

# ASTERACEOUS FLORA OF TERAI REGION OF EASTERN UTTAR PRADESH

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## ABSTRACT

The systematic identification of 78 species belonging to 51 genera reported from Terai region of Eastern Uttar Pradesh, India. The present paper provides with key to genera, list of plant with their habit, phenology and voucher number of each species.

Key Words: Asteraceae, Terai region, Uttar Pradesh.

## INTRODUCTION

The northern part of the Upper Gangetic Plain adjacent to Nepal is known as Terai region. It extends from north-west district of Gonda to the eastern most district of Kusunagar including district of Balrampur, Maharajganj, Siddarthnagar and a part of Basti, Deoria, Gonda and Gorakhpur. The soil is rich in humus content which has high water retaining capacity. Many wetlands, lakes and ponds are present. The whole area is interspersed with numerous rivers and streams. This area has rich plant diversity and geographically it is a part of great belt of sal forest which extends almost without interruption throughout the region.

The forest nearest to Gorakhpur is Ramgarh and Tilkonia reserves which are 10 km to the east. The Tikri forest range is situated in the north-east region of Gonda.

The reserve forest of Sohalwa wild life sanctuary is situated in Balrampur district comprises of Tulsipur, Bhabhar and Birpur forest ranges. The northern most part of terai region is within a few miles of the foot hills of Himalayas. The whole region is almost flat and the drainage is slow, therefore the large rivers, a large number of ponds, swamps and small depressions, which flows through the forests have generally broad, low-lying valley, which inundate every year during the rains, thus a very large area of low-land is liable to submergence.

Asteraceae family is one of the largest plant families of angiosperm with over 25,000 species and 1600 genera distributed throughout the world. In India, the family is represented by 1052 species under 161 genera<sup>3</sup>. In Terai region of eastern Uttar Pradesh the family Asteraceae was explored by number of workers. The author has collected 78 species and 51 genera from Terai region of eastern Uttar Pradesh. The collected species were identified with publish flora of Duthei. All the species are provided with up to date nomenclature,

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habit, phenology, locality with their voucher numbers (Table 1). All the specimens collected have been deposited in the Duthie

Herbarium, Botany Department, University of Allahabad, Allahabad.

Key to Genera

- 1a. Heads unisexual, flowers in male and female head on same plant.....2
- 1b. Heads bisexual .....3
- 2a. Filaments fused, anther free, pappus absent..... Xanthium
- 2b. Filaments free, anther fused, pappus hairs feathery .....Breea
- 3a. Heads with ligulate or tubular florets .....4
- 3b. Heads with both ligulate and tubular florets .....19
- 4a. Florets ligulate .....5
- 4b. Florets tubular .....9
- 5a. Head axillary, solitary, terminal. Ligule bluish .....Cichorium
- 5b. Head fascicled. Ligule yellow .....6
- 6a. Cypsela distinctly beaked .....Lactuca
- 6b. Cypsela not beaked .....7
- 7a. Cypsela compressed .....Sonchus
- 7b. Cypsela subcompressed, truncate at both the ends.....8
- 8a. Cypsela 4-5 ribbed, inner involucre bracts with scarious margin.....Launaea
- 8b. Cypsela 10-20 ribbed, inner involucre bracts without scarious margin .....Youngia
- 9a. Involucre bracts cottony .....Saussurea
- 9b. Involucre bracts not cottony .....10
- 10a. Leaf margin spinous .....11
- 10b. Leaf margin without spines .....14
- 11a. Heads one flowered, crowded into involucre, globose ball.....Echinops
- 11b. Heads many flowered, separate .....12
- 12a. Involucre bracts leafy and spinous .....Carthamus
- 12b. Involucre bracts not leafy and spinous .....13
- 13a. Leaves white veined, filament fused forming a tube .....Silybum
- 13b. Leaves white tomentose below, filament free .....Cirsium
- 14a. Heads sessile in the axil of inflated auriculate leaf base.....Caesulia
- 14b. Heads peduncled not sunken in auriculate leaf base .....15
- 15a. Leaves opposite .....16
- 15b. Leaves alternate.....17
- 16a. Pappus of 10 or more capillary bristles ..... Eupatorium
- 16b. Pappus of 3-5 scales like ..... Ageratum
- 17a. Head in glomerules, three bracts enclosing four florets..... Elephantopus
- 17b. Head distinct, many bracts enclosing many flower.....18
- 18a. Cypsela 5 ribbed ..... Emilia
- 18b. Cypsela 10 ribbed ..... Vernonia
- 19a. Receptacle flat and densely bristly ..... Amberboa
- 19b. Receptacle naked or pitted .....20



20a. Plants woolly .....	Gnaphalium
20b. Plants not woolly.....	21
21a. Head disciform .....	22
21b. Head radiate .....	32
22a. Pappus present .....	23
22b. Pappus absent .....	27
23a. Anther base tailed .....	24
23b. Anther base obtuse .....	25
24a. Involucre bracts broad and scaly. Cypsela cylindrical. Pappus strigose, bristly hairy.....	Pluchea
24b. Involucre bracts narrow and scaly. Cypsela oblong. Pappus slender, hairs barbellate.....	Blumea
25a. Pappus forming short tube with fimbriate or cupular mouth .....	Grangea
25b. Pappus not tubular .....	26
26a. Pappus hairs 1-seriate, all equal .....	Conyza
26b. Pappus hairs 2-seriate, outer few and short .....	Erigeron
27a. Stoloniferous, corolla of outer florets absent .....	Soliva
27b. Not stoloniferous, corolla of outer florets present ....	28
28a. Head sessile, leaves toothed or entire .....	Centipeda
28b. Head peduncled, leaves pinnatisect .....	29
29a. Receptacle with contracted base and naked concave top.....	Cyathocline
29b. Receptacle naked, flat or convex.....	30
30a. Anther base obtuse .....	Cotula
30b. Anther base oblong .....	31
31a. Head aggregated into globose or compact cylindrical mass .....	Sphaeranthus
31b. Head recemose or paniced .....	Artemisia
32a. Head usually in scorpioid panicles .....	Solidago
32b. Head not in scorpioid panicles .....	33
33a. Receptacle palaeaceous .....	34
33b. Receptacle epalaeaceous .....	48
34a. Heads sessile, style in disc floret undivided. Achene covered by hooked spines .....	Acanthospermum
34b. Heads pendunculate, style in disc flower divided. Achene not covered by hooked spines .....	35
35a. Cypsela of disc florets bearing pappus of bristles or scales .....	36
35b. Cypsela of disc florets without pappus or bearing minute horns or scales.....	47
36a. Pappus in the form of flattened scales.....	Galinsoga
36b. Pappus in the form of bristles or awns .....	37
37a. Pappus Bristles retrorsely barbed .....	38
37b. Pappus Bristles without retrorsely barbed.....	39
38a. Small herbs, Leaves basal, rosulate, style branches with long villous appendages, pappus bristles divergent .....	Glossogyne
38b. Medium sized or tall herbs, Leaves mostly cauline, style branches subulate, pappus bristles erect .....	Bidens

39a. Ray flowers white or cream coloured .....	40
39b. Ray flowers yellow .....	41
40a. Decumbent herb, receptacular paleae linear-lanceolate, pappus bristles numerous, plumose.....	Tridax
40b. Erect herb, Receptacular paleae oblong, fimbriate at apex, pappus bristles 2-3, smooth .....	Blainvillea
41a. Heads sessile .....	43
42b. Heads pedunculate .....	46
43a. Cypsela dorsally compressed, pappus 2, robust.....	Synedrella
43b. Cypsela laterally compressed, pappus 1-2, weak or absent .....	44
44a. Aquatic herb, pappus absent .....	Enhydra
44b. Terrestrial herb, pappus of 2 short scale, caducous .....	45
45a. Receptacle conical, Cypsela ciliate .....	Spilanthes
45b. Receptacle flat or convex, Cypsela eciliate.....	Wedelia
46a. Corolla of disc florets 5-lobed, anther 5, pappus absent.....	Chrysanthellum
46b. Corolla of disc florets 4-lobed, anther 4, pappus of 2 smooth stiff awns .....	Glossocardia
47a. Cypsela 4-5 ribbed and obconical.....	Anthemis
47b. Cypsela not ribbed and oblong .....	Eclipta
48a. Pappus hairy, involucre calyculate.....	Senecio
48b. Pappus scale like, involucre ecalyculate .....	49
49a. Leaves deeply lobed .....	50
49b. Leaves simple .....	51
50a. Cypsela obcompressed, with 2 broad reflexed pappus awn.....	Parthenium
50b. Cypsela ribbed, pappus absent or reduced .....	Matricaria
51a. Pappus 1-seriate and many .....	Pentanema
51b. Pappus in 2-rows, outer pappus forming cup, inner hairy like .....	Pulicaria

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Table1: Asteraceous plants of Terai region of Eastern Uttar Pradesh, India.

S/N	Botanical Name	Habit	Locality & Voucher Specimen	Phenology
1.	<i>Acanthospermum hispidum</i> DC.	Herb	Gonda, 19195; Gorakhpur, 19322	November-April
2.	<i>Ageratum conyzoides</i> L.	Herb	Gonda, 19023; Balrampur, 19048; Gorakhpur, 19040	Throughout year
3.	<i>Ageratum haustinianum</i> Mill.	Herb	Gonda, 19023; Gorakhpur, 19452	Throughout year
4.	<i>Amberboa ramosa</i> (Roxb.) Jafri	Herb,	Gonda, 19104; Gorakhpur, 19411	January-April
5.	<i>Anthemis cotula</i> L.	Herb,	Kushinagar, 19461	April-June
6.	<i>Artemisia japonica</i> Thunb.	Herb,	Maharajganj, 19440; Gorakhpur, 19302; Khushinagar, 19115	July-January
7.	<i>Bidens pilosa</i> L.	Herb	Gonda, 19239; Balrampur, 19312; Maharajganj, 19311; Gorakhpur, 19438; Khushinagar, 19439	November-January
8.	<i>Blainvillea acmella</i> (L.) Philipson	Herb	Gonda, 19392; Balrampur, 19330; Gorakhpur, 19325; Khushinagar, 19340	September-January



9.	<i>Blumea fistulosa</i> (Roxb.) Kurz.	Herb	Gonda, 19165	December-May
10.	<i>Blumea laciniata</i> (Roxb.) DC.	Herb	Maharajganj, 19364; Gorakhpur, 19087	March-January
11.	<i>Blumea lacera</i> (Burm. f.) DC.	Herb	Gonda, 19164	February-June
12.	<i>Blumea membranacea</i> DC	Herb	Balrampur, 19429	January-May
13.	<i>Blumea mollis</i> (D.Don) Merr.	Herb	Gorakhpur, 19373; Kushinagar, 19374	January-November
14.	<i>Breca arvensis</i> (L.) Less	Herb	Kushinagar, 19347	January-May
15.	<i>Caesulia axillaris</i> Roxb.	Herb	Gonda, 19143; Balrampur, 19377; Maharajganj, 19353; Gorakhpur, 19240; Khushinagar, 19140	July-January
16.	<i>Carthamus tinctorius</i> L.	Herb	Gorakhpur, 19352; Kushinagar, 19139	February-April
17.	<i>Carthamus oxyacantha</i> M. Bieb.	Herb	Gorakhpur, 440	February-May
18.	<i>Centipeda minima</i> (L.) A. Br. & Aschers.	Herb	Gorakhpur, 19244	December-March
19.	<i>Chrysanthellum americanum</i> (L.) Vatke	Herb	Gonda, 19272; Gorakhpur, 19243; Khushinagar, 19271	September-January
20.	<i>Cichorium intybus</i> L.	Herb	Gonda, 19194; Gorakhpur, 19281	March-September
21.	<i>Cirsium verutum</i> (D.Don) Spreng.	Herb	Gonda, 19433; Gorakhpur, 19071; Khushinagar, 19070	September-January
22.	<i>Conyza aegyptica</i> (L.) W. Ait.	Herb	Gorakhpur, 19441	September-May
23.	<i>Conyza bonariensis</i> (L.) Cronq.	Herb	Maharajganj, 19098; Kushinagar, 19264	September-February
24.	<i>Conyza canadensis</i> (L.) Cronq.	Herb	Balrampur, 19322; Gorakhpur, 19161	August-February
25.	<i>Conyza japonica</i> (Thunb.) Less. ex Less	Herb	Gonda, 19445; Balrampur, 19265; Gorakhpur, 19450; Khushinagar, 19085	April-July
26.	<i>Conyza stricta</i> Willd.	Herb	Gonda, 19430; Gorakhpur, 19446; Khushinagar, 19432	October-January
27.	<i>Cotula anthemoides</i> L.	Herb	Gonda, 19068; Gorakhpur, 19247; Maharajganj, 19249; Khushinagar, 19245	December-April
28.	<i>Cotula hemispherica</i> (Roxb.) Wall. ex C. B. Clarke	Herb	Gonda, 19067; Balrampur, 19065; Gorakhpur, 19248; Khushinagar, 19246	December-April



29.	<i>Cyathocline purpurea</i> (Buch.-Ham. ex D. Don) O. Kuntze	Herb	Gonda, 19205; Maharajganj, 19215; Khushinagar, 19375	December-March
30.	<i>Echinops echinatus</i> Roxb.	Herb	Gonda, 19213	January-April
31.	<i>Eclipta prostrata</i> (L.) L.	Herb	Gonda, 19200; Balrampur, 19002	Throughout year
32.	<i>Elephantopus scaber</i> L.	Herb	Gonda, 19334; Gorakhpur, 19304; Khushinagar, 19263	September-November
33.	<i>Emilia sonchifolia</i> (L.) DC.	Herb	Gonda, 19046; Maharajganj, 19351	July-October
34.	<i>Enhydra fluctuans</i> Lour.	Herb	Gorakhpur, 19227; Khushinagar, 19236	January-April
35.	<i>Erigeron sublyratus</i> DC.	Herb	Kushinagar, 19114	April-July
36.	<i>Eupatorium adenophorum</i> Spreng.	Herb	Gonda, 19315; Gorakhpur, 19235; Khushinagar, 19116	January-June
37.	<i>Eupatorium odoratum</i> L.	Herb	Gorakhpur, 19228; Khushinagar, 19237	November-May
38.	<i>Eupatorium riparium</i> Regel	Herb	Gorakhpur, 19278; Khushinagar, 19117	January-May
39.	<i>Galinsoga quadriradiata</i> Ruiz & Pavon	Herb	Gonda, 19314; Gorakhpur, 19150; Khushinagar, 19465; Maharajganj 19277	December-May
40.	<i>Glossocardia bosvallea</i> (L. f.) DC.	Herb	Basti, 19241	August-October
41.	<i>Glossogyne bidens</i> (Retz.) Alston	Herb	Gorakhpur, 35	September-November
42.	<i>Gnaphalium luteo-album</i> subsp. affine (D. Don) Koster	Herb	Gonda, 19381; Basti, 19382; Maharajganj, 19172; Khushinagar, 19170	January-May
43.	<i>Gnaphalium luteo-album</i> subsp. luteo-album L.	Herb	Gorakhpur, 19385, Basti, 19398	January-May
44.	<i>Gnaphalium pennsylvanicum</i> Willd.	Herb	Balrampur, 19182, Basti, 19034; Kushinagar, 19183	December-May
45.	<i>Gnaphalium polycaulon</i> Pers.	Herb	Gonda, 19189, Basti, 19036, Gorakhpur, 19178	November-December
46.	<i>Gnaphalium pulvinatum</i> Delile	Herb	Balrampur, 19177; Maharajganj, 19253; Khushinagar, 19185	December-May
47.	<i>Grangea maderaspatana</i> (L.) Poir.	Herb	Maharajganj, 19254; Khushinagar, 19179	December-May
48.	<i>Lactuca sativa</i> L.	Herb	Gorakhpur, 732	February-May
49.	<i>Launaea asplenifolia</i> (Willd.)	Herb	Gonda, 19107; Basti, 19012; Gorakhp	March-October



	Hook. f		ur, 19072	
50.	<i>Launaea procumbens</i> (Roxb.) Ramayya & Rajagopal	Herb	Basti, 19003; Maharajganj, 19166	March- September
51.	<i>Matricaria recutita</i> L.	Herb	Kushinagar, 19302	August- september
52.	<i>Parthenium hysterophorus</i> L.	Herb	Balrampur, 19372	May-March
53.	<i>Pentanema indicum</i> (L.) Ling	Herb	Gonda, 19371;;Gorakhpur, 19300	November- March
54.	<i>Pluchea lanceolata</i> (DC.) C. B. Clarke	Herb	Maharajganj, 19198	February-June
55.	<i>Pulicaria angustifolia</i> DC.	Herb	Gonda, 19273;Basti, 19146; Gorakhpur, 19343	November-May
56.	<i>Pulicaria crista</i> (Forsskal) Benth. & Hook. f.	Herb	Basti, 19017	November-May
57.	<i>Pulicaria foliolosa</i> DC.	Herb	Maharajganj, 19148	February-May
58.	<i>Saussurea heteromella</i> (F. Don) Hand.-Mazz.	Herb	Gorakhpur, 769	February-May
59.	<i>Senecio linifolia</i> (DC.) C. B. Clarke	Herb	Gorakhpur, 888	January-July
60.	<i>Silybum marianum</i> (L.) Gaertn.	Herb	Gorakhpur, 19138;Khushinagar, 19209	May-September
61.	<i>Solidago canadensis</i> L.	Herb	Gorakhpur, 1196	October- January
62.	<i>Soliva anthemifolia</i> (Juss.) R. Br.	Herb	Gonda, 19207;Gorakhpur, 19270; Maharajganj, 19309	December-April
63.	<i>Sonchus asper</i> (L.) Hill.	Herb	Gonda, 19260; Basti, 19103	October- February
64.	<i>Sonchus brachyotus</i> (Juss.) R.Br	Herb	Gonda, 19009, Basti, 19005; Balrampur, 19259	October- February
65.	<i>Sonchus oleraceus</i> L.	Herb	Gonda, 19262; Basti, 19336	October- February
66.	<i>Sphaeranthus senegalensis</i> DC.	Herb	Gonda, 19282	December-April
67.	<i>Spilanthus ciliata</i> H. B. K.	Herb	Maharajganj, 19414	October-March
68.	<i>Spilanthus oleracea</i> L.	Herb	Gonda, 19413;Gorakhpur, 19410;Kh ushinagar, 19120	October- February
69.	<i>Spilanthus radicans</i> Jacq.	Herb	Maharajganj, 19109 Gorakhpur, 19075; Khushinagar, 19412	October- January





70.	<i>Synedrella vialis</i> (Less.) A. Gray	Herb	Gorakhpur, 19118; Khushinagar, 19220	August-December
71.	<i>Tridax procumbens</i> L.	Herb	Gorakhpur, 19422	Throughout year
72.	<i>Vernonia cinerea</i> (L.) Less.	Herb	Gonda, 19044; Basti, 19006; Kushinagar 19224	July-February
73.	<i>Vernonia divergens</i> (Roxb.) Benth.	Shrub	Gorakhpur, 19112; Khushinagar, 19221	December-January
74.	<i>Vernonia elliptica</i> DC.	Climber	Gonda, 19307; Maharajganj, 19423	January-April
75.	<i>Wedelia chinensis</i> (Osbeck.) Merr.	Herb	Maharajganj, 19407; Gorakhpur, 19426; Khushinagar, 19291	December-April
76.	<i>Wedelia trilobata</i> (L.) A. S. Hitchc.	Herb	Gorakhpur, 19408; Kushinagar, 19234	September-February
77.	<i>Xanthium indicum</i> Koenig in Roxb.	Herb	Kushinagar, 19409; Gorakhpur, 19023	March-May
78.	<i>Youngia japonica</i> (L.) DC.	Herb	Gorakhpur, 760	February-May

