

THLADIANTHA DUBIA BUNGE (CUCURBITACEAE), NEW ALIEN SPECIES IN CROATIAN FLORA

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Alegro, A., Bogdanović, S., Rešetnik, I. & Boršić, I.: *Thladiantha dubia* Bunge (Cucurbitaceae), new alien species in Croatian flora. *Nat. Croat.*, Vol. 19, No. 1, 281–286, 2010, Zagreb.

Thladiantha dubia Bunge (Cucurbitaceae) is native to northern China, cultivated in Europe from the second half of the 19th century, then escaped from cultivation and established more or less naturalized populations in Central and SE Europe. In Croatia it was found for the first time in the part of the city of Zagreb called Savica – an area of old backwaters of the Sava River, in nitrophilous, ruderal habitats i. e. antropogenically strongly disturbed stands of floodplain forests of willows and poplars (*Salicion albae* Soó 1940).

Key words: *Thladiantha dubia*, Croatia, Savica, Zagreb, alien species, naturalized species, neophyte

Alegro, A., Bogdanović, S., Rešetnik, I. & Boršić, I.: *Thladiantha dubia* Bunge (Cucurbitaceae), nova alohtona vrsta u hrvatskoj flori. *Nat. Croat.*, Vol. 19, No. 1, 281–286, 2010, Zagreb.

Thladiantha dubia Bunge (Cucurbitaceae) vrsta je autohtona u sjevernim dijelovima Kine koja se od druge polovice 19. stoljeća kultivira u Europi. Izlaskom iz kulture uspostavila je manje-više stabilne populacije u srednjoj i jugoistočnoj Europi. U Hrvatskoj je po prvi put pronađena kod Zagreba, na Savici, području starih savskih rukavaca gdje nastanjuje nitrofilna, ruderalna staništa, odnosno antropogeno snažno poremećene sastojine poplavnih šuma vrba i topola (*Salicion albae* Soó 1940).

Ključne riječi: *Thladiantha dubia*, Hrvatska, Savica, Zagreb, alohtona vrsta, naturalizirana vrsta, neofit

INTRODUCTION

The genus *Thladiantha* (Cucurbitaceae) is comprised of 25 species native to Eastern Asia, from Himalaya to Taiwan, Borneo and Java, with one species native to Africa (ENGLER, 1964; MABBERLEY, 2008).

The species *Thladiantha dubia* is native to northern parts of China, where (i.e. in the surroundings of Peking) it was discovered by Russian botanist Alexander von Bunge in 1831, during one field trip. He described it under this name in 1833 and introduced it in Botanical garden in Moscow. Until 1870 it became common climber garden plant in Moscow due to its winter hardiness. In 1868 it is quoted in the Catalogue of Botanical garden in Berlin for the first time, and in 1884 Richard Büttner reported spontaneous findings of this species from the surroundings of Berlin, Potsdam and Pfaueninsel (cf. KRAUSCH, 2007).

Thus the year 1884 can be pointed out as the beginning of naturalisation of *Th. dubia* in Europe. During the following decades it spread through Germany, in 1934 it came to Czech Republic i. e. Bohemia (ŠTEPÁN, 1934), in 1936 to Moravia (part of the Czech Republic) (ZOUNEK, 1936) etc. Besides these countries it grows spontaneously also in other countries of Central and SE Europe (TUTIN, 1968; CHRŤKOVÁ, 1990) – Austria (LEUTE & SEMBACH, 1984; FISCHER *et al.*, 2008), Hungary (SIMON, 2000; KIRÁLY, 2009), Slovakia (KOCHJAROVÁ *et al.*, 2005), Poland (ŚWIĘŚ & WRZESIEŃ, 2003; CZAVANA, 2006), Romania (ANASTASIU *et al.*, 2007), Italia (PIGNATTI, 1982), Serbia (BOŽA *et al.*, 1996), Lithuania (GUDZINSKAS, 1999) and Ukraine (MOSYAKIN & YAVORSKA, 2002). The nearest locality of this species to the newly discovered finding place in Croatia discussed in this paper is the surroundings of the town Kranj in Slovenia (PREKORŠEK, 1967; RAVNIK, 1988; JOGAN, 2001; MARTINČIČ, 2007).

In the majority of cited papers (cf. also PYŠEK *et al.*, 2002; ESSL & RABITSCH, 2002) referring to Europe *Th. dubia* is treated as casual alien species, introduced by man and escaped beyond cultivation, but with little or no trend toward further expansion. Contrary to this, in Japan, which is much closer to its natural area of distribution, it is assigned as invasive alien species (MITO & UESUGI, 2004).

RESULTS AND DISCUSSION

Th. dubia (Figs. 1 and 2) was discovered during a flora survey of Savica area (Fig. 3), the last remnants of backwaters of the river Sava in Zagreb. This area represents a complex of small eutrophic lakes and strongly changed, degraded and eroded stands of previous floodplain forests of willows and poplars (*Salicion albae* Soó 1940). The population of *Th. dubia* consists of few hundreds individuals climbing on neighbouring trees and shrubs and it is spread on ca. 100 m².

Floristic composition of the stand is given in the following relevé (Gauss-Krüger coordinates: 5579852N, 5070569E, 100 m², 07. Sept. 2006):

Thladiantha dubia – (5), *Salix alba* – (4), *Cornus sanguinea* – (2b), *Sambucus nigra* – (2a), *Hedera helix* – (2a), *Urtica dioica* – (2m), *Clematis vitalba* – (1), *Rubus caesius* – (2a), *Impatiens parviflora* – (1), *Polygonum aviculare* – (1), *Trifolium repens* – (1), *Taraxacum officinale* – (1), *Plantago major* – (1), *Poa annua* – (1), *Chelidonium majus* – (+), *Echinocystis lobata* – (+), *Calystegia sepium* – (+), *Dactylis glomerata* – (+), *Bellis perennis* – (+), *Humulus lupulus* – (+), *Chenopodium album* – (r), *Artemisia vulgaris* – (r), *Solidago gigantea* – (r), *Ranunculus repens* – (r), *Crataegus monogyna* – (r).

A large proportion of nitrophilous, ruderal, weed and alien species, which do not belong to natural stands of floodplain forests from the alliance *Salicion albae*



Fig. 1. Stand of *Thladiantha dubia* in the remnants of floodplain forests of willows and poplars (*Salicion albae*) at Savica.



Fig. 2. Female flowers of *Thladiantha dubia*.

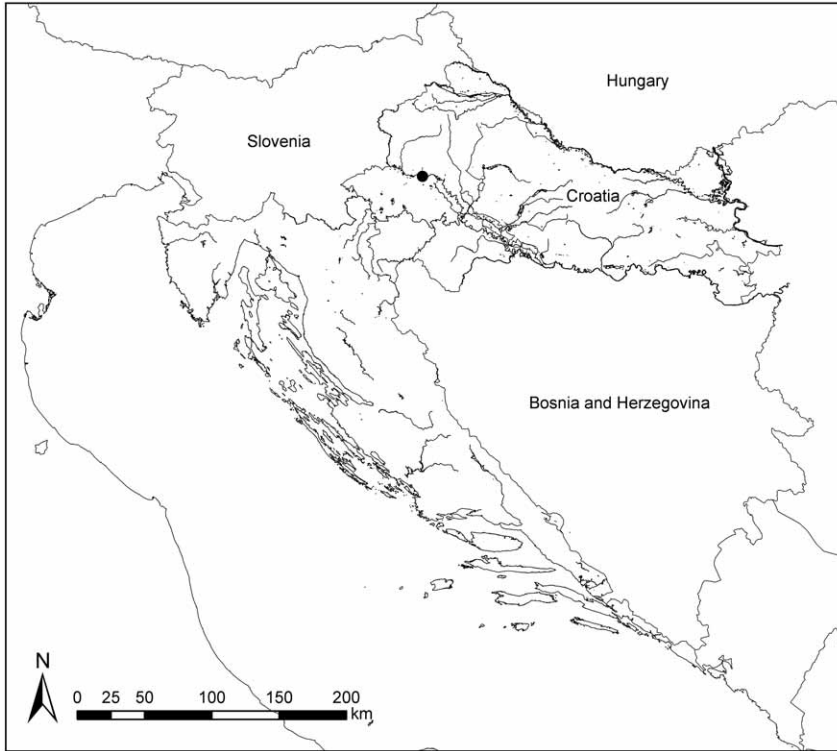


Fig. 3. Finding place of *Thladiantha dubia* in Croatia.

(*Urtica dioica*, *Impatiens parviflora*, *Poa annua*, *Chelidonium majus*, *Echinocystis lobata*, *Chenopodium album*, *Artemisia vulgaris* and *Solidago gigantea*) clearly depict disturbance of the habitat. On such disturbed habitat *Th. dubia* is competitive enough to establish a relatively large population. The same situation is found in other European countries, where this species also grows in shrubs, along railways, riverbanks, in maize fields, on the borders of vineyards, on vast deposits and similar habitats (cf. LEUTE & SEMBACH, 1984; CHRŤKOVÁ, 1983, 1990; MOSYAKIN & YAVORSKA, 2002; ŚWIĘS & WRZESIEŪ, 2003). CHRŤKOVÁ (1983) quotes following orders which comprise habitats of *Th. dubia* in Czech Republic: *Sisymbrietalia*, *Polygono-Chenopodietalia*, *Lamio albi-Chenopodietalia boni-henrici*. Obviously, the habitat of *Th. dubia* in Savica completely corresponds to its habitats in other European countries.

Another question is, where it came from to this locality? *Th. dubia* is not a garden plant in Croatia, and MATULEC (2006) did not mention it in her very comprehensive study of the garden plants in the continental part of Croatia. The closest locality is near Kranj in Slovenia, which is ca. 175 km away. Both localities are near the Sava river, but Savica is not connected with the Sava flow, and therefore water drift is not very probable as a dispersal tool. The southern edge of the Savica area is bordered by a carriageway and there are several soil deposits of unknown origin. Perhaps some tubers of *Th. dubia* came with this soil.

And finally, what could be the status of *Th. dubia* in Croatian flora? In Austrian flora it is assigned as rarely cultivated and rarely naturalized species (FISCHER *et al.* 2008), for Czech Republic as casual alien (PYŠEK *et al.*, 2002), for Poland as agresto-epoecophyte (ŚWIĘS & WRZESIEŃ, 2003), for Kiev urban area in Ukraine as ephemero-ergasiophyte (MOSYAKIN & YAVORSKA, 2002) and for Romania as deliberate casual (ANASTASIU *et al.*, 2007).

Common to all these categories is that they refer to plants introduced by man that occasionally escape beyond cultivation but usually do not persist except in the immediate vicinity of their area of cultivation. They occur in the area in one to several stable colonies but they show little or no trend toward further expansion. Only from Austria it is known that *Th. dubia* can be harmful for maize fields (LEUTE & SEMBACH, 1984).

The way of its reproduction in Europe is regularly vegetative, by tubers. The species is dioecious, and the majority of European plants are male. On the other hand the female flowers produce oil instead of nectar, which is not attractive for pollinator insect species in Europe. These facts also reduce the possibility of expansion of *Th. dubia* (KRAUSCH, 2007).

According to the Croatian system of classification of alien flora proposed by MITIĆ *et al.* (2008) *Th. dubia* can be classified as casual alien plant or as non-invasive alien weed, depending on its possibility of reproduction outside the cultivation. It is not yet known if *Th. dubia* can regularly reproduce and form self-replacing populations or not. In the first case it would belong to the group of non-invasive alien weed and in the second to the casual alien plants. Further research, i.e. monitoring of here described population as well as search for other populations would clarify the status of *Th. dubia* in Croatia.

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