

Adventive Species Belong to The *Asteraceae* Juss Family, Which Were Distributed in Andijan City Urban Flora

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Abstract. In this study, data was given about the Adventive species belonging to the *Asteraceae* Juss family, which were distributed in Andijan city Urban flora. During the conducted field research, were identified 42 species belonging to the *Asteraceae* family, which is considered a polymorphic family, and 6 of them are adventive plants.

Keywords. Andijan city, urban flora, polymorphic family, adventive species, meso xerophyte, mesophyte.

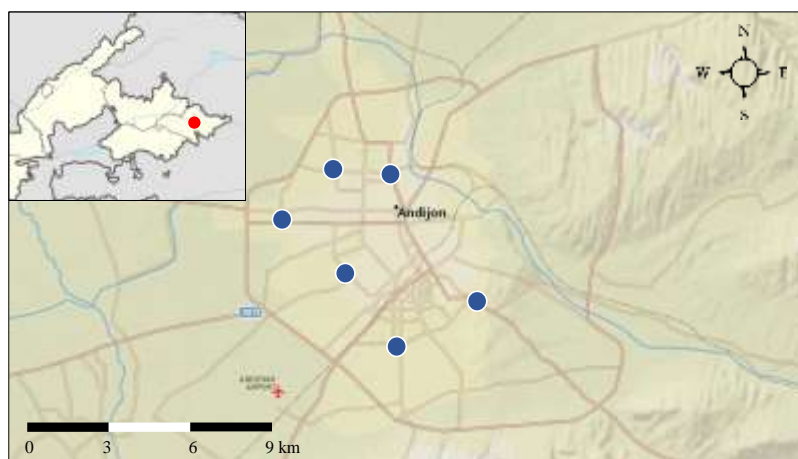
Introduction

Presently, the development in the process of urbanization around the world defines the need to improve attention to the environment, especially to the world of plants. Today's urbanization, industrialization, and overpopulation necessarily require not only human health but as well as safety of natural vegetation cover, and plants that are part of the urban ecosystem, as well as ongoing monitoring.

Andijan city is one of the most densely populated and industrialized regions of Uzbekistan. The favorable climatic conditions of this region, as well as the ideal amount of soil and water supply, have been significant factors in the growth, dissemination, development, and adaption of many local plants since ancient periods. Historical sources mentioned that, the significant distribution of medicinal herbs and healing plants on the Andijan city territory [Noraliyeva, 2022]. Over the years, the increasing population, as well as the increase in their needs, led to the expansion and industrialization of the city. A transformation process in the world of plants was subsequently caused by the area developing as a city. According to this perspective, the ecological assessment of the state of the plant cover, the study of the floristic composition of the urban flora of Andijan city with modern research methods, and their sustainable usage have a special role in the preservation of biological variety.

Materials and methods

In this work used generally recognized techniques and floristic research techniques. Field research was observed throughout the city of Andijan between the years 2019-2022, in different phases of the growing season. A field investigation was observed throughout the city of Andijan between the years 2019-2022, in different phases of the growing season. Plant samples were collected by routed and stationary methods (Map 1).



Map (1): Research area: Andijan city; ● – Samples collected destinations.

The majority of the plant samples were collected from or near industrial facilities, railways, highways, municipal landfills, cemeteries, parks, child playgrounds, residential areas, ditches, kale yards, and suburbs. Preserved natural areas in suburbs - hills, and irrigated lands around the city were also included in the study area. scientific names of families, genus, species, and primary sources of references were cited by *International Plants Names Index* (www.ipni.org). modern species names were cited by *The World Plants Catalog of Life*, *International Plants Names Index* (www.ipni.org), *The Plant List* (www.theplantlist.com). Authorship of taxons was done based on the *Authors of Plant Names* manual. The Google Earth coordinates of the places of growth of the species have been placed. The locations of the species' growth have been noted with Google Earth coordinates.

Results and discussion

The appearance of adventive species reflects, modern properties of flora formation caused by human factor, it is calling both scientific and experiential interest. Adventive species play a considerable role in the formation of the vegetation cover of the city. At the same, the stronger and longer the effect, the greater its role in vegetation cover, and it can serve as one of the indicators of flora synanthropization (Shanmak, 2019). The time and method of introduction, the level of naturalization in natural communities in sources, their life strategies and primary growth areas, as well as the analysis of adventive alien species, allow us to predict the direction of regional flora dynamics (Shanmak, 2019). Adequate studies have been carried out on plants found in the Fergana Valley (Noraliyeva et al., 2014; Noraliyeva, 2022; Ibrohimova, 2020). However, urban flora information is not enough in these sources. During the field research in the conditions of the city of Andijan, alien plant species were included in the adventive plants, which are not characteristic of the local flora, whose appearance is directly or indirectly related to human activity, and which are not related to the natural process of phylogenesis.

The *Asteraceae* family is known as a polymorphic family all over the world. During the conducted field research, were identified 42 species belonging to the *Asteraceae* family, which is considered a polymorphic family, and 6 of them are adventive plants (Tab.1).

Table (1): *Asteraceae* Juss distributed in the urban flora of Andijan city. distribution of adventive species belonging to the family

Species name	life form	ecological group	Distributed areas	
			Trough Uzbekistan	In Andijan city
<i>Conyza canadense</i> (L.)	annual plant	Mesoxerophyte	Syrdarya, Amudarya, Zarafshan river valleys, Ustyurt plateau, Fergana valley, Tien-Shan, Pamiro-Alai.	Uzbekistan Avenue, Obod street, Bukhara street, Farobi street, Chinabad street, Istiklal street.
<i>Galinsoga parviflora</i> Cav	annual plant	Mesophyte	Tashkent region, Khojand (Fergana valley).	Anorzor Street, Osh Street, Mirpo'stin Street, Kulol Street, Mangulik Street, Rejapov Street, Uzun Street, Naiman Street.
<i>Helianthus tuberosus</i> L.	elecam pane	Mesoxerophyte	Fergana valley	Sarpo Street, Hokimova Street, Shahidtepa Street.
<i>Matricaria discoidea</i> DC.	annual plant	Mesophyte	Fergana valley	Soy Street, Anisiy Street, Asad Ismatov Street, Yunalish Street.

<i>Xanthium spinosum</i> L.	annual plant	Mesoxerophyte	All over Uzbekistan .	Nurabad street, A. Kadiri Street, Kurama Street, Yangi Hayat Street, Ziya Street, Sanoat Street, Musa Jalil Street, Okhunboboev Street, Pakhtakor Street, Shodlik Street, Ermatova Street, Uzun Street, Yorboshi Street
<i>Sonchus oleraceus</i> L.	annual plant	Mesophyte	All over Uzbekistan	Babosadin Street, Uzun Street, University Street, Babur Avenue, A.Navoi Park, Baynalminal Street, Mustaqillik Street (motorway), Tutzor Street, Khamkor Street, Birlik Street, Asad Ismatov Street, Orikzor Street, everywhere.

***Conyza canadensis* (L.) Cronquist. (*Erigeron canadensis* L.)**

Material. Andijan city, Bukhara street. (40.797726, 72.352550)

Morphology. Annual herb, 30-100 cm high, the upper part of the root thickened. The stem is erect, hard rough, and branched in the apical part. The leaves are lanceolate and ciliate. The flowers are pyramidal, consisting of small baskets. Individual baskets are very small, only 5 mm in diameter. The flowers are yellow, white or reddish in the center of them. It blooms from mid-July to the end of October.

Biotope. Mesoxerophyte. It can be found in municipalities, around roadsides, on irrigated land, and in areas where various weeds thrive. Active specimen.

Distributed Andijan city: Uzbekistan street, Obod street, Bukhara street, Farobi street, Chinabad street, Istiklal street.

Uzbekistan: Syrdarya, Amudarya, Zarafshan river valleys, Ustyurt plateau, Fergana valley, Tien-Shan, Pamir-Olai.

***Galinsoga parviflora* Cav.**

Material. Andijan city, Karatut street. (40.736810, 72.333793)

Morphology. An annual plant 20-60 cm high, the stem is covered with short hairs. The leaves are opposite to each-other, ovate, toothed, with a rounded tip. The cyme basket, it is placed in a long pedicel. The flowers are three-toothed. It blooms from July to October.

Biotope. Mesophyte. In lawns, gardens, along railway and highways, in residential areas, around factories. Active specimen.

Distributed. Uzbekistan: Tashkent region, Khojand (Fergana valley).

Andijan: Anorzor Street, Osh Street, Mirpo'stin Street, Kulol Street, Mangulik Street, Rejapov Street, Uzun Street, Nayman Street.

***Helianthus tuberosus* L.**

Material. Andijan city, Obad street. (40.797610, 72.320489)

Morphology. Perennial plant with a height of 1 m to 5 m. The stem is straight, the upper part is branched, covered with fine coarse hairs, lower leaves opposite to each-other, ovate, upper leaves alternate, oblong-ovate, finely toothed or entire. The flowers are golden yellow.

Biotope. Mesoxerophyte. In ruderal places in the area of residences.

Distributed. Andijan: Sarpo Street, Hokimova Street, Shahidpepa Street.

Uzbekistan: Fergana Valley.

***Sonchus oleraceus* L.**

Material. Bobosadin street, Andijan city. (40.784064, 72.360706)

Morphology. An annual plant with a height of 30-100 cm. The stem is erect, hollow. The leaves are oblong, green. The flowers are golden. Blooms from June to September. Fruit with brown seeds.

Biotope. Mesophyte. In fields, gardens and kaleyards, along roads, and among weeds. Active specimen.

Distributed. Andijan: Bobosadin Street, Uzun Street, University Street, Bobur Avenue, A.Navoi Park, Baynalminal Street, Mustaqillik Street (motorway), Tutzor Street, Khamkor Street, Birlik Street, Asad Ismatov Street, Bobosadin Street, Orikzor Street.

Uzbekistan: everywhere in Uzbekistan.

***Matricaria discoidea* DC.**

Material. Andijan city, Oltinkol street. (40.787751, 72.315881)

Morphology. An annual plant with a height of 8-30 cm. The stem is hollow. The leaves placed alternately. The basket cyme, long stem, diameter 20-25 mm. All flowers in the basket are yellow, 4-toothed, tubular. It blooms from mid-May to the end of September. The fruit ripens in July-October.

Biotope. Mesophyte. A weed that grows in residential areas, vacant lots, roadsides.

Distributed. Andijan: Soy Street, Anisiy Street, Asad Ismatov Street, Yunalish Street.

Uzbekistan: in the Fergana Valley.

***Xanthium spinosum* L.**

Material. Andijan city, Turkistan street. (40.766807, 72.327262)

Morphology. An annual plant with a height of 20-100 cm. The stem is straight, hard, thin stringy, and covered with hairs. The leaves are lanceolate. The leaves are covered with sparse hairs from above, and thick gray hairy bark from below.

Biotope. Mesoxerophyte. It nests in landfills, roads, ditches, residential areas, railroad tracks, cemeteries, parks, and fields. Active specimen.

Distributed. Uzbekistan: everywhere in Uzbekistan.

Andijan: Nurabad Street, A. Kadiri Street, Kurama Street, Yangi hayat Street, Ziya Street, Sanoat Street, Musa Jalil Street, Okhunboboev Street, Pakhtakor Street, Shodlik Street, Ermatova Street, Uzun Street, Yorboshi Street.

Conclusion

Based on the data assembled, the *Asteraceae* family is the undisputed leader in city urban flora in terms of species diversity. 42 distributed species were identified in Andijan city's various ecological conditions. Six of them of these species were recorded as elements of adventive flora. Concluded that, these species were mainly introduced by different routes, only *Helianthus tuberosus* L. was introduced consciously. The wide distribution of the identified species in the city urban flora, was evaluated with their adaptability to different environmental conditions.

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