

A study on phenology and diversity of weeds occurring in different localities of District Aligarh, Uttar Pradesh

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Abstract

A detailed study of diversity of weed with seasonal variation was conducted during 2017-2022 with special reference to the weed's flora at the different localities in district of Aligarh. Areas selected were fallow land, fields and gardens. Survey was done at selected localities in city *Koil*, Ramghat Road, *Jawan* block, Anup Shahar Road, *Lodha* block, *Karsua* Road, *Iglas* block, Mathura Road, *Dhanipur* Block, Etah road, *Atrauli* block, Ramghat Road in Aligarh district. The total of 84 weed species found at the different localities in two different seasons. These weeds were studied for their morphology and flowering time. Raunkiaer's life form of species was also observed to determine the phytoclimatic conditions. Identification of these weed species was done using standard monographs, handbooks and regional floras and arranged alphabetically in different categories as per their habit and the locality. Ethnomedicinal value of the collected weeds was also discussed.

Key words : Seasonal Distribution, Diversity, Weeds, Biodiversity, Habitat, Habit, Ethnomedicinal significance, Aligarh, Uttar Pradesh.

The word weed is originated from old English word *weod*, which means "grass, herb, weed". Weed is defined as a plant which in any specified geographical area belongs to a population which grows entirely or predominantly in situations markedly distributed by the men¹. However, in agriculture and gardening any unwanted plant which interferes in production of main crop is considered as weed or non-crop plants. Grassland communities including lawns (grassland made

by human beings), fallow land and gardens in human inhabited areas are also subjected to infestation of these non-crop plants. Anyhow these non-crop plants play an important role in ecosystem by protecting and restoring degraded soils or providing habitat to useful microorganisms. Certain weeds are having medicinal, food or fodder value. Most significantly they are adding to botanical biodiversity. Taking these facts in account present study is aimed on finding out seasonal

diversity range of weed species found in different localities in Aligarh district.

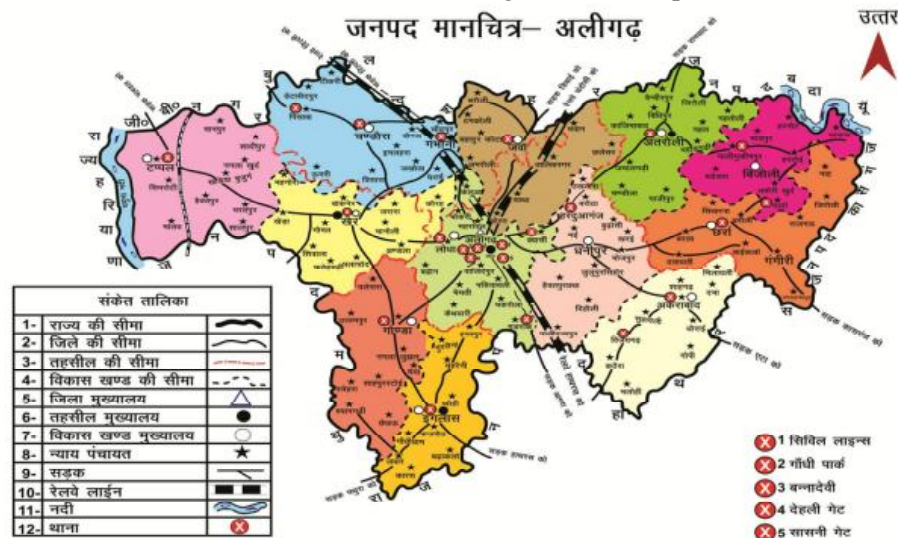
Survey Area :

The Aligarh district is located in the western part of Uttar Pradesh with an area of 3691.5 sq km. The city is located about 140 km southeast of Delhi. The district of Aligarh at map lies between 27°-29'11" north latitude and 77°29'-78°26' east longitude. Aligarh district comprises of Koil, Khair, Atrauli, Iglas and Gabhana tehsils. District Aligarh is administratively divided into 12 blocks namely (i) Tappal (ii) Chandaus (iii) Jawan (iv) Khair (v) Lodha (vi) Dhanipur (vii) Akraabad (viii) Iglas (ix) Gonda (x) Atrauli (xi) Bijouli and (xii) Gangeri.

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which is bounded on the north by Gabhana, on the north west by the Khair on the south by Sasani block, on the south west by Iglas and on the east by Atrauli tehsil. The district Aligarh is bounded by major rivers Ganga and Yamuna, from north east and north west sides, respectively and it is a part of the fertile Ganga, Yamuna 'doab'. (<https://aligarh.kvk4.in/district-profile.html>). Aligarh is included in western sub-tropical zone. The elevation of Aligarh district is 178 meters above the sea level, Aligarh has a hot semi-arid climate. In winter, there is much less rainfall in Aligarh than in summer. According to the Köppen-Geiger classification,⁶ the prevailing climate in this region is categorized as Cwa. The mean yearly temperature observed in Aligarh is recorded to be 24.7 °C. About 816 mm / 32.1 inch of precipitation falls annually. <https://en.climate-data.org/asia/india/uttar-pradesh/aligarh-2851/> Soil of Aligarh is mostly alluvial and area under cultivation is 304000 hectare. <https://agricoop.nic.in/sites/default/files/UP53-Aligarh-28.07.14.pdf>

Koil tehsil form the city of Aligarh



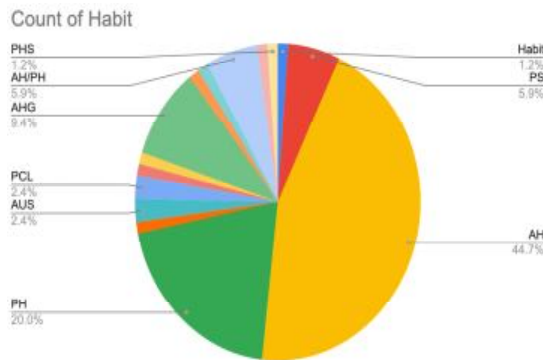
Source : <https://aligarh.nic.in/map-of-district/>

Survey work :

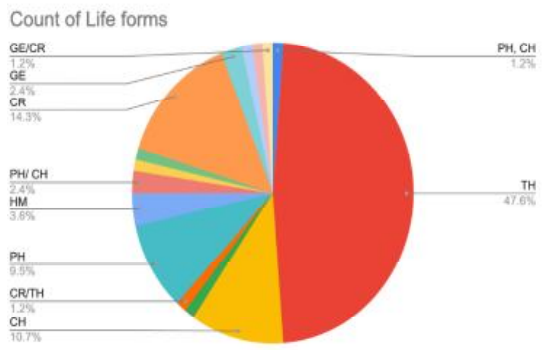
A detailed floristic survey of weeds species was conducted from different blocks of district. Survey was conducted in two different seasons of the year *i.e.*, winter (October-March) and summer (April-September) for five consecutive years *i.e.*, from 2018-2022 in fallow/ waste lands, lawns of various bodies like parks and our own college. Survey area was selected localities at *Kwarsi, Koil*, Aligarh city, Ramghat Road, *Atrauli* Block, Ramghat Road *Jawan* Block, Anupshahar Road, *Lodha* Block Karsua Road, *Dhanipur* block, Etah Road, and *Iglas* block, Mathura Road. Type of localities selected were fallow land, crop fields and lawns. Only herbs and undershrub were included in survey trees and shrubs remain excluded. Identification of these weed species was done using standard monographs, family wise records of Botanical Survey of India, ICAR Handbook of weeds and Plant net application. Habit and flowering season were recorded. The plant specimens have been dried and preserved. Life forms is an important physiognomic feature which indicated its adaptation to surrounding climate forming an

important part of vegetation description. Raunkiaer’s life form classification is the most sought-after classification system to determine the physiognomic status of the species⁷. Keeping this in view the life form category of every species was also observed to get the indication of phytoclimatic status of the survey area.

Results presented on Table I indicated that total 84 weeds species were observed from different parts of district. It can be seen that out of all 84 species maximum number of species were annual herbs (38) followed by perennial herbs (17) and annual grasses. (8) (See Pie chart 1). Interestingly fallow land areas were rich in perennial species while crop field and lawns were dominated by grasses and annual herbs. To study the relationship of these species with environment Raunkiaer’s life forms status was also studied². It can be seen that therophytes life forms characterizes the phyto-climate of the survey area indicating the long dry climate of survey area which agrees with the category of climate under Koppen Geiger classification of the district.⁹



Pic Chart 1.



Pic Chart 2.

Table-1. Description of weeds collected from different localities of Aligarh District

S. No.	Name of Species	Family	English Name/ Hindi Name	Habit	Life forms	Origin
1	<i>Abutilon indicum</i> Linn.	Malvaceae	Indian mellow / Kanghi	PS	PH, CH	Native
2	<i>Acalypha indica</i> Linn.	Amaranthaceae	Indian Copperleaf /Kuppi	AH	TH	Native
3	<i>Achyranthes aspera</i> Linn.	Amaranthaceae	Prickly Chaff/ Latjira	PH	CH	Native
4	<i>Ageratum houstonianum</i> W. Hous	Asteraceae	Floss flower/ Nili Gandhe	AH	TH	Exotic
5	<i>Alternanthera sessilis</i> (L.) R. Br. Ex DC	Amaranthaceae	Sessile Joyweed/ Garundi	PH	HM/CH	Native
6	<i>Amaranthus viridis</i> Linn.	Amaranthaceae	Green Amaranth/ Jungli Chaulai	AH	TH	Exotic
7	<i>Anagallis arvensis</i> Linn.	Primulaceae	Blue pimpernel/ KrishnaNeel	AH	TH	Exotic
8	<i>Argemone mexicana</i> Linn.	Papaveraceae	Mexican Poppy/ Pili Kateli	AH	TH	Exotic
9	<i>Asphodeles tenuifolius</i> Cav.	Liliaceae	Onion Weed	AH	CR/TH	Exotic
10	<i>Basella alba</i> L.	Basellaceae	Malabar Spinach/ Poi	AH	PH	Native
11	<i>Boerhavia diffusa</i> Linn.	Nyctaginaceae	Red Hogweed/ Punarnava	PH	HMS	Native
12	<i>Calotropis procera</i> Alton	Asclepiadaceae	Rubber bush/Aak	PS	PH/CH	Exotic
13	<i>Cannabis sativa</i> Linn.	Cannabiaceae	Hemp/ Bhang Vjjaya	PH or PS	TH	Native
14	<i>Capsella bursa-pastoris</i> Linn.	Brassicaceae	Shepherd's purse Torea Ghaas	AH	TH, PH	Native
15	<i>Cassia tora</i> Linn.	Fabaceae	Sickle pod/ Chakunda	AUS	PH	Exotic
16	<i>Coccinea grandis</i> Linn.	Cucurbitaceae	Ivy Gourd/Kundru	PCL	PH	Native
17	<i>Commelina benghalensis</i> Linn.	Commelinaceae	Bengal dayflower/ Kankavva	AH	CH	Native
18	<i>Convolvulus arvensis</i> Linn.	Convolvulaceae	Bind weed/ Hiranpag	PCR	HM	Exotic
19	<i>Conyza bonariensis</i> Linn.	Asteraceae	Tall fleabane	PH	TH	Exotic
20	<i>Corchorus olitorius</i> Linn.	Tiliaceae	Nalta Jute/Patsan	AH	PH	Native

21	<i>Croton sparsiflorus</i> Morong	Euphorbiaceae	Croton/Ban Tulsi	AH	TH	Native
22	<i>Cuscuta reflexa</i> Roxb.	Convolvulaceae	Dodder/ Amar bel	PH	THP	Exotic
23	<i>Cynodon dactylon</i> Linn. (Pers)	Poaceae	Bermuda Grass Doorva Ghaas	PCRG	CR / HM	Native
24	<i>Cyperus rotundus</i> Linn.	Cyperaceae	Nut Sedge/ Nagarmotha	PH	GE	Native
25	<i>Dactyloctenium</i> <i>aegypticum</i> Linn.	Poaceae	Fourfinger Grass/ Makra ghaas	AHG	GE	Exotic
26	<i>Datura metel</i> Linn.	Solanaceae	Devil's Trumpet/ Dhatura	PS	TH	Exotic
27	<i>Datura innoxia</i> Mill.	Solanaceae	Thorn Apple/Safed Dhatura	PH	TH	Exotic
28	<i>Digeria muricata</i> Linn.	Amaranthaceae	Chanchali	AH	TH	Exotic
29	<i>Digitaria ciliaris</i> (Retz) Koeler	Poaceae	Wild Crabgrass/ Takri	AHG	HM	Native
30	<i>Digitaria sanguinalis</i> (L.) Scop.	Poaceae	Wild Crabgrass/ Jharniya	AHG	TH	Native
31	<i>Echinocloa colona</i> Linn.	Poaceae	Shama Millet/ Sama Rice	AHG	TH	Exotic
32	<i>Eclipta alba</i> Linn.	Asteraceae	False daisy Bhringraj	AH	CH	Native
33	<i>Eichhornia crassipes</i> (Mart) Solms	Pontedariaceae	Water hyacinth/Jal Kumbhi	PH	HY	Exotic
34	<i>Eleusine indica</i> L. (Gaertn)	Poaceae	Indian crowfoot grass/Nandimukhi	AHG	HM	Native
35	<i>Eragrostris minor</i> Host	Poaceae	Little lovegrass/ Bharbhushi	AHG	TH	Exotic
36	<i>Eragrostris tenella</i> Linn. Wight & Arn	Poaceae	Feather Lovegrass/ Bharbhushi	AHG	TH	Native
37	<i>Euphorbia hirta</i> Linn.	Euphorbiaceae	Asthma weed/Bada Dudhi	AH	TH	Exotic
38	<i>Euphorbia prostrata</i> Aiton	Euphorbiaceae	Prostrate Spurge/ Ranglata	AH	TH	Exotic
39	<i>Euphorbia thymifolia</i> Linn.	Euphorbiaceae	Thyme leaf Spurge/ Chhota Dudhi	AH	TH	Exotic
40	<i>Fumaria indica</i> (Haussskn) Pugsley	Papaveraceae	Indian Fumitory Papda	AH	TH	Natives
41	<i>Gnaphalium pupureum</i> Linn.	Asteraceae	Cudweed	AH/BH	TH	Exotic
42	<i>Gomphrena celosioides</i> Mart.	Amaranthaceae	Gomphrena	AH	TH	Exotics
43	<i>Heliotropium indicum</i> Linn.	Boraginaceae	Indian Turnsole/ Hathisur	AH	CH	Native

44	<i>Hydrocotyle vulgaris</i> Linn.	Araliaceae	Pennywort/ Triyashti	PH	CR	Exotic
45	<i>Indigofera glandulosa</i> Wendl. (Barbada)	Fabaceae	Barbada Indigo/ Barbada	PSS	CH	Exotic
46	<i>Lantana camara</i> L.	Verbenaceae	Lantana Kuri	PS	PH	Exotic
47	<i>Launaea procumbens</i> (Roxb.)	Asteraceae	Wild Launea/ Pathari	PH	TH	Native
48	<i>Lepidium didymium</i> Linn.	Brassicaceae	Bitter cress/ Pittapapra	AH/PH	TH	Exotic
49	<i>Linderbergia indica</i> (L.)Vatke	Orobanchaceae	Indian lindenbergia Pili booti	AH/PH	CH	Native
50	<i>Lindernia dubia</i> (L.) Penell	Scrophulariaceae	False pimpernel	AH	TH	Exotic
51	<i>Malva parviflora</i> Linn.	Malvaceae	Egyptian Mallow/ Soncheli	AH	TH	Native
52	<i>Mollugo nudicaulis</i> Lam.	Molluginaceae	Naked Stem Carpet weed	AH	TH	Native
53	<i>Nicotiana plumbaginifolia</i> Viv.	Solanaceae	Tex mex tobacco /van tambaku	AH	PH	Exotic
54	<i>Nicotiana rustica</i> L.	Solanaceae	tobacco/ tambaku	AH	TH	Exotic
55	<i>Oldenlandia corymbosa</i> Linn.	Rubiaceae	Diamond flower/ Parpataki	AH	CH	Native
56	<i>Oxalis corniculata</i> Linn.	Oxalidaceae	Creeping wood sorrel/ Khatti booti	AH/PH	CR	Exotic
57	<i>Oxalis debilis</i> Kun	Oxalidaceae	Pink wood sorrel/ Amrul	PH	CR	Exotic
58	<i>Parthenium hysterophorus</i> Linn.	Asteraceae	Carrot grass/ Gajar Ghas	PUS	CR	Exotic
59	<i>Peristrophe bicalyculata</i> Retz.	Acanthaceae	Panicled Peristrophe/ Atrilal	PH	TH	Natives
60	<i>Phyla nodiflora</i> L. (Greene).	Verbenaceae	Saw Tooth Frog Fruit/ Chhota okra	PH	CR	Exotic
61	<i>Phyllanthus niruri</i> Linn.	Euphorbiaceae	Carry-me-seed/ Bhui-anvla	AH	CH	Native
62	<i>Polygonum plebeium</i> R. Br.	Polygonaceae	Small Knotweed/ Sarpakshi	AH	TH	Native
63	<i>Polygonum convolvulus</i> Linn.	Polygonaceae	Black Bindweed	AH	TH	Exotic
64	<i>Portulaca oleracea</i> Linn.	Portulacaceae	Common purslane/Kulfa	AH/PH	CR	Exotic

65	<i>Portulaca pilosa</i> L.	Portulacaceae	Pink Purslane/ Nabajiya	AH/PH	TH	Exotic
66	<i>Ranunculus scleratus</i> L.	Ranunculaceae	Cursed buttercup/ Jaldhania	AH	TH	Exotic
67	<i>Ricinus communis</i> Linn.	Euphorbiaceae	Castor/Arand	PS	PH	Exotic
68	<i>Rumex crispus</i> Linn.	Polygonaceae	Yellow Dock/ Bharbhooji	AH	CR	Native
69	<i>Saccharum spontaeum</i> L.	Poaceae	Kanns Grass/ Kaans	AH	CR	Native
70	<i>Scoparia dulcis</i> L.	Plantaginaceae	Sweet Broom Weed/ Meethi Patti	AH	CH	Exotic
71	<i>Setaria viridis</i> (L.) P. Beauv.	Poaceae	Green Foxtail gras/Bada Dudhi	AHG	CR	Native
72	<i>Sida cordifolia</i> Linn.	Malvaceae	Heart leaf sida/ Chhota dudhi	AUS	TH	Native
73	<i>Solanum nigrum</i> Linn.	Solanaceae	Black nightshade/ Laghu brahmi	AH	TH	Native
74	<i>Sonchus oleraceus</i> Linn.	Asteraceae	Sow-thistle/Neel	AH	TH	Exotic
75	<i>Spergula arvensis</i> Linn	Caryophyllaceae	Corn spurry/Pathra	AH	TH	Native
76	<i>Stellaria media</i> (L.) Vill	Caryophyllaceae	Chick weed /	AH	TH	Native
77	<i>Tephrosia purpurea</i> L.	Fabaceae	Pink Tephrosia/ Sharponkha	PH	PH	Native
78	<i>Tinospora cordifolia</i> Willd. (Miers)	Menispermaceae	Guduchi /Pili booti	PCL	CR	Native
79	<i>Tribulus terrestris</i> L	Zygophyllaceae	Yellow vine/ Gokharu	AH	TH	Exotic
80	<i>Tridax procumbens</i> L.	Asteraceae	Saw-toothed / Frog Fruit	PH	TH	Exotic
81	<i>Trianthema portulacastrum</i> Linn.	Aizoaceae	Desert purslane/ Gurchanti	AH	TH	Native
82	<i>Trifolium repens</i> Linn.	Fabaceae	Clover/Chandranshi	PH	CR	Native
83	<i>Withania somnifera</i> (L.) Dunal	Solanaceae	Winter Cherry/ Ashwagandha	PH	PH/CH	Native
84	<i>Zephyranthes citrina</i> Baker	Amaryllidaceae	Rain Lily	PHS	GE/CR	Exotic

A= Annual, b = Biennial, P = Perennial, H= Herb, S= Shrub, US = Undershrub, CL= Climber,

CR= Creeper, G= Grass

TH/P=Threophyte/Parasite, CH= Chaemophytes, HM =Hemicryptophytes, GE= Geophyte

PH= Phanerophyte , HY= Hydrophyte

Table-2. Distribution of weeds in different families of dicots and monocots

DICOTS						MONOCOTS		
S. N.	Family	Number	S. N.	Family	Number	S. N.	Family	Number
1	Acanthaceae	01	18	Molluginaceae	01	34	Liliaceae	01
2	Aizoaceaea	01	19	Nyctaginaceae	01	35	Amaryllidaceae	01
3	Amaranthaceae	06	20	Orobanchaceae	01	36	Commelinaceae	01
4	Araliaceae	01	21	Oxalidaceae	02	37	Cyperaceae	01
5	Asclepiadaceae	01	22	Portulacaceae	02	37	Poaceae	10
6	Asteraceae	08	23	Papaveraceae	01	38	Pontedariaceae	01
7	Boraginaceae	01	24	Plantaginaceae	01			
8	Basellaceae	01	25	Polygonaceae	02			
9	Brassicaceae	02	26	Primulaceae	01			
10	Cannabaceae	01	27	Ranunculaceae	01			
11	Caryophyllaceae	02	28	Rubiaceae	01			
12	Convolvulaceae	02	29	Scrophulariaceae	02			
13	Cucurbitaceae	02	30	Solanaceae	06			
14	Euphorbiaceae	06	31	Tilaceae	01			
15	Fabaceae	04	32	Verbenaceae	02			
16	Malvaceae	03	33	Zygophyllaceae	01			
17	Menispermaceae	01						
Total		43			26			15
Grand total =84								

It is clear from Table-2 that all 84 species found were belonging to 72 genera and 38 families of angiosperms. Out of these 33 families with 69 species were of dicots and 5 families with 15 species were of monocots. Therefore, ratio of dicot: monocot is 5:1. Highest number of species was observed in family Poaceae (10), followed by Asteraceae (7). Other dominant families were Amaranthaceae, Solanaceae and Euphorbiaceae.

Season wise distribution of weeds :

Growth of plant is always affected by

environmental conditions affecting the weed diversity. This survey was conducted in two seasons summer and winter corresponding to the crop seasons of Rabi (October to March) and Kharif (April to September). There was a great diversity of weeds in both seasons. (Table-3). It can be observed that growth of plants is highest in summer i.e. post monsoon season where number of species flowering was 36 followed by winter with 32 species are showing flowering stage, whereas only 16 species are showing flowering throughout the year. A good number of alien invasive species was also observed. About 44 weeds were

Table-3. Season wise distribution of weeds based on flowering time

Flowering Season	Name of Species
Summer Weeds (Apr- -Sep)	<i>Acalypha indica</i> , <i>Anagallis arvensis</i> , <i>Basella alba</i> , <i>Boerhaavia diffusa</i> , <i>Cannabis sativus</i> , <i>Cassia tora</i> , <i>Coccinea indica</i> , <i>Commelina benghalensis</i> , <i>Corchorus olitorius</i> , <i>Convolvulus arvensis</i> , <i>Cyperus rotundus</i> , <i>Datura metel</i> , <i>Digitaria ciliaris</i> , <i>Digitaria sanguinalis</i> , <i>Eichhornia crassipes</i> , <i>Eleusine indica</i> , <i>Eragrostis minor</i> , <i>Gnaphalium purpureum</i> , <i>Gomphrena celosioides</i> , <i>Hydrocotyle vulgaris</i> , <i>Indigofera glandulosa</i> , <i>Lindernia dubia</i> , <i>Oldenlandia corymbosa</i> , <i>Oxalis debilis</i> , <i>Phyllanthus niruri</i> , <i>Polygonum convolvulus</i> , <i>Portulaca pilosa</i> , <i>Rumex crispus</i> , <i>Scoparia dulcis</i> , <i>Setaria viridis</i> , <i>Solanum nigrum</i> , <i>Tephrosia purpurea</i> , <i>Tinospora cordifolia</i> , <i>Tridax procumbens</i> , <i>Trifolium repens</i> , <i>Zeyphyranthes citrinus</i> = 36 species
Winter Weeds (Oct-Mar)	<i>Achyranthes aspera</i> , <i>Ageratum haustonianum</i> , <i>Argemone mexicana</i> , <i>Aspholdeles tenuifolius</i> , <i>Capsella -bursa-pastoris</i> , <i>Conyza bonariensis</i> , <i>Croton sparsiflorus</i> , <i>Cuscuta reflexa</i> , <i>Datura innoxia</i> , <i>Eragrostis tenella</i> , <i>Fumaria indica</i> , <i>Launea procumbens</i> , <i>Lepidium didymum</i> , <i>Lindenbergia indica</i> , <i>Malva sylvestris</i> , <i>Mollugo nudicaulis</i> , <i>Nicotiana plumbaginifolia</i> , <i>Nicotiana rustica</i> , <i>Oxalis corniculata</i> , <i>Parthenium hysterophorus</i> , <i>Peristrophe bicalyculata</i> , <i>Polygonum plebeium</i> , <i>Portulaca oleracea</i> , <i>Ranunculus sceleratus</i> , <i>Sachharum spontaneum</i> , <i>Sida cordifolia</i> , <i>Sonchus oleraceus</i> , <i>Spergula arvensis</i> , <i>Stellaria media</i> , <i>Tribulus terrestris</i> , <i>Trianthema portulacastrum</i> , <i>Withania somnifera</i> = 32 Species
Throughout The year	<i>Abutilon indicum</i> , <i>Alternanthera sessilis</i> , <i>Amaranthus viridis</i> , <i>Calotropis procera</i> , <i>Cynodon dactylon</i> , <i>Dactyloctenium aegypticum</i> , <i>Digeria muricata</i> , <i>Echinocloa colona</i> , <i>Eclipta alba</i> , <i>Euphorbia hirta</i> , <i>Euphorbia prostrata</i> , <i>Euphorbia thymifolia</i> , <i>Heliotropium indicum</i> , <i>Lantana camara</i> , <i>Phyla nodiflora</i> , <i>Ricinus communis</i> = 16 Species

exotic and 22 of these are invasive. Exotic invasive species included *Argemone mexicana*, *Datura innoxia*, *Eichhornia crassipes*, *Lantana camara*, *Nicotiana plumbaginifolia*, *Parthenium hysterophorus*, *Oxalis corniculata*, *Sonchus oleraceus* etc. Out of these *E. crassipes*, *Lantana camara* and *P. hysterophorus* become threat to indigenous

flora in wetlands, hills and plains respectively.⁸

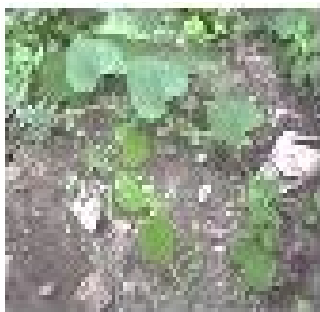
Ethnomedicinal importance of weeds can be observed in Table-4. It is clear that many of the weeds are having medicinal values in different pharmaceutical categories. Out of these some significant are *Boerhaavia diffusa*, *Cannabis sativa*, *Cynodon dactylon*,

Table-4. Details of Ethnomedicinal uses of weeds found in different localities of Aligarh District

<https://cb.imsc.res.in/imppat/basicsearch/therapeutics>, <https://bsi.gov.in/page/en/medicinal-plant-database>

S. No.	Ethnomedicinal properties	Ethnomedicinal
1	Analgesic / Anti Spasmodic	<i>Phyllanthus niruri</i> , <i>Scoparia dulcis</i> , <i>Tribulus terrestris</i> , <i>Trianthema portulacastrum</i> , = 04
2	Antibacterial/ Antifungal	<i>Acalypha indica</i> , <i>Euphorbia thymifolia</i> , <i>Achyranthes aspera</i> =03
3	Anti -Cancer	<i>Tinospora cordifolia</i> , <i>Phyllanthus niruri</i> , <i>Ricinus communis</i> =03
4	Antidiabetic	<i>Coccinea grandis</i> , <i>Cyperus rotundus</i> , <i>Tinospora cordifolia</i> =03
5	Antidiarrheal/ Carminative	<i>Amaranthus viridis</i> , <i>Capsella bursa-pastoris</i> , <i>Cynodon dactylon</i> , <i>Digera muricata</i> , <i>Oxalis corniculata</i> , <i>Tridax procumbens</i> =05
6	Anthelmintic	<i>Calotropis procera</i> , <i>Cannabis sativa</i> , <i>Eclipta alba</i> =03
7	Anti -Inflammatory	<i>Acalypha indica</i> , <i>Amaranthus viridis</i> , <i>Anagallis arvensis</i> , <i>Boerhaavia diffusa</i> , <i>Dactyloctenium aegypticum</i> , <i>Oxalis corniculata</i> , <i>Sida cordifolia</i> , <i>Tephrosia purpurea</i> , =08
8	Antipyretic	<i>Achyranthes aspera</i> , <i>Coccinea indica</i> , <i>Convolvulus arvensis</i> , <i>Cyperus rotundus</i> , <i>Peristrophe bicalyculata</i> , <i>Portulaca oleracea</i> , <i>Solanum nigrum</i> , <i>Tinospora cordifolia</i> , <i>Tribulus terrestris</i> =09
9	Antirheumatic	<i>Boerhaavia diffusa</i> , <i>Phyllanthus niruri</i> , <i>Sida cordifolia</i> =03
10	Astringent / Asthma/ Bronchitis	<i>Dactyloctenium aegypticum</i> , <i>Digera muricata</i> , <i>Euphorbia hirta</i> , <i>Euphorbia thymifolia</i> , <i>Lindenbergia indica</i> , <i>Oldenlandia corymbosa</i> , <i>Polygonum pleibium</i> , <i>Saccharum spontaneum</i> , =08
11	Diuretic/ Laxative/ Purgative	<i>Abutilon indicum</i> , <i>Basella, alba</i> , <i>Commelia benghalensis</i> , <i>Cuscuta reflexa</i> , <i>Echinocloa colona</i> , <i>Fumaria indica</i> , <i>Phyla nodiflora</i> , <i>Ricinus communis</i> , <i>Rumex crispus</i> = 09
12	Gynaecological disorders	<i>Achyranthes aspera</i> , <i>Boerhaavia diffusa</i> , <i>Capsella bursa pastoris</i> =03
13	Hair growth/ skin care	<i>Argemone maxicana</i> , <i>Calotropis procera</i> , <i>Cassia tora</i> , <i>Eclipta alba</i> , <i>Heliotropium indicum</i> =05
14	Hepatoprotective	<i>Fumaria indica</i> , <i>Cassia tora</i> , <i>Eclipta alba</i> , <i>Ricinus communis</i> , <i>Scoparia dulcis</i> , <i>Tridax procumbens</i> =06
15	Hypnotic/Sedative/ Anti-Convulsant/	<i>Cannabis sativus</i> , <i>Datura metel</i> , <i>Tinospora cordifolia</i> . =03
16	Immunity Booster/ Rejuvenator/Anti-Ageing	<i>Boerhaavia diffusa</i> , <i>Cynodon dactylon</i> , <i>Tinospora cordifolia</i> , <i>Withania somnifera</i> =04

Some common weed species in District Aligarh



Tinospora cordifolia
(गिलोय)



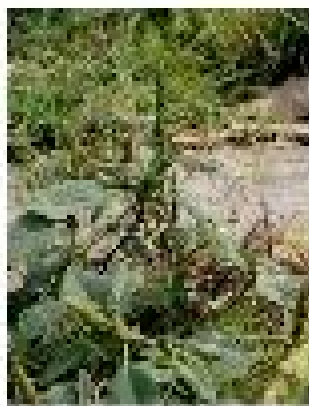
Setaria viridis
(कंगनी)



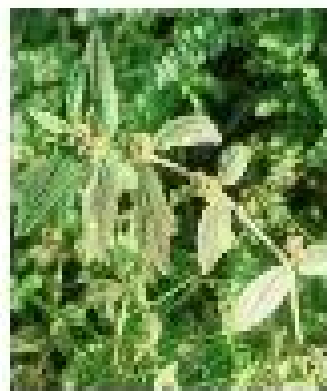
Cannabis sativa
(भांग)



Solanum nigrum
(मकोय)



Amaranthus viridis
(हरी चोलाई)



Euphorbia hirta
(बड़ी दूधी)



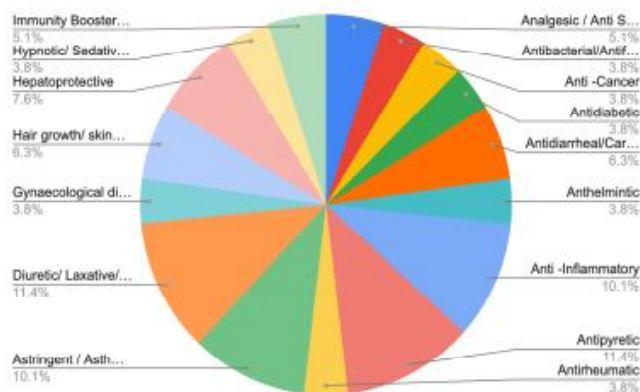
Eclipta alba
(भ्रंग राज)



Phyllanthus niruri
(मुंइ आमला)



Calotropis procera
(आक)



Pic Chart 3.

Different categories of medicinal importance of the weeds found in Aligarh District

Eclipta alba, *Ricinus communis*, *Phyllanthus niruri*, *Tinospora coedifolia*, and *Withania somnifera* are having established medicinal values and part of many mono and polyherbal formulations of various traditional medicinal systems like Ayurveda and Unani^{3,4}.

It can be concluded from the above study that weeds represent a highly specific and biologically important component of their environments. They are indicators of soil health and helpful in finding out phytoclimate of a particular area. Weed biodiversity plays a key role in supporting food webs and ecosystems as they are key organisms for biodiversity maintenance. Moreover, weeds may be potential source of useful drugs if they are evaluated through proper identification, characterization, and biochemical screening.

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