

Floristic Diversity of the Family Asteraceae of Khanpur Block, Samastipur, Bihar

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Abstract: *Asteraceae, one of the most abundant families of flowering plants in India, is represented by 177 genera and 1050 species. Bihar is represented by 53 genera and 84 species. The Khanpur block of Samastipur, Bihar, was surveyed for the collection of species from July 2024, to January 2026. There were 26 genera and 31 species of this family collected and preserved from different localities of the block.*

Keywords: Asteraceae, Floristic Diversity, Khanpur, Samastipur, Bihar, India

1. Introduction

The Asteraceae (or Composite) family, also known as the daisy, sunflower, or thistle family, is one of the largest families of flowering plants, with more than 1600 genera and 25000 species (Funk et al., 2005) globally, inhabiting almost every environment and continent except Antarctica. 177 genera and 1,052 species represent the family in India. In India, this family occupies the fourth position next to Poaceae, Orchidaceae, and Fabaceae (Mitra & Mukherjee, 2007). The Asteraceae taxa can assume various life forms, including annual, biennial, or perennial herbs and shrubs. The Asteraceae members are having specialized inflorescence, the capitulum containing three kinds of florets—ray, disc, and neutral—distributed in either homogenous or heterogenous inflorescence. The presence of pappus/awns/scales, the syngenesious condition, achene or cypsela fruits, and ex-albuminous seeds make this family unique.

The majority of species grow in open areas along roadsides, agricultural fields, wastelands, and forest areas as annual or perennial weeds. Members of this family are critical to the farmers for cooking oil, vegetables, and ornamental plants.

The Khanpur block of the Samastipur district, with approximately 143 sq. km in area, has 59 villages having a population of more than 2 lakh (2011 Census). The Khanpur block is surrounded by the following blocks: Waris Nagar, Shivajinagar, Rosera, Bibhutipur, Ujyarpur, and Samastipur. This block was not explored for the members of the family Asteraceae in the past. Therefore, it is needed to explore the block for the richness of the diversity of the family Asteraceae.

2. Material and Methodology

The Khanpur block was divided, for the study, into 8 zones, each having 6 to 7 villages, so as to visit and collect specimens regularly on fixed intervals. Some of the villages of the block Khanpur, like Buzurgdoar, Nathuddwar, Patpara, Bachauli, Sobhan, Khanpur North, Amsor, Khanpur South, Tedha Milki, Bishnupur Sonsa, Masina, etc., were explored extensively for the collection of data regarding the types of species and the genera of the family Asteraceae, number of villages, and their name and location (latitude and longitude). Photographs of plants were taken with geotags so as to know the exact location (latitude and longitude) of ponds, roadside areas, wetlands, and puddles. Repeated field surveys were conducted in different seasons. Plant specimens were collected during flowering and fruiting stages and were preserved and pasted on the mounting sheet of required size for further studies. The collected plants were identified using standard flora and published checklists (Hains, 1921-25., Hajra, 1995., Hooker, 1881., Bhattacharya, 1098., Singh, 1986.).

The present work was initiated in July 2024 to January 2026. The nomenclatures were updated through authentic online databases: World Checklist of Selected Plant Families (<https://wccsp.science.key.org/>) & International Plants Name Index (<http://www.ipni.org/>). The Bentham & Hooker system of classification was followed, & a diagnostic generic & species key has also been framed for easy identification of taxa.

Table 1: Floral Diversity of Asteraceae with habit, flowering time, flower colour and status

SN	Scientific name	Vernacular Name	Habit	Flowering time	Flower colour	Status
1	<i>Ageratum conyzoides</i> L.		Herb	Jan- Dec	Purple white	WE
2	<i>Ageratum houstonianum</i> Mill.	Neela mink	Herb	Nov - Mar	Purple	WE
3	<i>Blumea lacera</i> (Burm.f.) DC.	Kukuraundha	Herb	Jan - Mar	Yellow	RWE
4	<i>Blumea obliqua</i> L.	Kukuraundha	Herb	Feb - Mar	Yellow	RWE
5	<i>Blumea oxyodonta</i> DC.	Spiny leaved Blumea	Herb	Feb- Apr	Yellow	RWE
6	<i>Carthamus tinctorius</i> L.	Kusum	Herb	Feb- Apr	Yellow	CP
7	<i>Chrysanthemum indicum</i> L.	Guldaudi	Herb	Aug - Dec	Multi colour	OP
8	<i>Cirsium arvense</i> (L.) Scop.	Field thistle	Herb	May - Jul	Purple	RWE

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9	<i>Cosmos sulphureus</i> Cav.	Yellow cosmos	Herb	Apr - Dec	Yellow	OP
10	<i>Cyanthillium cinereum</i> (L.) H. Rob. (L.) Less	Sahadevi	Herb	Jan - Dec	Purplish pink	RWE
11	<i>Dahlia pinnata</i> Cav.	Dalia	Herb	Oct- Apr	Deep purple	OP
12	<i>Eclipta prostrata</i> (L.) L.	Bhringraj	Herb	Jan - Dec	White	RWE
13	<i>Erigeron bonariensis</i> L.		Herb	Mar- Apr	Whitish	RWE
14	<i>Erigeron sublyratus</i> Roxb. ex DC.		Herb	Mar- Apr	Light Purple	RWE
15	<i>Galinsoga parviflora</i> Cav.		Herb	Jan-Apr	White	WE
16	<i>Gamochaeta purpurea</i> (L.) Cabrera	Rui ghash	Herb	Jan- Mar	Yellowish White	RWE
17	<i>Gazania rigens</i> (L.) Gaertn.	Treasure flower	Herb	Nov - Mar	Multi colour	OP
18	<i>Gerbera jamesonii</i> Adlam	Jerbera phool	Herb	Nov - Apr	Multi colour	OP
19	<i>Gymnanthemum amygdalinum</i> (Delile) Sch. Bip.	Insulin plant	Shrub	Mar- Apr	White	OP
20	<i>Helianthus annuus</i> L.	Suraj Mukhi	Herb	Jan - Dec	Yellowish	OP, CP
21	<i>Helianthus argophyllus</i> Torr. & A. Gray	Surajmukhi	Herb	Feb- Apr	Yellow	OP
22	<i>Launaea asplenifolia</i> (Willd.) Hook. f.	Tikchana	Herb	Jan - Apr	Bright yellow	RWE
23	<i>Mikania micrantha</i> Kunth	Assam lata	Climber	Feb- Apr	White	RWE
24	<i>Parthenium hysterophorus</i> L.	Carrot grass	Herb	Jul - Mar	Creamy white	RWE
25	<i>Sonchus asper</i> L.	Dudhi	Herb	Mar- Apr	Yellow	RWE
26	<i>Sphagneticola trilobata</i> (L.) Pruski	Pila Bhangra	Herb	Feb- May	Yellow	OP, RWE
27	<i>Tagetes erecta</i> L.	Gendaphul	Herb	Jan - Dec	Yellow	OP
28	<i>Tithonia diversifolia</i> (Hemsl.) A. Gray	Tree surajmukhi	Shrub	Feb-Apr	Yellow	OP
29	<i>Tridax procumbens</i> L.	Kanphuli	Herb	Jan-Apr	Whitish Yellow	RWE
30	<i>Xanthium strumarium</i> L.	Chota gokhru	Herb	Mar - may	White or green	RWE
31	<i>Zinnia peruviana</i> (L.) L.	Zinnia	Herb	Jun - Oct	Multi colour	OP

Abbreviation: Months: Jan = January, Feb = February, Mar = March, Apr = April, May = May, Jun = June, Jul = July, Aug = August, Sep = September, Oct = October, Nov = November, Dec = December: CP=Crop plant, WE=Weed, OP= Ornamental plant, RWE= Road side weed

3. Results and Discussion

The present study investigated the family Asteraceae growing throughout the Khanpur block of Samastipur district and was carried out from July 2024 to January 2026. A total of 31 species of 26 genera were collected and identified, representing a significant component of floristic composition of the study area. The genera found in the area are *Ageratum*, *Blumea*, *Carthamus*, *Chrysanthemum*, *Cirsium*, *Cosmos*, *Cyanthillium*, *Dahlia*, *Eclipta*, *Erigeron*, *Galinsoga*, *Gamochaeta*, *Gazania*, *Gerbera*, *Gymnanthemum*, *Helianthus*, *Launaea*, *Mikania*, *Parthenium*, *Sonchus*, *Sphagneticola*, *Tagetes*, *Tithonia*, *Tridax*, *Xanthium*, and *Zinnia*. The present study documents 31 species of the family Asteraceae, representing a significant component of the floristic composition of the study area. The dominance of Asteraceae reflects its well-known adaptability to a wide range of ecological conditions, particularly in tropical and subtropical regions.

The analysis of habit reveals a clear dominance of herbaceous taxa (28 species; ~93%), while shrubs are represented by only two species (*Gymnanthemum amygdalinum* and *Tithonia diversifolia*) and climbers by a single species (*Mikania micrantha*). This predominance of herbs indicates that the study area is largely characterized by open, disturbed, and seasonal habitats, which favour fast-growing, short-lived species.

The family exhibits considerable variation in flower colour, with yellow being the most dominant, followed by white, purple, and multicoloured forms. Species such as *Cosmos sulphureus*, *Helianthus annuus*, and *Tagetes erecta* contribute to the dominance of yellow-flowered taxa. This trend is consistent with the general pattern in Asteraceae, where yellow flowers are highly effective in attracting insect pollinators, especially bees and butterflies.

Ornamental species such as *Dahlia pinnata*, *Zinnia peruviana*, and *Gerbera jamesonii* display multicoloured inflorescences, reflecting artificial selection and horticultural importance.

The flowering pattern shows that a majority of species bloom during the period January to April, indicating a peak in winter to early summer. Several species, including *Ageratum conyzoides*, *Eclipta prostrata*, *Helianthus annuus*, and *Tagetes erecta*, exhibit year-round flowering, demonstrating high ecological adaptability.

The categorization of species into Weed (WE), Ruderal Elements (RUE), and Ornamental Plants (OP) provides important ecological insights as weeds and ruderal are most dominant indicating a high degree of habitat disturbance and anthropogenic influence. Weedy or invasive species such as *Parthenium hysterophorus*, *Ageratum conyzoides*, and *Mikania micrantha* indicate their allelopathic effects, high reproductive capacity, and rapid spread, which can negatively impact native biodiversity and agricultural productivity.

The abundance of such species suggests that the study area is subject to continuous disturbance, including agricultural activities, urbanization, and grazing pressure.

The Asteraceae flora of the study area is dominated by herbaceous, ruderal species adapted to disturbed habitats, with peak flowering during winter and early summer. The high proportion of invasive and weedy taxa highlights anthropogenic pressures, whereas ornamental and economically important species underscore the socio-economic relevance of the family.

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