Hakims*, and members of tribal communities. This approach helped to document the therapeutic and cultural uses of weed species. Relevant ethno-medicinal literature was also reviewed to supplement field data including works by Jain (1981); Pandey *et al.* (1981); Pushpangadan and Kumar (2005) and Tomar & Singh (2006); Tomar (2014); Tomar (2021); Sarver *et al.* (2022) and Tomar (2023).

Plant specimens were photographed in their natural habitat for reference and identification. Species were identified based on detailed morphological features such as leaf shape, flower structure, inflorescence type, growth habit and fruit characteristics. Standard taxonomic keys and floras were used for species identification, including Duthie (1903–1929); Sharma (1978); Naidu (2012); Singh *et al.* (2016); Sinha and Shukla (2020) etc.

The updated scientific names and nativity status of the recorded species were cross-verified using authoritative online botanical databases, including *Plants of the World Online* (POWO, 2024). For ambiguous or unfamiliar species, additional confirmation was obtained using global plant databases such as the International Plant Names Index (IPNI), TROPICOS.

RESULTS AND DISCUSSION

In the present study, a total of 78 weed species belonging to 68 genera and 29 flowering plant families were documented from the Ghaziabad district. Of these, 17 species representing 14 genera were distributed across 4 monocotyledonous families, while the remaining 61 species under 54 genera were classified under 25 dicotyledonous families (Figure 1).

All recorded species were catalogued with their correct nomenclature, family affiliation, growth habit, habitat preference, nativity status, invasiveness classification, and known ethnobotanical uses.

Analysis of growth habits revealed that herbaceous species were dominant, comprising 57 species (73.07%) of the total weed flora. This was followed by grasses (13 species; 16.67%), shrubs (6 species; 7.69%), aquatic species (1 species; 1.28%), and climbers (1 species; 1.28%) (Figure 2).

The most frequently represented genera included Cyperus (3 species), Euphorbia (3), Ageratum (2), Amaranthus (2), Echinochloa (2), Ipomoea (2), Phyllanthus (2), and Senna (2) (Figure 3).

The family Asteraceae emerged as the most dominant with 12 weed species, followed by Poaceae (9), Amaranthaceae (6), Euphorbiaceae (6), Fabaceae (6), Cyperaceae (4), Malvaceae (4), Convolvulaceae (3), Commelinaceae (2), Papaveraceae (2), Phyllanthaceae (2), Polygonaceae (2), Pontederiaceae (2), Solanaceae (2), and Verbenaceae (2)(Figure 4). Additionally, 14 families were represented by a single species each, including Acanthaceae, Aizoaceae, Apocynaceae, Boraginaceae, Cannabaceae, Cleomaceae, Lamiaceae, Lythraceae, Nyctaginaceae, Oxalidaceae, Portulacaceae, Primulaceae, Ranunculaceae, and Zygophyllaceae.

Out of the 78 documented weed species, 24 were categorized as native, 25 as naturalized, 20 as interfering species, and 9 as noxious weeds based on their ecological impact and status within the region (Figure 5).

The majority of the documented weeds were found in agricultural habitats. Of the 78 total species, 65 were observed growing within crop fields. Among these, 28 species were predominantly associated with Kharif (monsoon) crops, while 37 species were linked with Rabi (winter) crops (Figure 6).

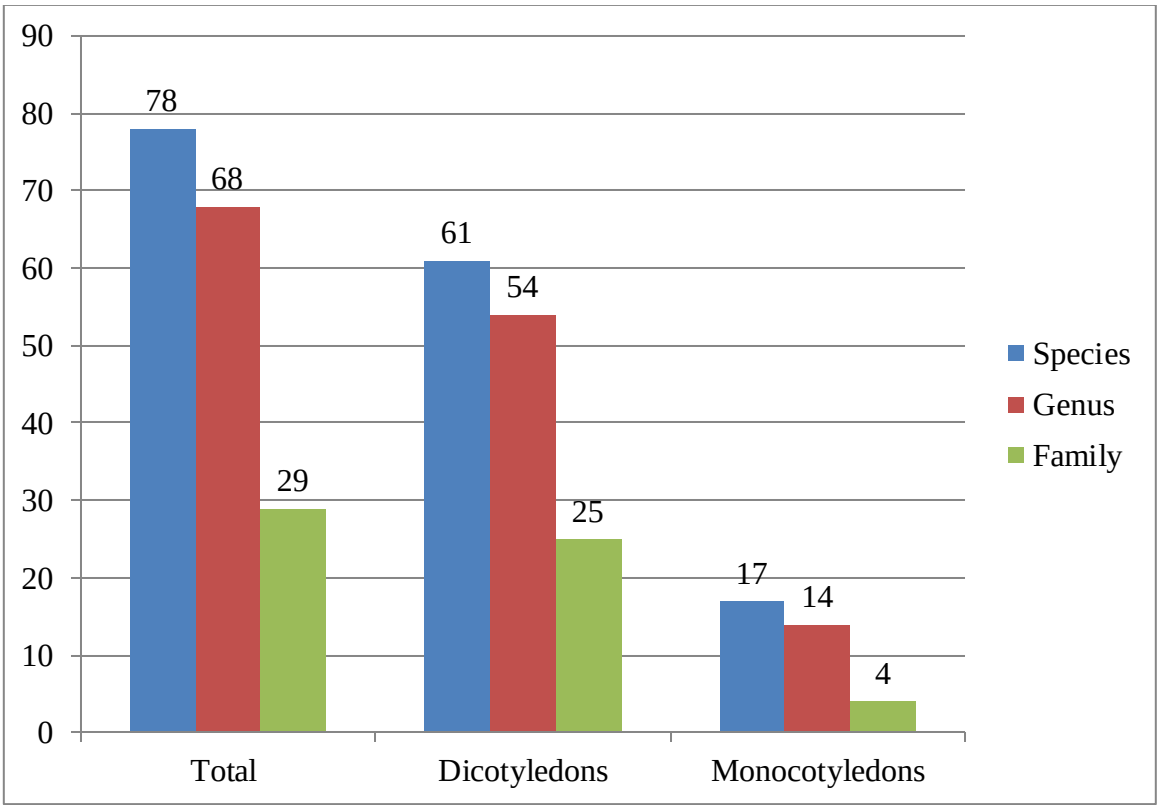


Figure 1: Status of Weeds diversity

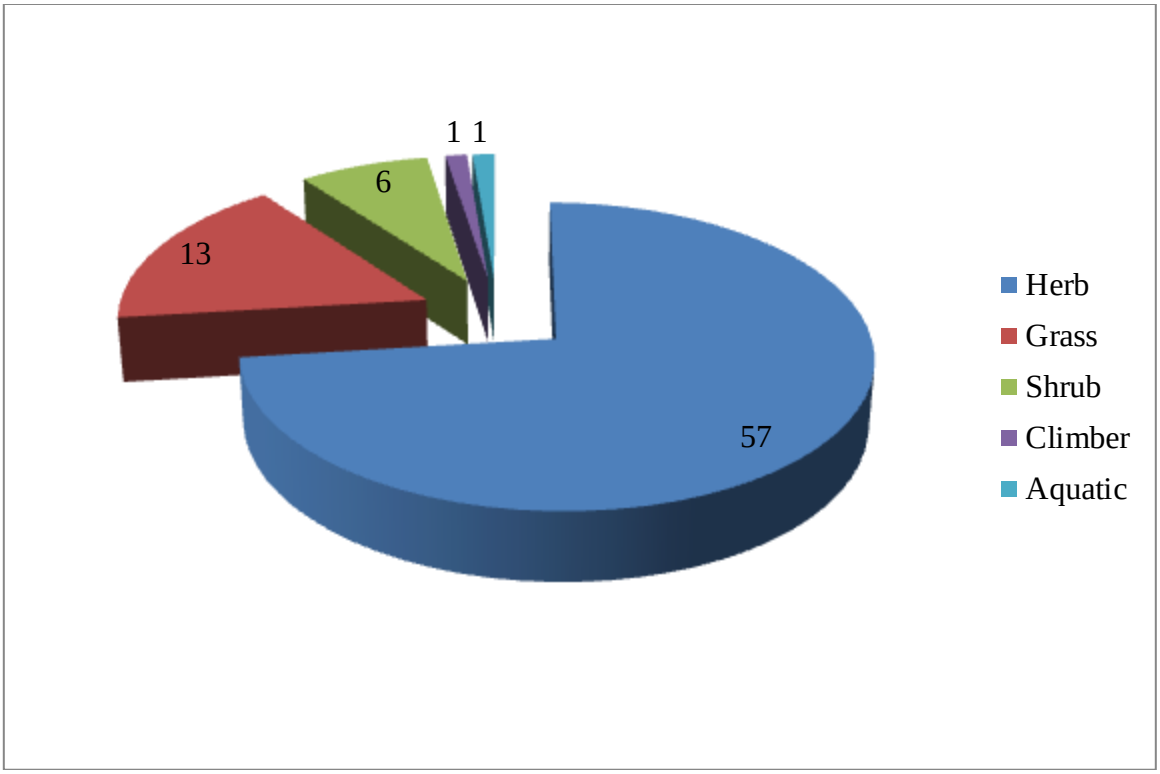


Figure 2: Habit of weeds

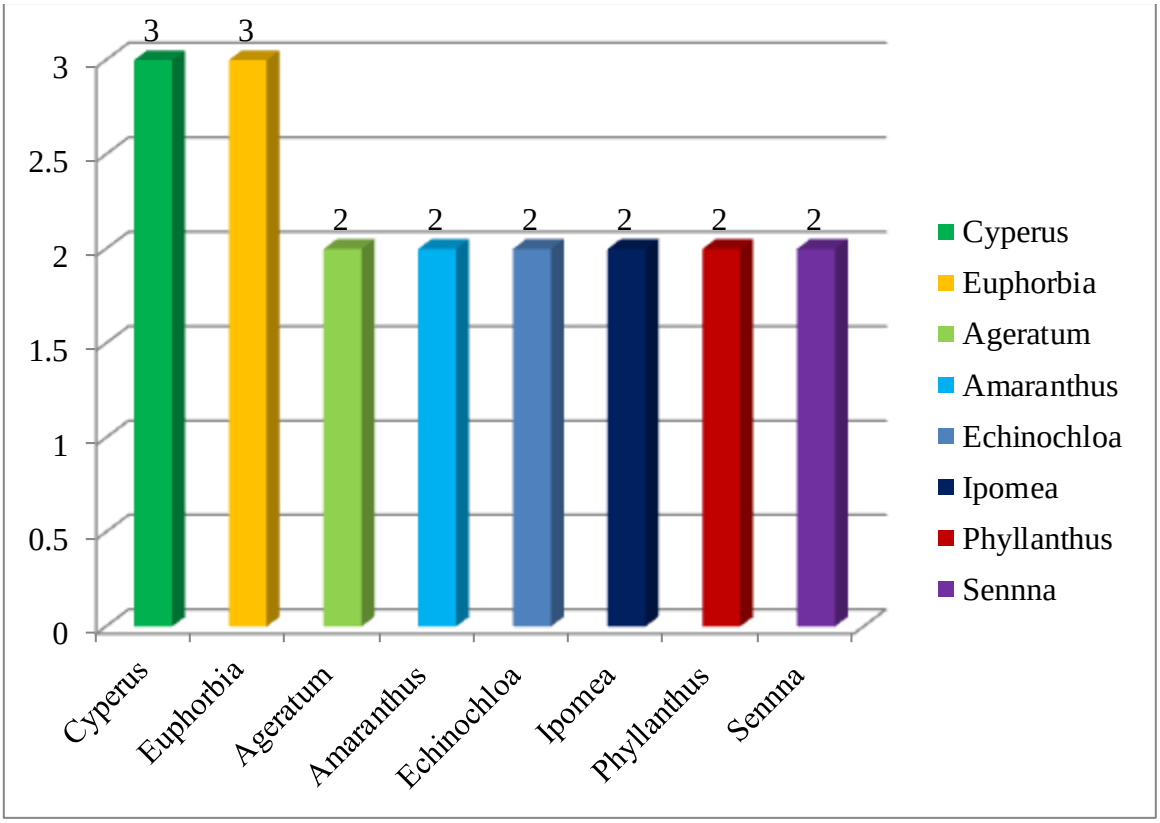


Figure 3: Dominant Genera of weeds

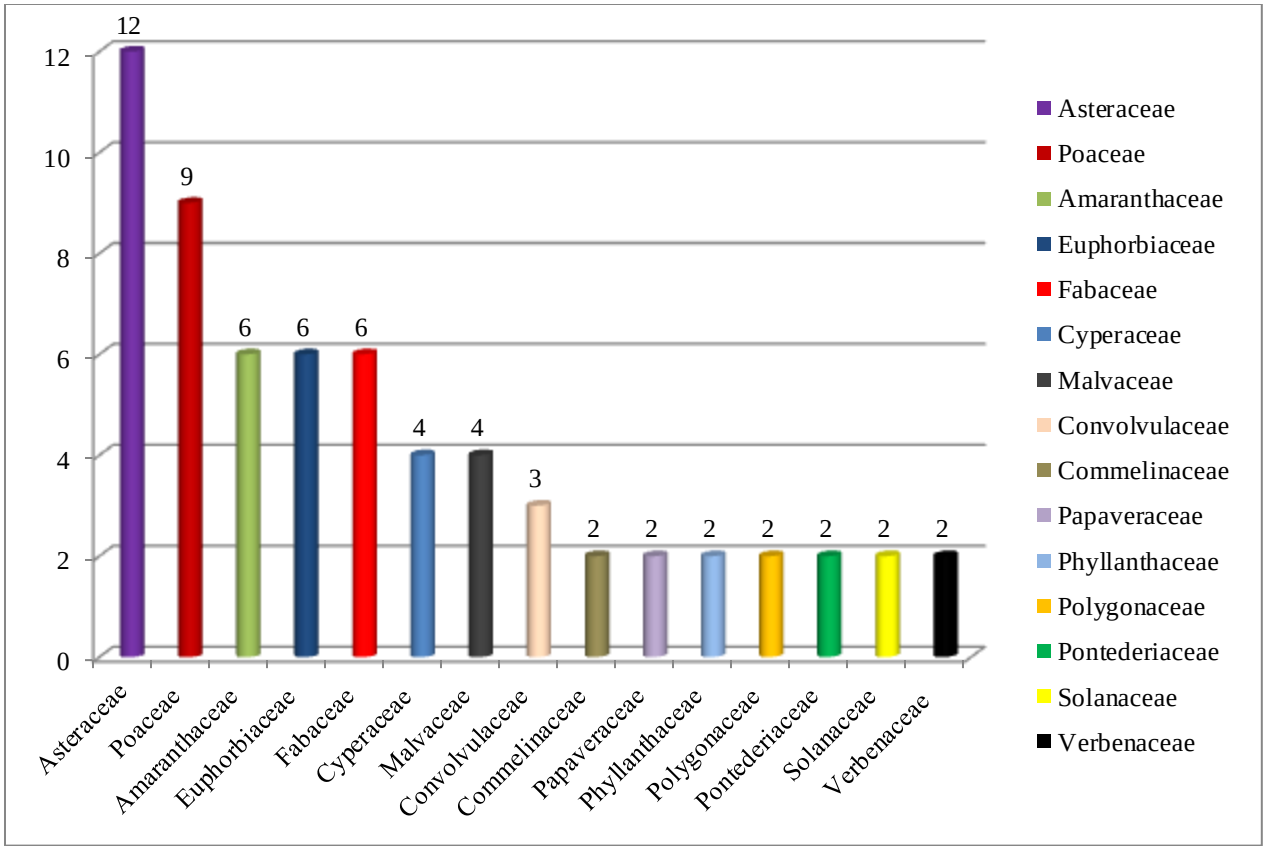


Figure 4: Distribution of weeds across families

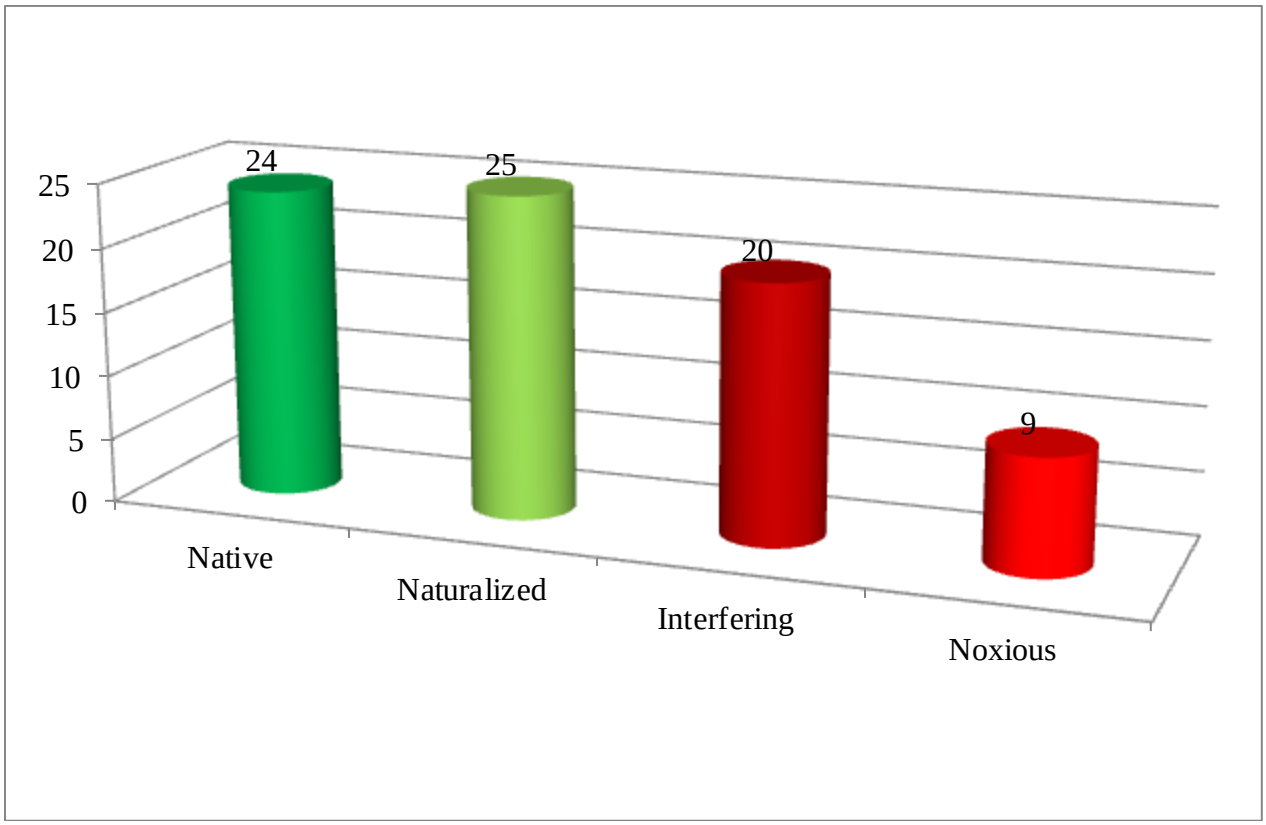


Figure 5: Invasiveness status of weeds

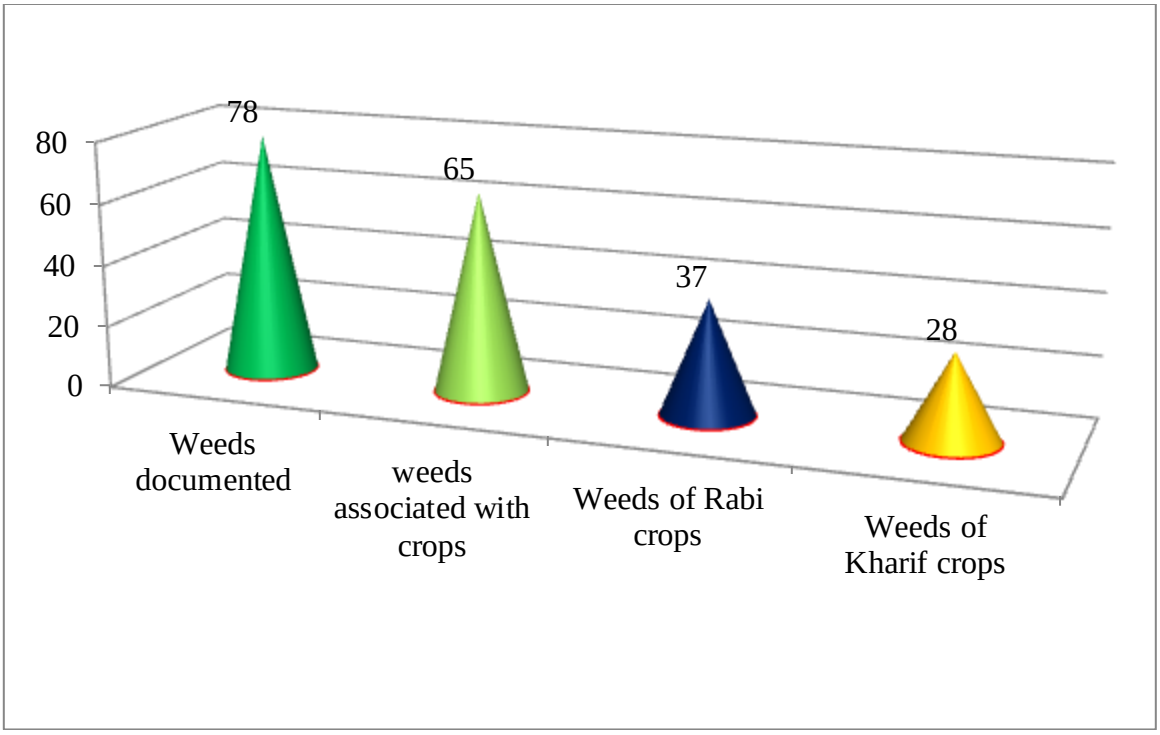


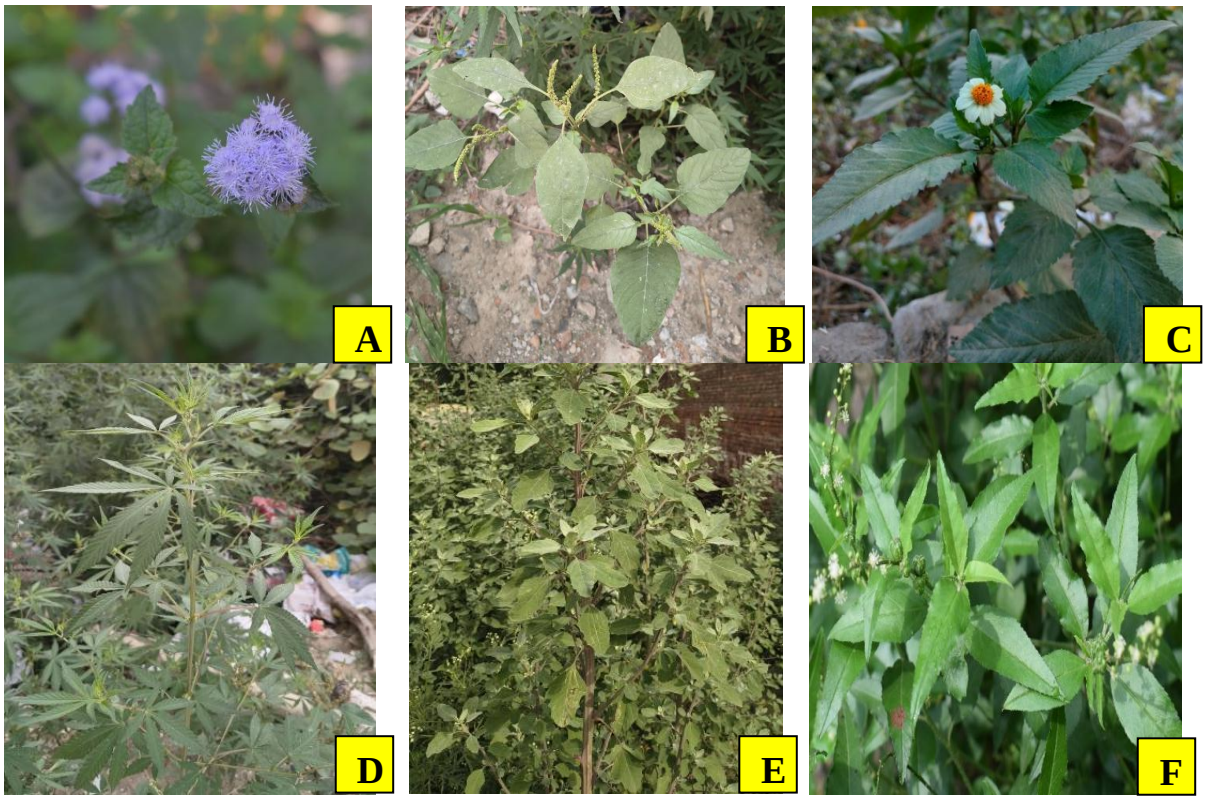
Figure 6: Weeds associated with crops

S.No.	Name of Species	Family	Habit & Habitat	Nativity Range	Invasiveness Status	Ethnobotanical Uses
1.	*Abutilon indicum* L. Sweet	Malvaceae	Shrub; Found in Rabi crops &roadside, disturbed land	Mascarenes, Tropical & Subtropical Asia to W. Pacific	Native	The plant's latex is used to treat urinary discharge.
2.	*Achyranthes aspera* L.	Amaranthaceae	Herb; Found in Rabi crops &roadsides, wastelands	SE. Mexico to Venezuela, S. Florida to Caribbean, Tropical & Subtropical Asia to N. Australia	Native	The root of the plant is traditionally used to ease childbirth. It is also combined with *Shami* root and administered with butter to treat jaundice.
3.	*Ageratum conyzoides* L.	Asteraceae	Herb; Found in Rabi &Kharif crops, damp fields, roadsides	Mexico	Noxious	The fresh leaves are crushed and applied as a poultice on cuts, wounds, Infusions made from the plant are taken to expel intestinal worms.
4.	*Ageratum houstonianum* Mill.	Asteraceae	Herb; Found in Rabi &Kharif crops, damp fields, roadsides	Mexico to Central America	Interfering	The plant is believed to have antiseptic and healing properties. Crushed leaves are applied as a poultice to reduce local inflammation and swelling.
5.	*Alternanthera sessilis* (L.) R.Br. ex DC.	Amaranthaceae	Herb; Found in Kharif crops &moist field margins.	Tropical & Subtropical Asia to N. & E. Australia, S. Mexico to Tropical America	Naturalized	Edible; used for stomach ache, skin diseases
6.	*Amaranthus spinosus* L.	Amaranthaceae	Herb; Found in Rabi crops & roadsides, gardens near human settlements.	Mexico to Tropical America	Naturalized	A decoction of the root is used to treat diarrhea, dysentery, and stomach pain.
7.	*Amaranthus viridis* L.	Amaranthaceae	Herb; Found in Kharif crops &field margins, waste lands	SE. Mexico to Tropical America	Native	Edible; used in anemia, digestion problems. Decoction of leaves or whole plant is used traditionally to increase urine output.
8.	*Ammannia baccifera* L.	Lythraceae	Herb; Found in Kharif crops & moist places	Africa, Tropical & Subtropical Asia to Australia	Native	Used in skin ailments, fever. Leaf extract is used as a laxative, diuretic, and for treating intestinal worms.
9.	*Argemone mexicana* L.	Papaveraceae	Herb; Found in Rabi crops &wastelands	Central Mexico to Honduras	Noxious	Whole plant when used along with black pepper, is beneficial in treating indigestion, while its milky latex is traditionally applied to relieve conjunctivitis
10.	*Avena sterilis*L.	Poaceae	Grass; Found in Rabi crops	Canary Islands, Medit. to W. Himalaya and Kenya	Interfering	The grains are consumable, though smaller than cultivated oats, often considered famine food or used as animal feed.
11.	*Bidens pilosa* L.	Asteraceae	Herb; Found in Rabi crops &roadsides, wastelands	Tropical & Subtropical America	Interfering	Used to treat colds, coughs, and fever.
12.	*Boerhavia diffusa* L.	Nyctaginaceae	Herb; Found in Kharif crops &dry open fields	Tropics & Subtropics	Native	A decoction of the whole plant is taken daily in the morning to promote overall health and well-being. Also used asDiuretic, liver tonic.

13.	*Blumea sinuata* (Lour.) Merr.	Asteraceae	Herb; Found in Kharif crops & undisturbed areas, open fields	Tropical & Subtropical Asia to W. Pacific	Interfering	Traditional medicine for various ailments. Fresh leaf juice is used to expel threadworms, half to one tsp of fresh leaf juice is applied orally to children.
14.	*Calotropis procera* (Aiton) W.T.Aiton	Apocynaceae	Shrub; roadsides, open land	Macaronesia, N. & Tropical Africa to Indo-China	Interfering	Wound healing properties, latex toxic.
15.	*Cannabis sativa* L.	Cannabaceae	Herb; Found in Rabi crops & undisturbed areas	Central Asia to Xinjiang and Pakistan	Interfering	Psychoactive; medicinal use in pain, anxiety.
16.	*Celosia argentea* L.	Amaranthaceae	Herb; gardens, fallow land	Tropical Africa	Naturalized	Vegetable, anti-inflammatory.
17.	*Chenopodium album* L.	Amaranthaceae	Herb; Found in Rabi crops& wastelands	Temperate to Indian Subcontinent	Native	Edible, anemia treatment.
18.	*Chrozophora rottleri* (Geiseler) A.Juss.	Euphorbiaceae	Herb; Found in Rabi crops &roadsides	Indian Subcontinent to W. Indo-China	Native	Used for skin diseases.
19.	*Cirsium arvense* (L.) Scop.	Asteraceae	Herb; Found in Rabi crops & roadsides	Temp. Eurasia, NW. Africa	Noxious	Used in traditional medicine for inflammation.
20.	*Cleome viscosa* L.	Cleomaceae	Herb; Found in Rabi crops	Tropical & Subtropical Old World	Naturalized	The dried seed powder, mixed with sugar, is administered orally twice daily for seven days to alleviate body pain.
21.	*Commelina benghalensis* L.	Commelinaceae	Herb; Found in Kharif crops &moist shady places	Tropical & Subtropical Old World	Native	Edible, used for anti-inflammatory
22.	*Convolvulus arvensis* L.	Convolvulaceae	Herb; Found in Rabi crops	Temp. & Subtropical Old World	Naturalized	Used as purgative, anti-inflammatory
23.	*Corchorus olitorius* L.	Malvaceae	Herb; Found in Kharif crops & moist places	Tropical & Subtropical Old World	Interfering	Leaves edible, used as vegetable, medicinal.
24.	*Croton bonplandianus* Baill.	Euphorbiaceae	Herb; disturbed areas	S. Bolivia to S. Brazil and N. Argentina	Naturalized	Used as purgative, wound healing.
25.	*Cyanotis axillaris* (L.) D.Don ex Sweet	Commelinaceae	Herb; Found in Kharif crops	India to Northern Australia	Native	Used for treating ailments like boils, ascites, and tympanitis.
26.	*Cynodondactylon* (L.) Pers.	Poaceae	Grass; Found in Rabi &Kharif crops, lawns, roadsides	Temperate & Subtropical Old World to Australia	Naturalized	Sacred grass, wound healing, diuretic.
27.	*Cyanthillium cinereum* (L.) H.Rob.	Asteraceae	Herb; Found in Rabi crops &field margins	Tropical & Subtropical Old World to Pacific	Native	Used for asthma, fever, and cough.
28.	*Cyperusdifformis* L.	Cyperaceae	Grass; Found in Kharif crops	Tropical & Subtropical Old World	Naturalized	Used in traditional medicine for stomach
29.	*Cyperus iria* L.	Cyperaceae	Grass; Found in Kharif crops	Tropical & Subtropical Old World to Central Asia	Naturalized	Used for fever and skin diseases.
30.	*Cyperus rotundus* L.	Cyperaceae	Grass; Found in Rabi crops	Tropical & Subtropical Old World	Native	A decoction is prepared using the whole plant along with young neem leaves, black pepper, and tulsi leaves. The vapour of this decoction is inhaled to treat malarial fever.
31.	*Datura metel* L.	Solanaceae	Herb; agriculture fields, roadsides, wastelands	Mexico	Noxious	Leaf paste is applied on the face to treat pimples. The smoke of the plant is used in the treatment of bronchitis.
32.	*Digitaria sanguinalis* (L.) Scop.	Poaceae	Grass; Found in Kharif crops	Medit. to Central Asia and Malesia	Native	Used as fodder; some anti-inflammatory properties
33.	*Echinochloa colona* (L.) Link	Poaceae	Grass; Found in Kharif crops	Tropical & Subtropical Old World	Naturalized	Used as fodder
34.	*Echinochloa crus-galli* (L.) P.Beauv.	Poaceae	Grass; Found in Kharif crops	S. & E. Europe to Asia, W., E.& S. Tropical Africa to S. Africa, Madagascar	Noxious	Used as fodder
35.	*Eclipta prostrata* (L.) L.	Asteraceae	Herb; Found in Rabi &Kharif crops, moist field margins	Temperate & Subtropical America	Naturalized	Leaf paste used in hair growth, liver tonic, skin diseases
36.	*Eichhornia crassipes* (Mart.) Solms	Pontederiaceae	Aquatic; stagnant water bodies	S. Tropical America	Noxious	Major aquatic invasive weed. Sometimes used as green manure.
37.	*Eragrostis viscosa* (Retz.) Trin.	Poaceae	Grass; open areas and forest margin	Tropical & S. Africa, S. Arabian Peninsula, Tropical Asia	Native	Feed for livestock, drought tolerant.
38.	*Erigeron bonariensis* L.	Asteraceae	Herb;disturbed areas	Mexico to Tropical America	Interfering	Antimicrobial & anti-inflammatory properties.
39.	*Euphorbia hirta* L.	Euphorbiaceae	Herb; Found in Kharif crops & disturbed areas, fields	Tropical & Subtropical America	Naturalized	Used in asthma, skin diseases.
40.	*Euphorbia prostrata* Aiton	Euphorbiaceae	Herb; undisturbed areas, fields	Central & S. U.S.A. to Tropical & Subtropical America	Interfering	Used in skin diseases.
41.	*Euphorbia thymifolia* L.	Euphorbiaceae	Herb; Found in Rabi crops &undisturbed areas, fields	Tropical & Subtropical America	Interfering	Used in wounds, skin diseases.
42.	*Fimbristylis quinquangularis* (Vahl) Kunth	Cyperaceae	Grass; Found in Kharif crops	Tropical Africa, Iraq to Tropical & Subtropical Asia and N. Australia	Native	Cattle food.

43.	*Fumaria parviflora* Lam.	Papaveraceae	Herb; Found in Rabi crops	W. Europe, Medit. to Pakistan	Native	Used for liver and digestive disorders.
44.	*Heliotropium indicum* L.	Boraginaceae	Herb; Found in Rabi crops &field edges	Peru to Brazil and N. Argentina	Native	Used for eye ailments and wounds.
45.	*Hygrophila auriculata* (Schumach.) Heine	Acanthaceae	Herb; Found in Kharif crops &marshes, swamps, ditches	Tropical & South Africa, Indian Subcontinent to Indo-China	Native	Used as diuretic and liver tonic
46.	*Ipomoea carnea* Jacq.	Convolvulaceae	Shrub; wetlands, drains	Mexico to S. Tropical America	Interfering	Toxic to livestock; used in traditional medicine with caution.
47.	*Ipomoea nil (L.)* Roth	Convolvulaceae	Climber; vacant plots	Tropical & Subtropical America	Naturalized	Edible shoots; laxative uses.
48.	*Lantana camara* L.	Verbenaceae	Shrub; field edges, scrublands	Mexico to Tropical America	Noxious	Toxic to cattle; Flower and leave are a source of essential oil.
49.	*Lathyrus aphaca* L.	Fabaceae	Herb; Found in Rabi crops	Macaronesia, Medit. to Central Asia and Indian Subcontinent	Native	Used as fodder, ailments like asthma, fever, dysentery, diarrhea, and skin diseases.
50.	*Leucas cephalotes* (Roth) Spreng.	Lamiaceae	Herb; Near agricultural fields, moist places	E. Afghanistan to Myanmar	Interfering	Locally, it is used to treat stomach problems. A mixture of turmeric (haldi) and mustard oil is ground well and administered once daily for 7 days.
51.	*Lysimachia arvensis* (L.) U.Manns&Anderb.	Primulaceae	Herb; Found in Rabi crops	Europe to Central Asia and Himalaya, N. Africa to Ethiopia and Arabian Peninsula	Naturalized	Used traditionally for wounds and skin diseases.
52.	*Malvastrum coromandelianum* (L.) Garcke	Malvaceae	Herb; Found in Kharif crops &waste lands	New World	Naturalized	Used as a demulcent and mild laxative.
53.	*Melilotus albus* Medik.	Fabaceae	Herb; Found in Rabi crops	Europe to China, N. Africa to Myanmar, Ethiopia to S. Africa	Naturalized	Used for fodder and medicinally for blood purification.
54.	*Mimosa pudica* L.	Fabaceae	Herb; disturbed areas	Mexico to Tropical America	Naturalized	Utilized for dysentery, diarrhea etc.
55.	*Oxalis corniculata* L.	Oxalidaceae	Herb; Found in Rabi &Kharif crops &moist shaded areas	Indian Subcontinent to Japan and Philippines	Native	Used as chutney, for digestion, treating skin conditions, digestive issues and eye problems.
56.	*Parthenium hysterophorus* L.	Asteraceae	Herb; Found in Rabi crops &roadsides, open lands	Tropical & Subtropical America	Noxious	Allergic reactions; Utilized for its potential to address infertility, menstrual problems, childbirth complications, anemia, and heart troubles.
57.	*Phalaris minor* Retz.	Poaceae	Grass; Found in Rabi crops	Macaronesia, Medit. to Himalaya and Eritrea	Interfering	Used as fodder.
58.	*Phyla nodiflora* (L.) Greene	Verbenaceae	Herb; Found in Kharif crops & Moist places	Tropics & Subtropics	Native	Used in traditional medicine for wounds.
59.	*Phyllanthus amarus* Schumach. &Thonn.	Phyllanthaceae	Herb; Found in Kharif crops	S. Mexico to Tropical America	Naturalized	For jaundice, the whole plant is dried, powdered, and administered orally mixed with water.
60.	*Phyllanthus niruri* L.	Phyllanthaceae	Herb; Found in Kharif crops	Tropical & Subtropical America	Naturalized	Juice of the whole plant (panchang) is used in the treatment of jaundice and malaria.
61.	*Polygonum plebeium* R.Br.	Polygonaceae	Herb; Found in Rabi crops &damp soil	Tropical & Subtropical Old World	Native	Used as vegetable and for anti-inflammatory uses.
62.	*Pontederia vaginalis* Burm.f.	Pontederiaceae	Herb; Found in Kharif crops	Afghanistan to China and Northern Australia	Interfering	Utilized in traditional medicine to treat conditions like stomach and liver problems, toothaches, coughs, asthma, and fever.
63.	*Portula caoleracea* L.	Portulacaceae	Herb; waste lands, gardens	Macaronesia, Africa, E. Central & S. Europe to Pakistan and Arabian Peninsula	Naturalized	Edible, rich in omega-3 fatty acids, used for digestive ailments.
64.	*Ranunculus sceleratus* L.	Ranunculaceae	Herb; Found in Rabi crops	Temp. Eurasia, N. Africa, Ethiopia to Rwanda, Central & E. Canada to Central & E. U.S.A.	Interfering	Seeds used as tonic against cold.
65.	*Ricinus communis* L.	Euphorbiaceae	Shrub; field edges	NE. Tropical Africa	Interfering	Castor oil plant, seeds toxic, oil used as laxative and for skin ailments.
66.	*Rumex dentatus* L.	Polygonaceae	Herb; Found in Rabi crops & wetlands	Tunisia to Indo-Chin	Native	Used to treat various ailments like dysentery, constipation, skin infections and liver disorders.
67.	*Saccharum spontaneum* L.	Poaceae	Grass; Found in Rabi crops	Sicilia, Africa, Asia to N. & NE. Australia	Interfering	Rhizomes and roots are valued in traditional medicine for treating conditions like dyspepsia, burning sensations, and piles
68.	*Senna occidentalis* (L.) Link	Fabaceae	Herb;roadsides, wastelands often found near crops	Tropical & Subtropical America	Naturalized	Used for treating fevers, liver ailments, skin conditions and as a digestive aid.

69.	*Sennatora* (L.) Roxb.	Fabaceae	Herb; roadsides, river banks	Central America	Noxious	Used to treat constipation, ulcers, ringworm, and other skin conditions.
70.	*Setaria pumila* (Poir.) Roem. & Schult.	Poaceae	Grass; moist open fields	Old World	Interfering	It is considered a good green fodder for cattle.
71.	*Sida cordifolia* L.	Malvaceae	Shrub; Found in Rabi crops &roadsides, waste places	Tropics & Subtropics	Naturalized	The plant is mixed with other ingredients to prepare a special sweet preparation (Sethaura) given to lactating mothers to provide strength and vigor.
72.	*Solanum nigrum* L.	Solanaceae	Herb; Found in Rabi crops & roadsides, shady places	W. & S. Europe to Temp. E. Asia, Macaronesia, N. & NE. Tropical Africa	Native	Fruits edible when ripe; used in traditional medicine for ulcers.
73.	*Sonchus asper* (L.) Hill	Asteraceae	Herb; Found in Rabi crops &undisturbed areas, wastelands	Temp. Eurasia, N. Africa to Sahel and Somalia	Interfering	Used in traditional medicine as anti-inflammatory.
74.	*Trianthema portulacastrum* L.	Aizoaceae	Herb; Found in Kharif crops	Tropics & Subtropics	Interfering	Rich in vitamin C; used as vegetable and for wounds.
75.	*Tridax procumbens* L.	Asteraceae	Herb; Found in Rabi &Kharif crops, roadsides, rocky soils	Mexico to Tropical America	Naturalized	Plant is analgesic, antidiabetic, leishmanicidal and repellent
76.	*Tribulus terrestris* L.	Zygophyllaceae	Herb; sandy soils, roadsides	Old World	Naturalized	The paste of the root is used as an effective remedy for stomach ache, while the dried fruit powder mixed with cow's urine is administered for urinary disorders
77.	*Vicia sativa* L.	Fabaceae	Herb; Found in Rabi crops	Macaronesia, N. Africa to Kenya, Temp. Eurasia to Arabian Peninsula	Naturalized	Being a nitrogen-fixing legume, it is used by some farmers as green manure to improve soil fertility.
78.	*Xanthium strumarium* L.	Asteraceae	Herb; Found in Rabi crops &moist disturbed areas	S. Central & S. Europe to China and Indo-China, Taiwan, NW. Africa	Native	Employed in Ayurveda and folk remedies for digestive, diuretic, cooling, and anti-poison effects.



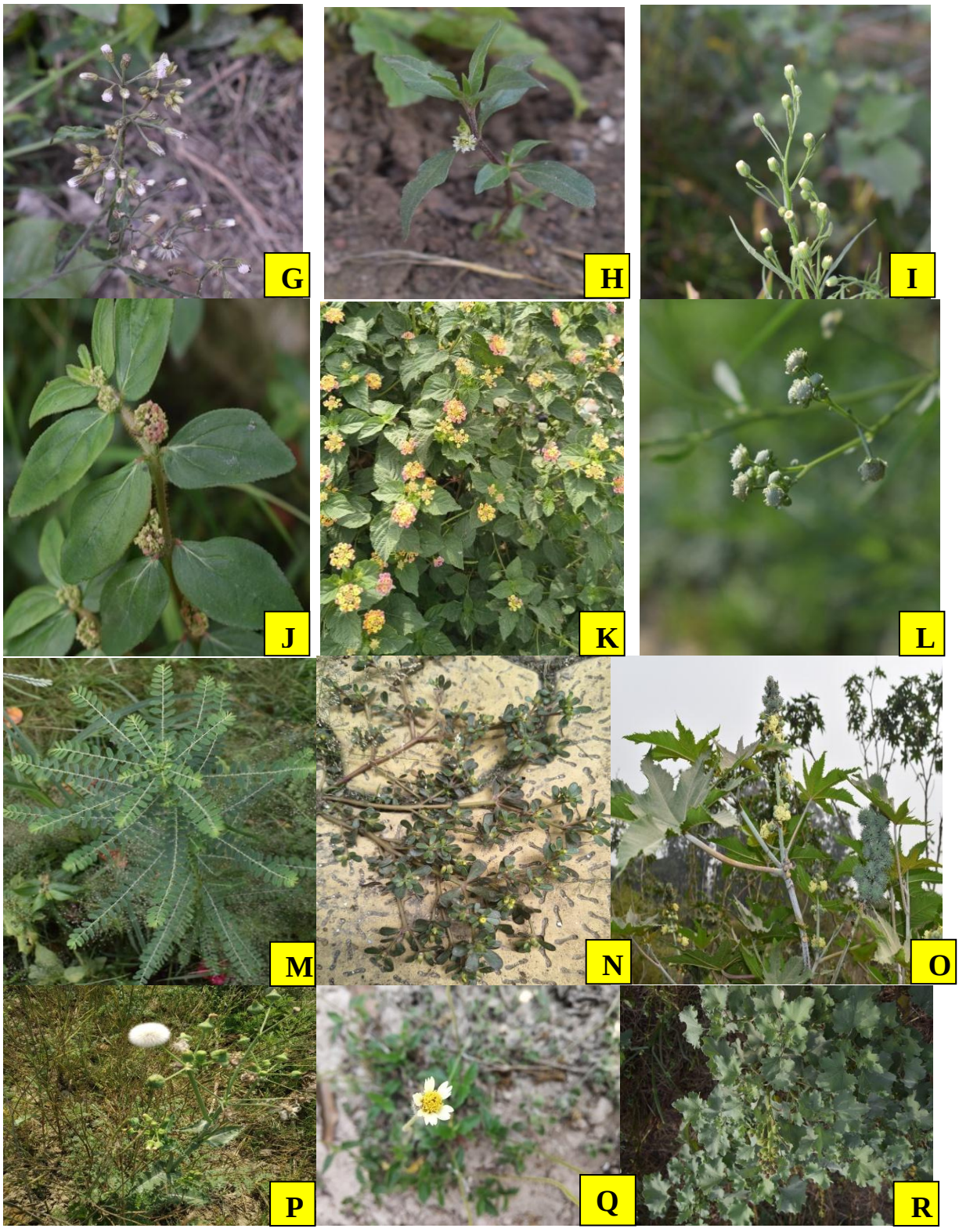


Figure 7: Photos of some collected weeds: (A) *Ageratum houstonianum* Mill.(B) *Amaranthus viridis* L. (C) *Bidens pilosa* L. (D) *Cannabis sativa* L. (E) *Chenopodium album* L. (F) *Croton bonbplandianus* Baill. (G) *Cyanthillium cinereum* (L.) H.Rob. (H) *Eclipta prostrata* L. (I) *Erigeron bonariensis* L. (J) *Euphorbia hirta* L. (K) *Lantana camara* L. (L) *Parthenium hysterophorus* L. (M) *Phyllanthus amarus* Schumach. & Thonn. (N) *Portulaca oleracea* L. (O) *Ricinus communis* L. (P) *Sonchus asper* (L.) Hill. (Q) *Tridax procumbens* L. (R) *Xanthium strumarium* L.

ACKNOWLEDGEMENTS

The authors expresses their sincere gratitude to the Principal of Multanimal Modi College, Modinagar, and the Principal of D.B.S. College, Kanpur, for their continuous encouragement, institutional support, and access to academic resources throughout the course of this study.

Special thanks are extended to the local residents, traditional healers (*vaidyas* and *hakims*), and knowledgeable community elders of Ghaziabad district, whose valuable ethnobotanical knowledge and insights into weed usage greatly enriched the quality and depth of this research.

The author is also thankful to all those who provided assistance during the field surveys, plant identification, and data compilation, directly or indirectly, making this study possible.

REFERENCES

Baker, H.G. (1965). Characteristics and modes of origin of weeds. Academic press, New York, Pp. 147-172.

Google Scholar

Bhan, V.M., Kumar, S. and Raghuwanshi, M.S. (1999). Weed Management in India. *Indian Journal of Plant Protection*. **27**: 171–202.

Google Scholar

Gharde, Y., Singh P.K., Dubey, R.P. and Gupta, P.K. (2018). Assessment of yield and economic losses in agriculture due to weeds in India.*Crop Prot*. **107**: 12–18.

Google Scholar

Conn, J.S., Beattie, K.L. and Blanchard, A. A. (2006). Seed viability and dormancy of 17 weed species after 19.7 years of burial. *Weed Science*, **54**(4), 464–470.

Google Scholar

Chaudhary, S. and Kumar, R. (2015). Folk Medicinal Plants in Ghaziabad District of Western Uttar Pradesh, India. *The Journal of Indian Botanical Society*, **94**(1and2), 73-80.

Google Scholar

Duthie, J.F. (1903-1929). Flora of upper Gangetic Plain, and of the adjacent Siwalik and sub-Himalayan tracts. Vol. **1-3**. Superintendent of Government Printing, Calcutta, India, 1:500; 2 :266; 3:283.

Google Scholar

Gupta, A.K. and Chaudhary, S. (2010). Flora of District Ghaziabad (UP) India. *The Journal of Indian Botanical Society*, **89(**3and4), 262-267.

Google Scholar

Gupta, H. C. (1986). Homoeopathic Medicinal Flora-Ghaziabad District of Uttar Pradesh.

Google Scholar

Heywood, V. (1989). Patterns, Extents, and Modes of Invasions by Terrestrial Plants. In: Drake, J. et al. (Eds.), *Biological Invasions: A Global Perspective*, Jolm Wiley and Sons, New York. pp. 31-60.

Google Scholar

Holm, L., Pancho, J.V., Herberger, J.P. and Plucknett, D.L. (1979). A geographical Atlas of world weeds. John Wiley and Sons, New York, United Kingdom.

Google Scholar

IPNI (2025). International Plant Names Index.Published on the Internet http://www.ipni.org, The Royal Botanic Gardens, Kew, Harvard University Herbaria & Libraries and Australian National Herbarium.[Retrieved 19 March 2025].

Google Scholar

Jain, S.K. (ed.) (1981). Glimpses of Indian Ethnobotany Oxford and IBH. Publishing Co. New Delhi.

Google Scholar

Kashyap, S., Verma, A., Pandey, V.N. and Chaudhary, L.B. Annotated checklist of Indigenous and Alien Dicotyledonous Agrestal Weeds of Rabi in Uttar Pradesh, India.

Google Scholar

Khanna, K.K. (2009). Invasive alien angiosperm of Uttar Pradesh.*Biological Forum- An International Journal*, **1**: 34–39.

Google Scholar

Kohli, R.K., Dogra, K.S., Batish, D.R. and Singh, H.P. (2004). Impact of invasive plants on the structure and composition of natural vegetation of Northwestern Indian Himalayas. *Weed Technology*, **18**: 1296-1300.

Google Scholar

Mishra, A.K., Shrama, M.P. and Khan, M.I. (2014). Additions to the Flora of Ghaziabad. *Trends in Biosciences*, **7**(22), 3509-3512.

Google Scholar

Naidu, V.S.G.R. (2012). Hand Book on Weed Identification, Directorate of Weed Science Research, Jabalpur, India, pp. 354.

Google Scholar

Pandey, G., Singh, V.K. and Bhatnagar, I.S. (1981). New records to Medical Efficacy claims of certain plants recorded from Gwalior Forest circle, Madhya Pradesh - a preliminary contribution. *Bull med Ethno Bot Res.*, **2**(3) 303 - 314.

Google Scholar

Patil, V.S. and Jadhav, P.S. (2013). A Survey of Weed Flora in Crop Fields of SataraTahsil (M.S.), India. *Univ. J. Envir. Res. Tech*., **3**: 233-41.

Google Scholar

Pawar, A. (2015). A Survey of Road Side Flora Growing Under Stress of Auto Exhaust Pollution in City Ghaziabad. *Journal of Pure & Applied Science & Technology*, **5**(2).

Google Scholar

POWO (2025). "Plants of the World Online.Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet;

https://powo.science.kew.org/ Retrieved 08 May 2025."

Google Scholar

Pushpangadan, P. and Kumar, B. (2005). Ethnobotany, CBD, WTO and the Biodiversity Act of India. *Ethnobotany*, 172-12.

Google Scholar

Sharma, M. (1978). Weed flora of Punjab in Rabi crops. *Indian J. Weed Sci*., **10**: 15–18.

Google Scholar

Singh, A., Singh, G.S. and Singh, P.K. (2012). Ethnopharmacological values of weeds in Eastern Uttar Pradesh, *India. Journal of Medicinal Plants Research*, **6**(26), 4362-4367.

Google Scholar

Singh, K.P., Khanna K.K. and Sinha G.P. (2016). Flora of Uttar Pradesh l. Botanical Survey of India, Kolkata.

Google Scholar

Srivastava, S., Dvivedi, A. and Shukla, R.P. (2014). Invasive Alien Species of Terrestrial Vegetation of North-Eastern Uttar Pradesh. *Int. J. For. Res*. 2014(1): 1–9.

Google Scholar

Sarver, J., Kumar, S., Singh, S. and Nigam, A. (2022). Floristic diversity and ethnobotany of district Udhampur (J&K) India-A Part of NW Himalaya. *Journal of Plant Development Sciences*, **14**(12):971-986.

Google Scholar

Tomar, A. and Singh, H. (2006). Weed flora of Baghpat district, (U.P.) India. *Plant Archives,* **6** (1): 151-155.

Google Scholar

Tomar, A. and Singh, H. (2006). Ethnomedicinal uses of some weed plants from Baghpat district (U.P.), India. *Plant Archives,* **6** (2): 691-693.

Google Scholar

Tomar, A. (2014). Ethnomedicinal uses and Socio-Economic importance of family Amaranthaceae in Uttar Pradesh. *Journal of Non-Timber Forest Products,* **21** (3):193-196.

Google Scholar

Tomar, A. (2021). Ethnomedicinal uses of some Papilionaceae plants among the rural and common people of Meerut division, Uttar Pradesh, India. *Journal of Non-Timber Forest Products,* **28**(1):28-32.

Google Scholar

Tomar, A. (2023). Ethnomedicinal uses of family Malvaceae plants among the rural and common people of Meerut region (Uttar Pradesh) India. *Indian Forester*, **149** (6):687-690.

Google Scholar

Vardhana, R. (2018). Ethno-religious significance of sacred plants of district Ghaziabad (UP), India.

Google Scholar