

# Studies on the genus *Atriplex* (Chenopodiaceae) in Italy VII. *Atriplex micrantha* and *A. oblongifolia*

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**Key words:** *Atriplex heterosperma*, Italian alien flora, synonym, typification.

**Ključne besede:** *Atriplex heterosperma*, tujerodna flora Italije, sinonim, tipizacija.

## Abstract

A population of *Atriplex micrantha* subsp. *micrantha* was found in Valle d'Aosta region representing the first north-western Italian record and the second one at national level. The newly found population (about 100 individuals) covers an area of about 200 m<sup>2</sup>, and grows on uncultivated and saline lands at 950 m. Despite the inland locality (the species naturally grows in saline places), its occurrence is probably linked to the use of salt-spreading vehicles. Concerning *A. oblongifolia*, only one Italian record was published up to now (in 1898 in Emilia-Romagna region) but neither any herbarium specimen was traced nor plants were discovered after field surveys. Finally, we studied in detail the types of *A. micrantha* subsp. *micrantha*, *A. oblongifolia*, and *A. heterosperma*. Lectotypes were designated for *A. micrantha* and *A. oblongifolia* (Ledebour's and Waldstein & Kitaibel's illustrations), whereas we correct Schwarz's typification for *A. heterosperma* (Art. 9.10 ICN).

## Izveček

V regiji Valle d'Aosta smo našli populacijo vrste *Atriplex micrantha* subsp. *micrantha*, ki predstavlja prvo severozahodno najdbo v Italiji. Poleg tega je to šele druga najdba v celotni državi. Nova populacija (približno 100 osebkov) uspeva na površini veliki približno 200 m<sup>2</sup> na neobdelanih in slanih tleh na 950 m n.m.v. Nova lokacija je v notranjosti (vrsta običajno uspeva na slaniščih), vendar predvidevamo, da je povezana z uporabo vozil za soljenje cest. Za vrsto *A. oblongifolia* je bil do sedaj objavljen le en podatek v Italiji (leta 1898 v regiji Emilia-Romagna). Zgornjega podatka in lokacije nismo mogli potrditi z nobenim herbarijskim primerkom in tudi s terenskimi raziskavami pojavljanja vrste nismo mogli potrditi. Natančno smo tudi raziskali tipe imen vrst *Atriplex micrantha* subsp. *micrantha*, *A. oblongifolia* in *A. heterosperma*. Določili smo lektotipe vrst *A. micrantha* in *A. oblongifolia* (na podlagi ilustracij avtorjev Ledebour in Waldstein & Kitaibel) ter popravili Schwarzovo tipifikacijo imena vrste *A. heterosperma*.

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## Introduction

*Atriplex* L. (Chenopodiaceae Vent.), is a monophyletic genus comprising about 260 currently recognized species occurring mainly in arid and semiarid regions of Eurasia, America, and Australia (Sukhorukov & Danin, 2009; Kadereit et al., 2010; Brignone et al., 2016).

The flora of Italy includes 12 *Atriplex* species, of which 2 (*A. hortensis* L. and *A. micrantha* Ledeb. subsp. *micrantha*) are considered exotic (Bartolucci et al., 2018; Galasso et al., 2018).

As a part of the ongoing studies on the genus *Atriplex* (e.g., Iamonico 2012, 2013; Iamonico & Sukhorukov, 2014; Iamonico & El Mokni, 2019), we here present a note concerning *A. micrantha* and *A. oblongifolia* Waldst. & Kit., two alien species for Italy. For nomenclatural purposes, also the name *A. heterosperma* Bunge is investigated.

## Materials and methods

The present study was carried out by field surveys, extensive analysis of literature, and examination of the specimens preserved in the Herbaria AO, LE, MRSN, MSRT, P, RO, and TSM (herbarium acronyms are given according to Thiers, 2022).

The articles cited through the text follow the *Shenzhen Code* (Turland et al., 2018, hereafter as ICN).

The description of *Atriplex micrantha* subsp. *micrantha* is based on the plants observed in field (Valle d'Aosta region), whereas for *A. oblongifolia*, since no Italian specimens were traced, to help readers, we decided to give a description based on the lectotype and literature (for part which cannot be observed or measured in the lectotype).

## Results and discussion

### Notes on typifications

#### *Atriplex heterosperma*

Bunge (1851: 448–449) proposed this species providing a detailed diagnosis and description, the provenance (“Hab. An salzhaltigen Flecken in der nördlichen Steppe zwischen Busuluk und Uralsk”), and the date of collection (“29. Aug. 1840”), a citation which is a syntype according to the Art. 9.6 of ICN; a morphological comparison with *Atriplex sagittata* (sub *Atriplex nitens* Schkuhr.) and *A. micrantha* was also given.

Sukhorukov (2007: 360) and Brignone et al. (2016: 338) indicated the following specimen (deposited at LE) as the holotype: “[Russland, Prov. Orenburg, an salzigen Flecken in der nördlichen Steppe zwischen Busuluk

und Uralsk, 29.VIII.1840, Al. Bunge]”. The same specimen was previously cited by Schwarz (2004: 86) as the “Holo-Typus”. We traced this specimen at LE (barcode LE01013813), and can confirm that it is part of the original material for the name (Bunge’s herbarium and types are mainly preserved at LE; HUH Index of botanists 2013). According to the Art. 9.10 of ICN Schwarz’s use of the term “Holo-Typus” (which precedes both Sukhorukov’s and Brignone’s statements; see Art. 9.19 of ICN) is an error to be corrected to lectotype.

On the basis of the examination of the lectotype of *Atriplex heterosperma*, we observed the following important characters:

- shape of the leaves: according to the diagnosis (Bunge 1851: 448) lower leaves are triangular-hastate (“foliis inferioribus hastato-triangularibus profunde sinuato-acuminato-dentatis”); the lower leaves do not occur in the lectotype;
- female flowers: they are dimorphic, as also indicated in the diagnosis (“floribus femineis seminibusque dimorphis”).

These two characters are typical of the *Atriplex* sect. *Atriplex* according to Kadereit et al. (2010) and Žerdoner Čalasan et al. (2022). To note that *A. heterosperma* was often regarded as a synonym of *A. micrantha* (see e.g., PFAI, 2022; POWO, 2022a and literature therein). However, *A. micrantha* belongs to the sect. *Teutliopsis* (see Kadereit et al., 2010; Žerdoner Čalasan et al., 2022) which comprises species with non hastate-triangular leaves and female flowers monomorphic with all seed vertical and two bracteoles. Therefore, *A. heterosperma* cannot be considered as an heterotypic synonym of *A. micrantha* subsp. *micrantha*. Brignone et al. (2016: 338) accepted this species as separate and we agree with this recognition.

#### *Atriplex micrantha* s.l.

*Atriplex micrantha* was first and validly described by Ledebour (1829: 11) who provided a diagnosis (“A. [Atriplex] annuum erectum canescenti-lepidotum, foliis triangularis-subhastatis subintegerrimis, calycibus femineis bipartitis ellipticis acuti margine integerrimis disco laevibus”), and the provenance (“Hab. In locis salsis humidiusculis deserti Songoro-Kirghisici trans fl. Irtysh.”). An illustration (“Tab. XLIII”, image at <https://www.biodiversitylibrary.org/page/32865574#page/81/mode/1up>) was also given and it is part of the original material for this name.

Sukhorukov (2007: 360) and Sukhorukov & Danin (2009: 20) indicated the following specimen (deposited at LE) as the type (holo-): “[Rossia] Altai, Loktewsk, 1835, C. A. Meyer”. The same specimen was cited by Schwarz (2004: 86) as the “Holo-Typus”. However, (1) Ledebour (1829) did not cite any holotype (Art. 9.1 of

ICN; see also McNeill, 2014), and 2) since the date of collection is subsequent to that of the protologue (1829), the LE specimen cited by Sukhorukov (2007) and Sukhorukov & Danin (2009) and Schwarz (2004), cannot be considered as part of the original material (Art. 9.4 of ICN).

Unfortunately, no specimen which can be considered as part of the original material was traced. As a consequence, we here designate the Ledebour's illustration "Tab. XLIII" as the lectotype of the name *Atriplex micrantha*. No epitype needs since Ledebour's illustration can be identified for purposes of the precise application of the name (Art. 9.9).

### *Atriplex oblongifolia*

Waldstein & Kitaibel (1812: 278) described *Atriplex oblongifolia* by a short diagnosis ("Atriplex caule herbaceo, ramisque erectis; foliis ovato-lanceolatis, inferioribus sub-hastatis, integerrimis; calycibus fructus cordato-ovatis, integerrimis, edentulis"). To note that just before the diagnosis, the authors stated "Nomen Atriplicis microspermae cum definitione hujus supra tab. 221. alteri speciei per errorem adscriptum est, cui itaque sequens nomen cum definitione subjuncta reitituum erit: ATRIPLEX OBLONGIFOLIA." (= Name Atriplicis microspermae [*Atriplex microsperma* Bab.] with the definition of this above tab. 221. Another species is added by mistake, to which, therefore, the following name must be returned with the definition submitted: ATRIPLEX OBLONGIFOLIA.). So, the illustration no. 221, erroneously linked with *A. microsperma* (Waldstein & Kitaibel (1812: 245), actually refers to *A. oblongifolia*, being, therefore part of the original material for this name.

Chrtek & Skočdoplová (1982) listed the names published by Waldstein & Kitaibel (1812) and provided corresponding herbarium sheets deposited in the Herbarium PR. In general, although not fully consistent with the requirements of ICN (e.g., a typification is accepted if the authors reported the term "type" or its equivalent, see Art. 9), the names treated by Chrtek & Skočdoplová (1982) could be considered to be formally lectotypified by these authors. In fact, they stated (introduction of the work): "... we assume that in the Prague herbarium the type material of lectotype character (unless other conclusions were made before in previous publications) are present". We have the opportunity to examine the PR specimen (barcode PR502358/707) which bears a terminal part of one plant with some cauline leaves and many fruits (Figure 1). Median leaves are lanceolate (about 5–6 × 0.5–1.0 cm), with margins entire, base attenuate, and apex acute (one of the leaves has two little teeth at the proximal part). The fruiting bracteoles are ovate to triangular-deltoid (up



**Figure 1:** Lectotype of *Atriplex oblongifolia* (Tab. 221 in Waldstein & Kitaibel 1812).

**Slika 1:** Lektotip vrste *Atriplex oblongifolia* (Tab. 221 v Waldstein & Kitaibel (1812)).

to 4.5 mm long), entire at the margins, with two basal teeth, without appendages on faces. This morphological configuration agrees with the current concept of the *Atriplex oblongifolia* (see e.g., Sukhorukov, 2007: 344–346; Welsh, 2003, Iamónico, 2017). However, the label of PR502358/707 just reports "*Atriplex oblongifolia* N. sp. | Gf. Waldstein" as original handwriting (pencil) and it is not sure that this script was given by P. Kitaibel [also Chrtek & Skočdoplová (1982: 29) stated "probably written by Kitaibel"]; moreover, neither a locality nor a date of collection was indicated in the label. Therefore, we retain to consider PR502358/707 as part of the original material and eligible as lectotype.

We also traced at BP (Kitaibel's collection, see <https://gallery.hungaricana.hu/hu/Herbarium/>) 3 further specimens labeled by P. Kitaibel, one without any plant name

(collection number 158), the second one as “*Atriplex ex horto*” (collection number 188), the last as “*A. patulae affinis*” (collection number 179) (all these 3 specimens were identified later as *A. oblongifolia* by Jávorka). Also these three BP specimens cannot be considered as part of the original material.

All things considered, the name *Atriplex oblongifolia* needs to be typified. Since Waldstein & Kitaibel’s illustration no. 221 is the only extant original material, and it match the diagnosis and the current concept of the species (see e.g., Sukhorukov, 2007: 344–346; Welsh 2003, Iamonico 2017), it is here designated as the lectotype.

## Taxonomic discussion

*Atriplex micrantha* and *A. oblongifolia* would be members of the sect. *Teutliopsis* according to Sukhorukov & Danin (2009). However, according to the molecular studies by Kadereit et al. (2010: Fig. 3) and Žerdoner Čalasan et al. (2022: Fig. 4), *A. oblongifolia* was demonstrated to be part of a clade referred by these authors to the sect. *Atriplex*. This section is characterized by including annual species with large hastate leaves and female flowers dimorphic (one with vertical seed, the other one with horizontal seed and 4–5-lobed perianth). *A. oblongifolia* actually has only one type of female flower (monomorphic); Kadereit et al. (2010: 1680) explain the inclusion of *A. oblongifolia* in sect. *Atriplex* stating that this species probably lost the second type of female flower. Sect. *Teutliopsis*, in which *A. micrantha* belong (Kadereit et al., 2010; Žerdoner Čalasan et al., 2022) comprises 17 annual C<sub>3</sub> species with green to greenish leaves, inflorescence with both male and female flowers (monomorphic with vertical seed), and fruiting bracteoles herbaceous, free or connate up to the half (Sukhorukov & Danin 2009, Kadereit et al. 2010).

Concerning Italy, *Atriplex micrantha* and *A. oblongifolia* can be easily distinguished by both the shape of the leaves (respectively, blade triangular-deltoid, with margins entire to dentate and base obtuse to truncate to hastate *vs.* blades lanceolate, with margins entire and cuneate base) and the fruiting bracteoles (orbicular *vs.* ovate to triangular-deltoid). On the other hand, *A. micrantha* is morphologically similar to *A. sagittata* Borkh. (= *A. nitens* Schkuhr), despite this latter species is part of a different section (sect. *Atriplex*; see Kadereit et al., 2010; Žerdoner Čalasan et al., 2022). As reported above, these two species differ each other by the female flowers (monomorphic with vertical seed and two bracteoles in *A. micrantha*, dimorphic with some horizontal seed and 4–5-lobed perianth in *A. nitens*) (see also Akeroyd, 1993).

Concerning *Atriplex micrantha* two subspecies are cur-

rently known, i.e. subsp. *micrantha* (from Russia to Asia, including the Middle East; see POWO, 2022a-onward) with spike-like inflorescences, and subsp. *conglomerata* O. Schwarz (from Caucasus) with the flowers arranged in glomerules (see Schwarz, 2003). According to Sukhorukov & Danin (2009), two forms of *A. micrantha* would occur in the Eastern Mediterranean region: one (typical form) with circular bracteoles and black seeds of 1.5–1.8 mm, and another one with mostly ovoid bracteoles and smaller black seeds (1.0–1.5 mm). However, the same authors (Sukhorukov & Danin 2009) highlighted that the formal description of the second form would need further studies.

## Taxonomic treatment

***Atriplex heterosperma*** Bunge, Beitr. Fl. Russl. 272. 1852 ≡ *Atriplex hastata* var. *heterosperma* (Bunge) Regel ex Iljin, Fl. Iugo-Vost. 4: 161. 1930 ≡ *Atriplex hortensis* subsp. *heterosperma* (Bunge) Meijden, Gorteria 4(6/8): 105. 1968 – Lectotype (designated by Schwarz, 2004: 86) as “holotype”, here corrected according to the Art. 9.10 ICN]: Russia, Orenburg, an salzigen Flecken in der nördlichen Steppe zwischen Busuluk und Uralsk, 29.VIII.1840, *Bunge s.n.* (LE01013813!, image available at [https://en.herbariumle.ru/?t=occ&id=3579&rid=image\\_0007293](https://en.herbariumle.ru/?t=occ&id=3579&rid=image_0007293)).

**Chorology:** *Atriplex heterosperma* is native to the Russian steppes and currently known as alien in South America (Brignone et al., 2016). However, since this name was often synonymized with *A. micrantha* (see e.g., POWO, 2022a and literature therein), it is possible that it occurs also in other countries, especially the European and Asian ones. Concerning Italy, we never traced plant or specimens identifiable with *A. heterosperma*.

**Taxonomic notes:** a species morphologically similar to *Atriplex hortensis* L. from which differs in having upper leaves alternate, ovate-hastate, and with two basal lobes (*vs.* opposite, all cordate or triangular-hastate, and without basal lobes) (see also Brignone et al., 2016).

***Atriplex micrantha*** Ledeb., Icon. Pl. 1: 11. 1829 – Lectotype (designated here):—Tab. XLIII in Ledebour (1829; image available at <https://www.biodiversitylibrary.org/page/32865574#page/81/mode/1up>; Figure 2).

**Description:** annual herb, 50–110 cm tall. Stem erect, slightly ribbed, furfuraceous along the inflorescence part, branched in the distal half. Leaves triangular (2–6 × 1.5–5.0 cm), with base widely obtuse to truncate to hastate, abaxially densely gray-furfuraceous, adaxially more or less green, margin more or less dentate to serrate, with, sometimes, two basal teeth longer than the other ones,



**Figure 2:** Lectotype of *Atriplex micrantha* (Tab. XLIII in Ledebour 1829).  
**Slika 2:** Lektotip vrste *Atriplex micrantha* (Tab. XLIII v Ledebour 1829).

apex mostly obtuse; petiole 0.5–2.3 cm. Inflorescences in terminal panicles; male flowers with 5 tepals; stamens 5; female flower perianthless. Fruiting bracteoles connate at the base, orbicular (5–6 mm in diameter), green (adult plants), entire at the margins; seeds globose (1.5–3.0 mm), black to brown-yellowish, shiny or opaque, smooth.

**Phenology observed in Valle d’Aosta:** Flowering and fruiting times August to October.

**Chorology:** *Atriplex micrantha* is native to a wide area from Russia to Asia, including the Middle East (see e.g., Sukhorukov & Danin, 2009), and it is considered as alien in the remaining part of Europe (Spain, France, Great Britain, Switzerland, Germany, Austria, Luxembourg, Czech Republic, Slovakia, Poland, Romania, and Bulgaria), as well as in U.S.A., Canada, and South America in Argentina (Jehlík et al., 2017; Király & Hohla, 2017; Ehl et al., 2019; POWO, 2022a-onward).

**Habitat, distribution, and status of naturalization in Italy:** *Atriplex micrantha* was first recorded in Italy in Friuli-Venezia Giulia region (in harbor places, at about 10 m a.s.l.; see Martini, 1999) where it is considered as casual (Galasso et al., 2018). The recent find in Valle d’Aosta region (first observation near Morgex in July 8, 2019 by M. Bovio and A. Martello, numerous individuals not still flowered) represents the second record for the national flora and the first one both for regional flora and the whole north-western Italy.

The population of *Atriplex micrantha* observed in Valle d’Aosta region is composed by about 100 individuals which cover an area of about 200 m<sup>2</sup> and grow on uncultivated lands along a road towards Mont Bardone (near Morgex) at 950 m a.s.l. (Figure 3). This species naturally grows in saline places, e.g. lake shores or deserts (see e.g., Sukhorukov & Danin, 2009; Brignone et al., 2016), whereas the species occurs in human-made habitat strictly linked to saline area like the marine ones in regions in which it is considered as alien (e.g. in Friuli-Venezia Giulia; see Martini, 1999). Valle d’Aosta is located in the heart of the Alps and no natural saline habitat exists in this region. Our hypothesis about the occurrence of the population is that the found station occurs under a viaduct which is part of the international motorway no. A5 to France, with an heavy traffic of trucks carrying goods. Due to the low temperature (< 0°C), which characterizes the whole Valle d’Aosta region, salt-spreading vehicles are often used to avoid car crash along this motorway. During the unfreezing phase, the water drips from the motorway, reaching and dunking the soil (pers. obs.). Since water has a high salt concentration, soil becomes salty. In this way, a saline-human-made habitat is created and *A. micrantha* are able to grow. To note that, in the same place, another halophyte occurs, i.e. *Puccinellia distans* (Jacq.) Parl. All things considered, we think that the vector of introduction are probably vehicles, i.e. articulated lorries, coming from east Europe (Balkans?). To corroborate our hypothesis, various papers highlighted the occurrence and spreading of this species in Europe along motorways [e.g., Jehlík et al., 2017 (Slovakia); Király & Hohla, 2017 (Hungary); Ehl et al., 2019 (Luxembourg); Info Flora, 2022 (Switzerland)]; furthermore,



**Figure 3:** Population of *Atriplex micrantha* s. str. in locality Morgex (Valle d'Aosta region) under viaduct (motorway no. A5). A) leaf, B) inflorescence, C) fruit. Photos by M. Broglio.

**Slika 3:** Populacija vrste *Atriplex micrantha* s. str. v kraju Morgex (regija Valle d'Aosta) pod viaduktom (avtocesta št. A5). A) list, B) socvetje, C) plod. Fotografije M. Broglio.

K. Kaplan (pers. comm.) informed us about its spreading in Germany and Switzerland.

We here consider *Atriplex micrantha* in Valle d'Aosta region as a casual alien species despite, after the first observation in 2019, its occurrence near Morgex was also verified in 2020 and 2021. To note that some plants were found also on the slope toward the river Dora Bal-

tea which could become a further way of spreading of the species (floating of fruits and seeds).

**Taxonomic notes on Italian plants:** according to Schwarz (2003) all the Italian specimens of *Atriplex micrantha* are identifiable as the subsp. *micrantha*, showing spike-like inflorescences instead of glomerules.

**Specimina Visa Selecta:** ITALY. *Friuli Venezia-Giulia*, Trieste, Porto Vecchio, 22.IX.1997, *F. Martini s.n.* (MFU!); Trieste, terrapieno prospiciente lo sbocco a mare del canale navigabile della zona industriale di Aquilinia, 10 m a.s.l., 30.X.1998, *F. Martini s.n.* (MFU!). *Valle d'Aosta*, Morgex, road towards Mont Bardone, along the Dora Baltea river, on its orographic right side, uncultivated lands, WGS84: 45.759356 – 7.017566, 950 m a.s.l., 6.VIII.2019, leg. *M. Bovio*, *M. Broglio*, *C. Ganz*, *K. Kaplan*, *C. Overkott-Kaplan et A. Pistarino s.n.*, det. *K. Kaplan*, conf. *D. Iamonico* (MRSN!, MSTR!); *ibidem*, 19.IX.2019, leg. et det. *M. Bovio*, *M. Broglio et C. Ganz s.n.*, conf. *D. Iamonico* (AO!, RO!).

*Atriplex oblongifolia* Waldst. & Kit., Descr. Icon. Pl. Hung. 3: 278, t. 211. 1812 ≡ *Teutliopsis oblongifolia* (Waldst. & Kit.) Ěelak., Oesterr. Bot. Z. 22(5): 168. 1872 ≡ *Schizotheca oblongifolia* (Waldst. & Kit.) Ěelak. ex Formánek, Kvetena 2: 292. 1892 ≡ *Chenopodium oblongifolium* (Waldst. & Kit.) E. H. L. Krause, J. Sturm, Deutschl. Fl. Abbild., ed. 2, 5: 177. 1901 – Lectotype (designated here): Tab. 221 in Waldstein & Kitaibel (1812, image available at [https://library.hungaricana.hu/en/view/MEGY\\_SOMO\\_Muzealis\\_Kit\\_3/?pg=134&layout=s](https://library.hungaricana.hu/en/view/MEGY_SOMO_Muzealis_Kit_3/?pg=134&layout=s)).

**Description** (data from the lectotype is underlined): annual herb, 40–120 cm tall. Stem erect, ribbed, glabrous and slightly furfuraceous along the inflorescence part, branched in the distal part. Leaves (median) alternate,

lanceolate (blade 5–6 × 0.5–1.0 cm), with base cuneate, glabrous, green, margin entire (with two little teeth at the proximal part of the blade), apex acute; petiole 0.5–1.0 cm; upper leaves linear (about 1 × 4–8 mm). Inflorescences in terminal and axillary spikes, leafless; male flowers with 5 tepals; stamens 4–5; female flower perianthless. Fruiting bracteoles (only one type occurs in the type, according to Sukhorukov et al. 2010: 1680) free or connate at the base, ovate to triangular-deltoid (2.0–4.5 mm long, 1.5–3.0 mm width), entire at the margins, without appendages on faces, without Kranz anatomy; seeds globose (2–3 mm width), black or brown, wrinkled or shiny.

**Phenology:** Flowering and fruiting Summer to Autumn (Welsh, 2003; Iamonico, 2017).

**Chorology:** *Atriplex oblongifolia* is native to Central and Eastern Europe and Asia, including the Middle East, Kazakhstan, Kyrgyzstan, Tajikistan, and Caucasus, whereas it is considered as alien in France, Italy (doubtfully alien species), and Central Russia (Europe), in U.S.A. and Canada (North America) (POWO, 2022b-onward).

**Habitat, distribution, and status of naturalization in Italy:** *Atriplex oblongifolia* is indicated for Italy for two north-western regions, i.e. Friuli-Venezia Giulia and Emilia-Romagna (Galasso et al., 2018) although not longer recorded and doubtful.

Concerning Friuli-Venezia Giulia, the first record of *Atriplex oblongifolia* appears in Pospichal's *Flora des österreichisches Küstenlandes* (1897: 358) where the author stated “*Bis jetzt bloss auf Weinbergbrachen bei S. Canciano in Friaul, in neuerer Zeit nicht wieder gefunden*” (So far, only in uncultivated vineyards near S. Canciano in Friuli, not recently found). This indication was later reported by Fiori et al. [1898: 306, sub *A. hastata* var. (η) *oblongifolia* (Waldst. & Kit.) Fiori & al., a new combination] who indicated the taxon at “*Friuli presso S. Canciano (POSPICHAL)*” (“Pospichal” is the surname of the collector of a plant which was probably seen by Fiori et al.) and Gortani & Gortani (1905–1906). In the Appendix 1 of the regional checklist by Poldini et al. (2001), *A. oblongifolia* was reported as “specie localmente scomparsa” (= “species locally extinct”).

As regard Emilia-Romagna region, the older record appears to be that by Fiori et al. (1898: 306) who recorded the taxon at “*Fiumalbo nell'Appenn. Modenese (RIVA)*” [= “Fiumalbo in the Modenese Apennine (Riva)”, where “Fiumalbo” is a town located in the territory of Modena administrative Province, whereas “Riva” is the surname of the collector (name would be Giuseppe; see Alessandrini et al., 2010: 123)].

To note that the two aforementioned data were reported by both the two recent Italian Floras by Pignatti (1982: 167) and Iamonico (2017: 253), and (for Emilia-

Romagna) in the Flora of the Province of Modena by Alessandrini et al. (2010: 123, where the first author of the present paper – DI – given the data).


To note that the *Euro+Med PlantBase* (Uotila, 2011) indicates *Atriplex oblongifolia* as a native species occurring in Italy.

We have not able to trace any herbarium specimen referred to the localities above mentioned, and no plants was discovered after field surveys. *Atriplex oblongifolia* is an doubtfully alien species for Italy.

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