

Sicyos angulatus (Cucurbitaceae): a new adventive species for the flora of Bulgaria

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Abstract. *Sicyos angulatus*, an American species that is well known from several European countries, is recorded on Belene (Persina) island for the first time in Bulgaria.

Key words: adventive species, Belene (Persina) island, Danubian Plain, *Sicyos angulatus*

During fieldwork in 2004 on the Belene (Persina) island, the author found a new adventive species for the flora of Bulgaria:

Sicyos angulatus L., Sp. pl. 1013 (1753)

An annual plant, a liana 4–8 m long. Stem angular, pubescent, climbing, with 3–4 diverged tendrils. Leaves alternate, 3–12 cm, nearly as long as wide, pubescent, 5–7 lobed. Lobes acute or acuminate. Flowers yellowish-white, assembled in small racemes. Calyx-lobes narrowly triangular, corolla-lobes 5 mm, pale-green, triangulate. Fruits 1–5 cm, compressed ovoid, coriaceous, lanate, armed with slender spines, produced in clusters (3–20).

The blossom and fruiting period in Bulgaria is probably from July to September or October.

This species has probably penetrated along the Danube from Romania and Central Europe. It was found in the Danubian Plain: on the Belene (Persina) island, especially in the eastern part of the island at the Persina–East natural highlight, near the Gurdata canal, LJ-43, coll. R.Tz., 17.08.04, with flowers and fruits, SO 103044, 103045.

Vegetation in the locations on the Belene island belongs to the alliance *Salicion albae* Soo 1930. It consists of the following species: *Salix alba* L., *Amorpha fruticosa* L., *Galium aparine* L., *Rubus caesius* L., *Urtica dioica* L., and *Erigeron annuus* (L.) Pers. *A. fruticosa* prevails as a dominant species. The newly-found species grows in wet places: along riverbanks and in riverine forests as an annual liana.



Sicyos angulatus

Photo: Rossen Tzonev

This species is widespread in the eastern part of North America (Britton & Brown 1913), primarily in the USA, but also in Canada and Mexico too. It has penetrated into Europe probably in the beginning of the 20th century, as a decorative species. According to Tutin (1968), this species occurs in the following European countries: former Yugoslavia, Austria, the Czech Republic, Italy, Romania and Russia (European part and Siberia). According to Vasilchenko (1957), in the middle of the 20th century the species was distributed only in the European part of Russia. In the second part of the century its distribution extended to Sweden, Norway, France, United Kingdom, Spain, Germany, Turkey, Korea, Siberia, Japan, China, Australia, and the Caribbean Islands (Webb & Johnston 1981; Van Uffelen 1983; Ouren 1987; Clement & Foster 1994; Shimizu 1999; Terzioglu & Ansin 1999; Smeda & Weller 2001; Larché 2004). According to Prodan & Nyarady (1964), in neighboring Romania it occurs along the Danube.

The main road of penetration of *S. angulatus* into Europe is now as a weed, especially in maize and soybean agriculture. It winds around the stems of crops (e.g. maize, soybean) and is a strong competitor for light and nutrients. In USA, the species is enlisted as a noxious weed in Delaware and Indiana. In Japan, it is considered a major introduced weed species. It occurs in cultivated and uncultivated fields and also invades native vegetation. The observations made in Japanese maize fields have shown that yields decrease by 80 % by a population of 15–20 plants/10 m² and by 90–98 % by 28–50 plants/10 m². In Indiana conditions (USA) (Smeda & Weller 2001), the plants get established in early spring (May), attain fresh weight of up to 86 kg and produce nearly 80 000 seeds. At a later establishment, less biomass and a smaller number of seeds are produced.

S. angulatus is an aggressive weed on wet places and we can expect an expansion of its distribution in Bulgaria.

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