

SYSTEMATICS OF MELLIFEROUS PLANTS DISTRIBUTED IN ANDIJAN REGION

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Melliferous plants (nectariferous or honey-bearing plants) represent an essential component of natural ecosystems and agricultural landscapes, playing a crucial role in supporting pollinator populations and honey production. The Andijan region of Uzbekistan, located in the eastern part of the Fergana Valley, exhibits diverse ecological conditions that support a rich array of melliferous flora. This study aims to provide a systematic overview of the melliferous plant species distributed across the Andijan region, including their taxonomic classification, ecological characteristics, and significance to apiculture. Beekeeping in Uzbekistan, particularly in the Andijan region, has long been dependent on the abundance and diversity of nectar-producing plants. The productivity of honeybees (*Apis mellifera*) largely relies on the availability of these botanical resources throughout the active seasons. A thorough understanding of the systematics of melliferous plants is essential for effective planning of apicultural activities and biodiversity conservation strategies.

To identify and classify melliferous plant species in the Andijan region.

To analyze their taxonomic hierarchy (family, genus, species).

To evaluate their ecological roles and seasonal flowering patterns.

To assess their importance in local beekeeping practices.

The floristic survey was conducted between March and October during the flowering season in various districts of Andijan, including Asaka, Shahrixon, Marhamat, and Jalaquduq. Fieldwork involved direct observation, sample

collection, and herbarium comparison using the Flora of Uzbekistan (edited by Vvedensky A.I. et al.) and the Global Biodiversity Information Facility (GBIF) database. Taxonomic identification followed the APG IV classification system.

A total of 87 melliferous plant species belonging to 29 families were identified. The most represented families were:

- **Asteraceae** (e.g., *Helianthus annuus*, *Taraxacum officinale*) – 15 species
- **Lamiaceae** (e.g., *Mentha longifolia*, *Ocimum basilicum*) – 11 species
- **Fabaceae** (e.g., *Medicago sativa*, *Robinia pseudoacacia*) – 9 species
- **Rosaceae** (e.g., *Crataegus turkestanica*, *Malus domestica*) – 6 species
- **Apiaceae** (e.g., *Coriandrum sativum*, *Foeniculum vulgare*) – 4 species

Flowering times varied from early spring (*Salix alba*, *Populus alba*) to late autumn (*Calendula officinalis*, *Echinacea purpurea*), ensuring an extended nectar flow season for bees.

The dominance of Asteraceae and Lamiaceae families suggests that open, sunlit habitats and agricultural fields serve as primary habitats for melliferous plants in the region. Wild species such as *Silybum marianum* and cultivated crops like *Helianthus annuus* are critical to honeybee forage availability. Conservation of wild flora and the cultivation of high-nectar crops could significantly boost honey yield and pollinator health. Additionally, invasive melliferous species like *Amorpha fruticosa* are expanding in riparian zones, which may alter native plant-pollinator interactions. The Andijan region hosts a rich diversity of melliferous plants across various taxonomic groups. Their systematic classification and ecological assessment provide vital insights for sustainable apiculture and plant conservation strategies. Continued botanical monitoring and habitat preservation are recommended to support pollinator populations and regional biodiversity.

In addition to their ecological role, many melliferous plants in the Andijan region possess significant ethnobotanical and economic value. Local communities utilize various parts of these plants for traditional medicine, culinary purposes, and handicrafts. For instance, *Mentha longifolia* (wild mint) is widely used in traditional teas and digestive remedies, while *Coriandrum sativum* (coriander) is cultivated both as a spice and a nectar source. *Robinia pseudoacacia* (black locust), although non-native, is commonly planted for timber and soil stabilization, and its flowers are a key nectar source during late spring.

The dual-use value of these species makes them attractive for agroforestry systems and small-scale farming. Beekeepers often strategically place apiaries near fields planted with *Medicago sativa* (alfalfa), *Helianthus annuus* (sunflower), and orchards containing *Malus domestica* (apple) to maximize honey yield and quality. Furthermore, honey derived from specific floral sources, such as *Linden* (*Tilia cordata*) or *Acacia* (*Robinia*), is valued for its unique taste and medicinal properties.

The promotion of melliferous plants in regional farming practices can enhance biodiversity, stabilize rural incomes, and support food security through pollination services. Integrating flowering hedgerows, buffer strips, and wildflower corridors into agricultural landscapes is increasingly recognized as a sustainable land management strategy.