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Confirmation of the Occurrence of *Chenopodium strictum* subsp. *strictum* (Amaranthaceae s. l.) in Italy

By

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With 1 Figure

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Summary

IAMONICO D. 2010. Confirmation of the occurrence of *Chenopodium strictum* subsp. *strictum* (*Amaranthaceae* s. l.) in Italy. – *Phyton* (Horn, Austria) 49 (2): 235–240, with 1 figure.

The presence of *Chenopodium strictum* ROTH subsp. *strictum* is confirmed for 6 provinces in Italy. The taxon was collected in 2007 from two sites in the city of Rome (Lazio region, central Italy) and from another site in the vicinity of Ciampino in 2008. A detailed description, and the geographical distribution in Italy of the subspecies are provided. A comparison with *Chenopodium strictum* ROTH subsp. *striatiforme* (AELLEN) UOTILA and *Chenopodium album* L. s. l. is also given.

Zusammenfassung

IAMONICO D. 2010. Confirmation of the occurrence of *Chenopodium strictum* subsp. *strictum* (*Amaranthaceae* s. l.) in Italy. [Bestätigung des Vorkommens von *Chenopodium strictum* subsp. *strictum* (*Amaranthaceae* s. l.) für Italien]. – *Phyton* (Horn, Austria) 49 (2): 235–240, mit 1 Abbildung.

Das Vorkommen von *Chenopodium strictum* ROTH subsp. *strictum* wird für 6 Provinzen in Italien bestätigt. Dieses Taxon wurde 2007 an zwei Stellen in Rom und 2008 von einer Stelle bei Ciampino (Region Latium) gesammelt. Eine Beschreibung und die übrige Verbreitung in Italien werden gebracht. In einer Tabelle sind wichtige Unterscheidungsmerkmale der genannten subsp. gegenüber *Chenopodium strictum*

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subsp. *striatiforme* (AELLEN) UOTILA (für Italien noch nicht gesichert) und beider gegenüber *Chenopodium album* s. l. dargestellt.

1. Introduction

Chenopodium strictum ROTH was first described from India in 1821 (ROTH 1821). This species occurs in northern, central and eastern Europe, southwestern and central Asia, and it is considered naturalized in North America (AKERROYD 1963, JONSELL 2001, CLEMANTS & MOSYAKIN 2003, ZHU GELIN & al. 2003).

Chenopodium strictum s. l. is a highly variable species with several subspecies, varieties and forms described (e. g. AELLEN 1960–61). FIORI 1923 mentioned *Ch. strictum* s. l. (as *Ch. album* L. η -*striatum* KRAŠAN) from northeastern Italy (Veneto and Trentino-Alto Adige regions), while ZANGHERI 1976 reported it [as *Ch. album* subsp. *striatum* (KRAŠAN) MURR] from northern Italy and Sardegna. PIGNATTI 1982 also reported *Ch. strictum* from southern Alps and Italy, but this record is likely doubtful. Based on this information, CONTI & al. 2005 and CONTI & al. 2007 concluded that the geographical distribution and the infraspecific taxa of *Ch. strictum* s. l. in Italy remain to be determined.

This floristical note confirms the presence of *Ch. strictum* in Italy, and clarifies that the collections found so far belong to *Ch. s.* subsp. *strictum*. The morphology of the subspecies and their distribution in Italy are also treated. In addition, a comparison with *Ch. s.* subsp. *striatiforme* (AELLEN) UOTILA and the related species *Ch. album* L. s. l. is provided.

Further floristic research is needed to verify the presence in Italy of *Ch. strictum* subsp. *striatiforme* (CONTI & al. 2005 indicated this species in the checklist of the Italian flora, but no records in any regions were reported yet).

2. Materials and Methods

The work is based on floristic surveys and examination of the specimens kept in the following Herbaria: BOZ, MSNM, RO, ROV, TR, TSB. The personal herbarium of Dr. G. GALASSO (Milano city) was also checked.

Specimens collected in Lazio region are kept in RO and in the personal Herbarium of the author (Herb. Iamónico-Lorenzetti).

The description of the species is based on personal observations.

3. Results and Discussion

Chenopodium strictum subsp. *strictum* is sometimes difficult to separate from subsp. *striatiforme* (AELLEN) UOTILA ($\equiv$ *Ch. striatiforme* MURR). Moreover, *Ch. strictum* s. l. is morphologically similar to *Ch. album* L. s. l., which is another extremely variable species. Hybridization is known to occur among the members of this group (JONSELL 2001). However, some

characters provide a reliable separation of these three taxa (Table 1) according to UOTILA 1977.

Table 1. Diagnostic features of *Chenopodium strictum* subsp. *strictum*, *Ch. strictum* subsp. *striatiforme* and *Ch. album* s. l.

<i>Ch. strictum</i> subsp. <i>strictum</i>	<i>Ch. strictum</i> subsp. <i>striatiforme</i>	<i>Ch. album</i> s. l.
Plants up to 1,5 m	Plants up to 0,5 m (rarely up to 1 m)	Plants up to 3 m
Stem red with prominent dark red ribs	Stem red with prominent dark red ribs	Stem green (sometimes red) without prominent ribs
Lowermost branches ascending from an almost horizontal base	Lowermost branches ascending from an almost horizontal base	Lowermost branches oblique
Middle leaves ovate, elliptic, with almost parallel margins in the middle part, never lobed	Middle leaves ovate, elliptic, with almost parallel margins in the middle part, never lobed	Middle leaves ovate or lanceolate, triangular or rhombic, with no parallel margins, somewhat 3-lobed
Lower leaves elliptic, 3–5,5 cm long	Lower leaves sometimes rhombic, less than 3 cm long	Lower leaves triangular or rhombic, 5–9 cm long (sometimes up to 15 cm)
Lower and middle leaf margins entire or regularly dentate; apex obtuse	Lower and middle leaf margins often regularly serrate; apex obtuse	Lower and middle leaf margins usually highly irregularly dentate; apex usually acute
Inflorescence green or bluish-green (sometimes slightly farinose)	Inflorescence green or bluish-green (sometimes slightly farinose)	Inflorescence often densely farinose
Seeds 1–1,2 mm in diameter	Seeds 1–1,2 mm in diameter	Seeds 1,2–1,6 mm in diameter
2n = 36	2n = 36	2n = 54

Chenopodium strictum ROTH Nov. Pl. Sp. 180. 1821 subsp. *strictum* (Fig. 1)

Erect annual (therophyte) 0,2–1 m (sometimes to 1,5 m). Stems often red with very prominent dark red ribs, branched; lowermost branches are ascending from an almost horizontal base. Leaves are ovate or elliptic (longer than 3 cm), with parallel margins in the middle part, entire or slightly dentate, apex generally obtuse, petiole equalling the blade. Flowers arranged in green, bluish-green or slightly farinose terminal spikes; tepals 5, green, connate at base, weakly keeled; stamens 5; stigmas 2. Fruit with one horizontal seed, ovate (1–1,2 mm in diameter), black, smooth (sometimes with radial striae).

Chromosome number: 2n = 36 (RAHIMINEJAD 2006).

Habitat: disturbed areas (especially roadsides).

Phenology (flowering): August to December.

Fig. 1 shows the provinces of Italy (Bergamo, Bolzano, Pordenone, Roma, Trento, Trieste) with present occurrence of *Ch. strictum* subsp. *strictum* in Italy (only the cited specimens are considered). The additional collections of *Ch. strictum* subsp. *strictum* that the author found in Lazio



Fig. 1. Distribution map. Provinces with records of *Chenopodium strictum* subsp. *strictum* in Italy are marked fully in black.

region are the first records of this subspecies from central and southern Italy.

Specimina visa: Italy, Lazio, Roma, Arco di Travertino, ca. $41^{\circ} 52' N$, $12^{\circ} 32' E$, incolto recintato, 50 m a.s.l., 10 Oct 2007, D. IAMONICO (RO, Herb. Iamónico-Lorenzetti); via di Tor Vergata, ca. $41^{\circ} 50' N$, $12^{\circ} 37' E$, incolto al margine della strada, 81 m a.s.l., 30 Oct 2008, D. IAMONICO (RO, Herb. Iamónico-Lorenzetti). – Italy, Lazio, Ciampino, via dei Laghi (SP 217), tra via delle Mura dei Francesi e Via Acqua Acetosa, ca. $41^{\circ} 47' N$, $12^{\circ} 37' E$, cantiere, 164 m a.s.l., 14 Dec 2008, D. IAMONICO (RO, Herb. Iamónico-Lorenzetti). – Italy, Lombardia, Valbondione (BG), Maslana, 1190 m a.s.l., 10 Ago 1999, G. GALASSO (Herb. Galasso). – Italy, Trentino-Alto Adige, Trento, Trento ai Francescani, 10 m a.s.l., 1897, J. MURR, F. PROSSER (TR). – Italy, Trentino-Alto Adige, Trento, Argine destro dell'Adige all'altezza di Pomarolo (TN), ca. $44^{\circ} 55' N$, $11^{\circ} 02' E$, 173 m a.s.l., 01 Ago 1992, F. FESTI, J. WALTER (ROV). – Italy, Trentino-Alto Adige, Trento, Nell'abitato di Bocenago (Val Rendena,

TN), ca. 46° 07' N, 10° 45' E, 730 m a.s.l., 27 Oct 1996, F. PROSSER, J. WALTER (ROV). – Italy, Trentino-Alto Adige, Trento, Verdesina, nell'abitato (Val Rendena, TN), ca. 46° 03' N, 10° 42' E, 650 m a.s.l., 01 Nov 1996, F. PROSSER, J. WALTER (ROV). – Italy, Trentino-Alto Adige, Bozen, Meran, Sinich, Auffangbecken des Naifbaches 0,5 km S Schloss Trauttmansdorff, ca. 46° 39' N, 11° 11' E, kiesige Ruderalfläche, 330m a.s.l., 10 Sep 2003, T. WILHALM, J. WALTER 2276 (BOZ). – Italy, Trentino-Alto Adige, Bozen, Kastelbell-Tschars, Sonnenberg, 0,15 Km W Hof Juval Ober, ca. 46° 39' N, 10° 56' E, schütterer Trockenrasen, ehemaliger Acker, 1300 m a.s.l., 11 Sep 2003, T. WILHALM, J. WALTER 6852 (BOZ). – Italy, Trentino-Alto Adige, Bozen, Mölten, S-Abhang der Kirche St. Georgen 0,9 km W Kirche von Verschneid, ca. 46° 33' N, 11° 15' E, Magerweide mit offener Grasnarbe, Porphyrt, 975m a.s.l., 17 Sep 2004, T. WILHALM, J. WALTER 9707 (BOZ). – Italy, Trentino-Alto Adige, Bozen, Pertschins, Rabland, E-Rand des Dorfes 0,5 km ESE Pfarrkirche, ca. 46° 40' N, 11° 04' E, Straßenrand, 535m a.s.l., 04 Oct 2004, T. WILHALM, J. WALTER 4933 (BOZ). – Italy, Friuli-Venezia Giulia, Sogonico (TS), zona industriale, sine die, L. POLDINI 022839 (TSB). – Italy, Friuli-Venezia Giulia, Fontanafredda (PD), Talmassons, bordo strada, 40 m a.s.l., 23 Nov 1999, R. PAVAN 022841 (TSB). – Italy, Friuli-Venezia Giulia, Azzano Decimo (PD), argine destro presso il cimitero di Corva, 18 m a.s.l., 01 Sep 2000, R. PAVAN 022840 (TSB).

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