

186. FIRST RECORD OF *AMARANTHUS POWELLII* SUBSP. *POWELLII* (AMARANTHACEAE) IN LAZIO REGION (CENTRAL ITALY) WITH TAXONOMICAL, MORPHOLOGICAL, COROLOGICAL AND ECOLOGICAL NOTES

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*Primera cita de *Amaranthus powellii* subsp. *powellii* (Amaranthaceae) para la región de Lazio (Italia Central) con observaciones taxonómicas, morfológicas, corológicas y ecológicas*

Key words. *Amaranthus powellii* S. Watson s.l., invasive status, distribution

Palabras clave. *Amaranthus powellii* S. Watson s.l., estatus invasivo, distribución

Amaranthus L. (*Amaranthaceae*) is a genus consisting of about 70 species, about 40 of which are native to America, while the remaining ones are native to the other continents (Costea *et al.* 2001). Most of the species recorded in Europe are considered alien species causing social (allergenic plants), economical (crop weeds) and ecological impacts (loss of biodiversity). Moreover, the whole genus is considered critical as for taxonomy and nomenclature, and for the frequent misapplication of names.

The *Amaranthus hybridus* group includes six closely related species (*sensu* Costea *et al.* 2001) that are considered the most critical ones both for taxonomy and for morphological variability. Consequently, the identification of the species within this group is very difficult.

In this paper, *A. powellii* S. Watson subsp. *powellii* is recorded for Lazio region (central Italy) for the first time. The morphology of the species, its distribution, its invasive status, ecological features for Italy and taxonomical notes are also treated. Moreover, a comparison with the related subspecies *A. powellii* S. Watson subsp. *bouchonii* (Thell.) Costea & Carretero is provided.

The work is based on floristic surveys

carried throughout Lazio region. Literature too was extensively analysed (Cacciato 1966; Carretero 1990; Jonsell 2001; Costea *et al.* 2001; Mosyakin & Robertson 2003; Costea *et al.* 2004). Finally, specimens of *A. powellii* s.l. kept in the following Herbaria were examined and compared: BOZ, FI, MRSN, MSNM, RO, ROV, TR, TSB, plus personal collections by Dr. A. Soldano (Vercelli city) and Dr. A. Tisi (Torino city).

The nomenclature follows Costea *et al.* (2001).

The distribution was derived by examination of localities that are reported on herbarium labels [for Friuli-Venezia Giulia region annotations according to Poldini (1991, 2002)].

Ecological data are based on personal observations and information reported on herbarium labels.

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

A. powellii s.l. is included in the subgen. *Amaranthus* sect. *Amaranthus* subsect. *Hybrida* Mosyakin & K.R. Robertson (*sensu* Mosyakin & Robertson 1996).

Some authors accept *A. hybridus* L. in a broad sense, including *A. powellii* s.l. and all *taxa* of the subject. *Hybrida* (e.g. Coons 1977, 1978; Jonsell 2001), while others report *A. powellii* as a distinct species (e.g. Carretero 1985, 1990; Costea *et al.* 2001; Mosyakin & Robertson 2003; Costea *et al.* 2004).

As regards *A. bouchonii* Thell., it is considered to be conspecific with *A. powellii* by several authors (Sauer 1967; Carretero 1990; Akeroyd 1993; Conti *et al.* 2007), some of them reporting *A. bouchonii* as a mutant form either of *A. powellii* or of *A. hybridus*. Others (Cacciato 1966; Pignatti 1982; Hügin 1987; Stace 1991; Wilkin 1992; Stace 1997; Conti *et al.* 2005) kept *A. bouchonii* at a specific rank. However, caryological studies carried out by Greizerstein & Poggio (1992) and Greizerstein *et al.* (1997) and morphological analyses by Costea *et al.* (2001) strongly support the independence of this *taxon*, so that the choice by Costea *et al.* (2001) for the subspecific rank appears to be more appropriate; the same option was made by me for the Italian flora (Iamonicò 2008).

The main diagnostic characters between *A. powellii* subsp. *powellii* and *A. powellii* subsp. *bouchonii* are summarized in table 1 (regarding *A. powellii* subsp. *bouchonii* in Lazio regions is only recorded the var. *cacciatoii* Aellen,

that is distinguished from the typical form in having the circumscissile fruit; my outstanding taxonomic and morphometric studies of this variety have the aim to verify its identity and taxonomic status).

Amaranthus powellii* S. Watson** Proc. Amer. Acad. Arts 10: 347 (1875) **subsp. *powellii

Erect annual (theropyte) to 0,8-1,1 m. Stem glabrous to puberulous in the inflorescence region, green- or red-coloured. Leaves ovate or lanceolate, sometimes rhombic (2-6 x 3-10 cm). Inflorescence stiff, erect, unbranched or with few widely spaced branches; terminal branch usually much longer than the lateral branches. Bracts thick, 2-4 times longer than the tepals, with lateral membranous borders thinning towards apex. Tepals 5, unequal with mid-vein usually inconspicuous. Fruit circumscissile, elliptical, usually 2 times longer than wide and about or slightly longer than tepals. Seeds lenticular (1,2-1,3 x 1-1,1), black to dark brown.

Chromosome number: $2n = 32, 34$ (Greizerstein *et al.* 1997).

A. powellii subsp. *powellii* is a worldwide spread weed native to North and South America

<i>A. powellii</i> subsp. <i>powellii</i>	<i>A. powellii</i> subsp. <i>bouchonii</i>
Inflorescence stiff and erect, unbranched or with very few widely spaced branches	Inflorescence often not erect, more lax, with many lateral branches
Bracts thick, 2-4 times longer than the tepals	Bracts thin, 1,8-2 times longer than the tepals
Fruits circumscissile, usually 2 times longer than wide	Fruit indehiscent, usually 1,5 times longer than wide

Table 1. Differences in the characters with high diagnostic value between *A. powellii* subsp. *powellii* and *A. powellii* subsp. *bouchonii*. *Caracteres diferenciales con mayor valor diagnóstico entre A. powellii subsp. powellii y A. powellii subsp. bouchonii.*

(Costea *et al.* 2001). For Europe, it is considered an alien species (Akeroyd 1993; D.A.I.S.I.E. 2008); Greuter *et al.* (1984) and Aellen (1964) do not report *A. powellii* at all. As regards Italy, this subspecies is reported for Trentino-Alto Adige and Friuli-Venezia Giulia (Conti *et al.* 2005) and, more recently, for Veneto (Conti *et al.* 2007) and Abruzzo (Conti & Tinti 2008). The name *A. powellii* subsp. *powellii* (or its synonyms) was never indicated in the former main Italian floras (Bertoloni 1854; Cesati *et al.* 1884; Parlatore 1893; Arcangeli 1894; Fiori & Paoletti 1900-1902; Fiori 1923; Zangheri 1976); Pignatti (1982) only reported a note following the description of *A. chlorostachys* Willd. in which he generically stated “*Recentemente indicato come A. powellii* Watson” (actually, *A. chlorostachys* is a synonym of *A. hybridus* L.). Figure 1 shows the distribution of *A. powellii* subsp. *powellii* in Italy.

As regards the ecological demands, *A. powellii* subsp. *powellii* can be considered a thermophyte, xerophyte, heliophyte and



Figure 1. Distribution of *A. powellii* subsp. *powellii* in Italy. *Distribución de A. powellii* subsp. *powellii* en Italia.

nitrophilous plant. Moreover, it tolerates a broad range of soil types and textures, and pH levels (Costea *et al.* 2004; Kigel 1994). Weaver & Hamill (1985) reported that its growth rates are reduced on soil at pH 4.8, with increased levels of Al, Mn, Zn and decreased levels of N in the leaves.

A. powellii subsp. *powellii* followed early human settlements as a pioneer of disturbed areas (roadsides, railways, rubbish, fallow fields) or as an invader of cultivated fields. The plant can be found up to 1000 m a.s.l.

A. powellii subsp. *powellii* is here recorded for the first time in Lazio region (central Italy); moreover, this is the second record for central and southern Italy. Based on Pyšek *et al.* (2004), this neophyte can be considered a naturalized unit to Lazio region and to all the Italian regions in which it is reported. However, further studies are needed both to evaluate the invasiveness of this species and to verify its presence in other Italian regions defining its distribution in Italy.

Selected specimens examined

Amaranthus powellii S. Watson subsp. *bouchonii* (Thell.) Costea & Carretero

ITALY: Friuli-Venezia Giulia: Udine, Magnano in Riviera, 200 m, 11-X-1992, *A. Danelutto* (FI); Udine, Sacile, San Giovanni di Livenza, 04-IX-1998, *L. Poldini* (TSB). **Lazio:** Roma, ruderali a Torpignattara, 14-VIII-1964, *A. Cacciato* (FI); Roma, prati a Cinecittà, 10-VIII-1965, *A. Cacciato* (RO). **Liguria:** Santo Stefano Magra (La Spezia), greto lungo la sponda sinistra del fiume Magra, 19-VIII-1981, *A. Soldano* (Herb. Soldano); La Spezia, argine sinistro del fiume Magra, poco a monte della confluenza col fiume Vara, nei dintorni di Sarzana, 20 m, 27-VII-1982, *D. Marchetti* (MRSN). **Lombardia:** Spessa (Pavia), lanca prima del Po, 02-X-1979, *A. Soldano* (Herb. Soldano); Milano, zona 18 Baggio, via Albona: numero dispari, tra via A. da Gandino e via Cabella, marciapiede presso il cordolo che separa l'aiuola, alt. 120 m, 08-IX-1991, *G. Galasso* (MSNM). **Piemonte:** Castagneto (Torino), sponda

del Po di fronte a Chiasso, *A. Soldano* (Herb. Soldano); Novara, Cureggio, in luogo incolto presso Fontaneto d'Aragona, 30-IX-1983, *G. Abbà* (MRSN); Molino dei Torti (AL), incolto presso l'abitato del paese, 06-IX-1989, *G. Abbà* (MRSN); Vercelli, a lato della riva destra del Sesia a monte del ponte ferroviario, 15-X-1979, *A. Soldano* (Herb. Soldano); Alessandria, Fugarolo, pianura, alt. 94 m, 25-VIII-2008, *A. Tisi* (Herb. Tisi). **Toscana:** Massa, Cinque Vie, 05-X-1975, *A. Soldano* (Herb. Soldano). **Trentino-Alto Adige:** Vigneto a SW di Borghetto (a S di Avio) (TR), 135 m, 17-VII-1991, *F. Prosser* (FI); Trento, Colle a circa 500m a N di Mori, campo di patate, 605 m, 15-VIII-1999, *F. Prosser* (ROV); Bolzano, Siebeneich (Terlan), Margarethenwald 0,4 km NW Darumhof, ruderalstelle, 270 m, 08-X-2004, *W. Stockner* (BOZ).

Amaranthus powellii S. Watson subsp. *powellii*

ITALY: Abruzzo: L'Aquila, lago di Campotosto, 1314 m, 08-IX-2002, Leg. *D. Tinti*, Det. *D. Iamónico* (APP); Fossa (AQ), fiume Aterno sotto fossa, sponde, 570 m, 02-IX-2007, Leg. *F. Bartolucci*, Det. *D. Iamónico* (APP). **Friuli-Venezia Giulia:** Udine, Villa Santina, 02-IX-2001, *L. Poldini* (TSB). **Lazio:** Roma, Parco Urbano di Aguzzano, Terreno da riporto, alt. 100 m, 08-IX-2007, *D. Iamónico* (RO, Herb. Iamónico-Lorenzetti); Roma, Albano Laziale frazione Cancelliera, massicciate ferroviarie, nei pressi dell'incrocio con Via Cancelliera, alt. 650 m, 06-IX-2008, *D. Iamónico* (Herb. Iamónico-Lorenzetti); Roma, Valmontone, incolto al margine della Strada Vicinale della Vecchia, nei pressi della stazione ferroviaria, alt. 845 m, 15-X-2008, *D. Iamónico* (Herb. Iamónico-Lorenzetti). **Trentino-Alto Adige:** Bozen, Bozen, 0,45 km ESE Etschbrücke in Sigmundskron, Nähe Bahnübergang, Ruderalflur, 240 m a.s.l., 23 Jul 1998, *T. Wilhalm* (BOZ); Bozen, Feldthurns, Schrambach, Villnösser Haltestelle, Rand der Bahnstrecke, 530 m a.s.l., 22 Ago 2002, *A. Hilpold* (BOZ); Bozen, Jenesien, Tschöggelberg, Jenesien, Oberglaning, 0,15 km N(NW) Perlegg Höfe, Waldweg (Porphy), 1000 m a.s.l., 11 Oct 2008, *T. Wilhalm* (BOZ); Trento, Trento, 03 Sep 1890, Leg. *E. Gelmi*, Det. *F. Festi* (TR); Trento, Piano di Vallarsa: campo lungo la stradina per Poiani, Campo a riposo, 890 m, 25 Oct 2005, Leg. et Det. *F. Prosser* (ROV). **Veneto:** Padova, Tra Faedo e Fontanafredda in una cascina (Colli Euganei, provincia di Padova, Italia), Su

macerie, 100 m, 07 Ago 1989, Leg. et Det. *F. Prosser* (ROV); Verona, Navene, lungolago a N delle Terme, Scarpata ghiaiosa, 67 m, 09 Nov 2006, Leg. *A. Bertolli*, *F. Prosser*, Det. *F. Prosser* (ROV).

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187. SCHKUHRIA PINNATA (LAM.) KUNTZE (COMPOSITAE), NUEVA ESPECIE PARA LA FLORA DE EXTREMADURA

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Schkuhria pinnata (Lam.) Kuntze, a new species for the Extremadura flora

Palabras clave. *Schkuhria pinnata*, Compuestas, neófito, corología, Extremadura, Península Ibérica.

Key words. *Schkuhria pinnata*, Compositae, neophyte, chorology, Extremadura, Iberian Peninsula.

***Schkuhria pinnata* (Lam.) Kuntze, Revis. Gen. Pl. 3: 170 (1898).**

CÁCERES: Villanueva de la Vera, Vega de la Barca. 30TTK9440, 280 m. Comunidades arvenses en cultivos de tabaco, 31-X-2005, *Leg. & Det.*: A. Amor, SALA 110488.

Con esta nota queremos dejar constancia de la presencia de este neófito en el nordeste de Extremadura. Se trata de un terófito de origen neotropical americano introducido involuntariamente y que, hasta ahora, sólo aparece en ambientes ruderales y arvenses,