

# Nomenclatural notes about the names in Amaranthaceae published by Roberto de Visiani

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**Keywords:** Amaranthaceae s.str., *Amaranthus* L., *Atriplex* L., Chenopodiaceae s. str., *Chenopodium* L., lectotypification, new synonymy, *nomen nudum*.

**Ključne besede:** Amaranthaceae s. str., *Amaranthus* L., *Atriplex* L., Chenopodiaceae s. str., *Chenopodium* L., lektotipizacija, novi sinonimi, *nomen nudum*.

## Abstract

The names in Amaranthaceae published by R. de Visiani are investigated. *Amaranthus gangeticus* var. *cuspidatus* is a *nomen nudum* and thus invalid according to Art. 38.1a of the ICN. *Amaranthus hierichuntinus*, *Atriplex patula* var. *hastifolia*, and *Chenopodium album* var. *oblongum* are lectotypified, respectively, on a specimen preserved at PAD, and illustrations by Scopoli and Vahl. We here propose to synonymize the three names (new synonymies) respectively with *Amaranthus graecizans* subsp. *graecizans*, *Atriplex patula* subsp. *patula*, and the type subspecies of *C. album*. For nomenclatural purposes, also the name *C. lanceolatum* Willd. (heterotypic synonym of *C. album* subsp. *album*) is investigated and lectotypified, on a specimen preserved at B.

## Izveček

Pregledali smo imena vrst iz družine Amaranthaceae, ki jih je objavil R. de Visiani. *Amaranthus gangeticus* var. *cuspidatus* je *nomen nudum* in je zato objavljeno ime neveljavno v skladu z Art. 38.1a Kodeksa nomenklature (ICN). Imenom *Amaranthus hierichuntinus*, *Atriplex patula* var. *hastifolia* in *Chenopodium album* var. *oblongum* smo določili lektotipe na podlagi primerkov, shranjenih v herbariju PAD in ilustracij, ki sta jih naredila Scopoli in Vahl. Predlagamo, da tri imena obravnavamo kot sinonime: *Amaranthus graecizans* subsp. *graecizans*, *Atriplex patula* subsp. *patula* in tip podvrste *C. album*. Zaradi nomenklaturnih razlogov smo preučili ime *C. lanceolatum* Willd. (heterotipski sinonim *C. album* subsp. *album*) in določili lektotip na podlagi primerka iz herbarija B.

**Received:** 14. 4. 2015

**Revision received:** 25. 8. 2015

**Accepted:** 1. 9. 2015

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## Introduction

As part of ongoing researches on the taxonomy of *Amaranthaceae* in several projects, including the new edition of the Italian Flora (editor, Prof. S. Pignatti), the “*Italian Loci Classici Censu*” initiative (see Domina et al. 2012, Peruzzi et al. 2015), the Euro+Med PlantBase, the Compendium Programme CAB International (by D. Iamonico, see e.g., Iamonico 2010, 2011, 2012a, 2013a, 2013b, 2014a, 2014b, 2014c, 2014d, 2015a, 2015b, Iamonico & Das 2014, Iamonico & Jarvis 2012, Iamonico & Kadereit 2012, Iamonico & Somlyay 2014, Iamonico & Sukhorukov 2014, Iamonico & Sánchez del Pino 2014, 2015, Sánchez del Pino & Iamonico 2015, Sukhorukov et al. 2014), and on the nomenclature of the names published by R. de Visiani (by M. Clementi, see e.g. Clementi et al. 2014, 2015a, 2015b), we here present a joined contribution concerning the four names belonging to *Amaranthaceae* Juss. *s.lat.* (circumscription according to APGIII 2009) that were published by R. de Visiani.

## Materials and methods

The work is based on an extensive analysis of literature and examination of the specimens preserved in the herbaria B, FI, G-DC, HFLA, LINN, NAP, RO, PAD and W (acronyms according to Thiers 2015 [continuously updated]). The articles cited through the text refer to the *Melbourne Code* (ICN, McNeill et al. 2012).

## Results and discussion

### *Amaranthus gangeticus* var. *cuspidatus*

Visiani (1842a: 54) proposed the taxon *cuspidatus* at the varietal rank, under *Amaranthus gangeticus*, associating with it the abbreviations “ann.” (= “*annua. Pianta erbacea annuale*”, i.e. “annual herbaceous plant”), and “s.d.” (= “*sub diu. Pianta che vive all’aperto*”, i.e. “plant living in the open”) (see Visiani 1842a: 49). Lacking a description or diagnosis, this name is *nudum*, and, consequently, it is invalid according to Art. 38.1a. No specimens bearing labels referring to this variety were found in Visiani’s collections, so it was not possible to elucidate his concept of this taxon.

### *Amaranthus hierichuntinus*

Visiani’s protologue (Visiani 1858: 139) consists of a detailed description, the provenance (“*Hab. in herbido circa Hierico*”, where “*Hierico*” is the city of Jericho, in

Israel/Palestine), and a diagnosis comparing it to *Am. polygonoides* as treated in Willdenow (1790: 11), which should differ from *A. hierichuntinus* for having “*utriculis [...] certe indehiscentis, flores monoici, calyx faemineus 5-fidus, utriculus calyce inclusus*”. The fact that this plant originates from the Middle East and is not from the western Balkans, the main area of study of Visiani’s, might seem unusual. Although we were unable to retrieve any information on the precise source of this material either in Visiani’s published corpus or in his unpublished material, it must be noted that none the taxa presented in Visiani (1858a) were in fact collected by himself or his Dalmatian collaborators, but were instead all plants cultivated at the Botanical Garden of Padua, of which he was the director. Indeed, we also find in that work taxa that originate from the Americas (*Tecoma*, *Dictyanthus*) and tropical regions (*Phyllanthus*, *Begonia*). Referring to this taxon, there is one herbarium sheet preserved in PAD bearing two specimens, of which one is composed of two individuals (PAD-H0044649, mounted together on the top-left of the sheet), that were collected in June–July 1857. It must be acknowledged that, given the context, it is highly unlikely that this particular specimen originates from the *locus classicus*, as it was almost certainly cultivated in Padua from seeds that he received, as is the case with the other plants presented in that work (a fact that bears no nomenclatural relevance). The other specimen on the sheet (PAD-H0044650, on the bottom-right) is composed of three individual plants, and is associated to a label including the annotation “*Amaranthus hierichuntinus* Vis.”, without a date or locality of collection. Since we cannot be sure whether or not PAD-H0044650 is part of the original material, we avoid it a possible choice for a lectotype. The two plants on the top-left are instead certainly part of the original material, and almost certainly part of the same gathering. This specimen matches the protologue, and is here designated as the lectotype of the name *Amaranthus hierichuntinus*. Concerning the identity of *A. hierichuntinus*, the lectotype shows the following characteristics: plants annual with stem erect or ascending, branched, glabrous, brownish; leaves lanceolate, the lower ones 1.0–2.4 × 5.7–8.8 mm (ratio length/width 3.1–4.7), the middle 3.4–5.7 × 14.1–17.6 mm (ratio length/width 3.4–3.7), the upper 1.0–1.7 × 3.7–9.9 mm (ratio length/width 3.3–4.1), all petioled, glabrous with margins entire, base cuneate, and apex obtuse-mucronate; synflorescence arranged in axillary glomerules, brownish; floral bracts 2, as long as the perianth; pistillate flowers with 3 tepals acute, shortly pointed; stigmas 3; fruit brownish subglobose, dehiscent, longer than the perianth; seed lenticular, dark, smooth. This morphological structure

perfectly matches *A. graecizans* L. subsp. *graecizans*, according to the current concept (see e.g., Costea 2003, Iamonico 2015a). We here propose the synonymization of the two names (new synonymy).

***Atriplex patula* L. var. *integrifolia*, *Atriplex patula* L. var. *hastifolia***

Visiani (1842b: 237) had a broad concept of *Atriplex patula* L., recognizing three varieties:  $\alpha$ . *integrifolia* Vis.,  $\beta$ . *hastifolia* Vis. (a correction from the original “*hastae-folia*” – see art. 60.8), and  $\gamma$ . *triangularis* Willd. He distinguished these three varieties on the basis of the shape of the leaves: “*foliis indivisis, basi attenuatis*” (var. *integrifolia*), “*foliis hastato-lanceolati, basi attenuatis*” (var. *hastifolia*), and “*foliis triangularis basi truncatis ...*” (var. *triangularis*).

Visiani consistently used the letter  $\alpha$  to indicate the nominal variety (see for instance his treatment of *Suaeda maritima* in Visiani 1842b: 243). In the case of *A. patula* var. *integrifolia*, this is explicitated with the words “*species Linnaeana ea est, quam sub var.  $\alpha$  proposui*” (i.e. “the Linnaean species is that which I proposed under var.  $\alpha$ ”). It is therefore an invalid name, not complying with the provisions of Art. 26.2.

Concerning the var. *hastifolia*, two illustrations were listed in the protologue from Oeder et al. (1761–1883, “*Icon. Fl. dan. T. 1285*”, image available at [http://plantillustrations.org/illustration.php?id\\_illustration=109214](http://plantillustrations.org/illustration.php?id_illustration=109214)) and Scopoli (1787, “*Scop. delic. Insubr. Tab. VII*”), which are part of the original material. Only one specimen was found in Visiani’s collections in PAD (PAD-HD02188), bearing a label including the original annotation by Visiani: “*Atriplex patula*  $\beta$ . *hastae-folia In cultis insulae Lusini*” (island of Lošinj, Croatia). Unfortunately, the date of collection is missing, and although we do know from a survey of Visiani’s collections that most of his plants from the island of Lošinj were collected precisely in 1842, we were not able to prove that this is the case also for this specimen. Since the doubts concerning the date, we avoid it for the purpose of lectotypification. Fortunately, the two images cited in the protologue are eligible as lectotypes, matching the diagnosis. As Scopoli’s illustration also displays the bract-like cover at fruiting stage, whose characteristics have high taxonomic value in *Atriplex* (see e.g., Castroviejo 1990, Akeroyd 1993, Sukhorukov, 2006), we prefer to designate the image in *Deliciae Flora et Fauna Insubrica* as the lectotype for the name *Atriplex patula* var. *hastifolia*. According to the current concept (see e.g., Iamonico 2012b, Sukhorukov 2014), Visiani’s variety shows features that completely overlap those of the nominal variety.

***Chenopodium album* L. var. *oblongum***

The variety *oblongum* was described by Visiani (1842b: 240) to distinguish forms of *Ch. album* with lanceolate leaf blades with subentire margins (“*foliis oblongo-lanceolatis subintegris*”). The author cited a synonym from Vahl (1797), “*Ch. viride* Valh fl. dan. fasc. XX p. 4), explicitly excluding *C. viride* L., and the illustration therein (“*T. 1150*”). Therefore, the Vahl’s illustration is part of the original material for the name *C. album* var. *oblongum*. We have not been able to trace specimens that are eligible as the lectotype, as all the *Chenopodium* exsiccata that we found lack collection dates and/or the locality, so the image in *Flora Danica* appears to be the only extant original material. Fortunately, it matches Visiani’s diagnosis, and it can be here designated as the lectotype of the name *C. album* var. *oblongum*.

Concerning the application of the name, the plant by Vahl (l.c.) can certainly be ascribed to one of the taxa that are currently recognized under the group of *C. album*, showing some leaves with margins not entire and  $\pm$  dentate (leaves with entire leaves are characteristic of *C. vulvaria* L.), and without a median lobe 2–3 longer than the lateral ones (this latter a characteristic of *C. ficifolium* Sm.) (see e.g., Castroviejo 1990, Akeroyd 1993). Within the *C. album* group, the species *C. opulifolium* Schrad. and *C. strictum* Roth s.lat. can be excluded, being characterized by having the leaf blades 3-lobed with length/width ratio of about 1 (*C. opulifolium*, see e.g., Pignatti 1982), the blades not lobed, with parallel margins, and stem red with prominent dark-red ribs (*C. strictum* s.lat., see e.g., Iamonico 2010). The other species belonging to the *C. album* group (*C. album* L. s.lat., *C. probstii* Aellen, and *C. suecicum* Murr.) have many leaves (at least in the middle and lower parts), more or less 3-lobed with margins dentate, excepting for a form of *C. album* s.str., named *C. lanceolatum* Muhl. ex Willd. that differs in having the proximal and middle cauline leaf blades elliptic to lanceolate, with margins often entire (see e.g., Clemants & Mosyakin 2003). Willdenow (1809: 291) described *C. lanceolatum* on the basis of a specimen collected by G. H. E. Muhlenberg in “*Pensylvania*”. On the basis of the short diagnosis and description, and the whole circumscription of the other *Chenopodium* species in *Enumeratio plantarum Horti Regii Botanici Berolinensis*, it is clear that Willdenow (1809: 288–291) described the new species to distinguish a form with ovato-lanceolate leaves with entire margins and complex inflorescences not arranged in dichotomous cymes (as he indicated for the subsequent listed species, *C. aristatum* L.). There is one sheet in B (B-W\_05365) including three specimens, of which one (B-W\_05365-010) bears the annotation “*Muhlenberg W. [Willdenow]*”. The specimen born on this sheet (a part

of the terminal inflorescence) matches Willdenow's diagnosis, and is here designated as the lectotype of the name *Chenopodium lanceolatum*. According to the current concept and treatments (see e.g., Jonsell 2001, Clemants & Mosyakin 2003, Iamonico in press), the features showed by *C. lanceolatum* and *C. album* var. *oblongum* completely overlap those of *C. album* subsp. *album*. Therefore, we here propose to synonymize this latter taxon with Visiani's variety (new synonymy).

## Conclusions

The analysis of literature, herbarium investigations and comparison of the protologues allowed us to designate lectotypes for the names *Amaranthus hierichuntinus*, *Atriplex patula* var. *hastifolia*, and *C. album* var. *oblongum*, while the name *Amaranthus gangeticus* var. *cuspidatus* is a *nomen nudum* and thus invalid according to Art. 38.1a of ICN (McNeill et al. 2012). The identities of *Amaranthus hierichuntinus*, *Atriplex patula* var. *hastifolia*, and *C. album* var. *oblongum* were also clarified: these names can be considered heterotypic and later synonyms (new synonymies) of, respectively, *Amaranthus graecizans* subsp. *graecizans*, *Atriplex patula* var. *patula*, and *C. album* subsp. *album*. With the aim to understand the concept of *C. album* var. *oblongum*, *C. lanceolatum* was also lectotypified and synonymized with Visiani's variety. The accepted names are in bold.

*Amaranthus hierichuntinus* Vis., Atti Reale Ist. Veneto Sci. Lett. Arti, ser. III, 4: 139 (1858), *syn. nov.* – Lectotype (designated here): s.l., June–July 1857, *s.coll. s.n.* (PAD-H-0044649!) (Fig. 1).

= *Amaranthus graecizans* L., Sp. Pl. 2: 990 (1753) subsp. *graecizans*. – Lectotype (designated by Fernald 1945: 139): Clayton 442 (BM-000051563, image of the lectotype available at <http://www.nhm.ac.uk/research-curation/research/projects/linnaean-typification/database/detailimage.dsm?ID=40700>)

*Atriplex patula* L. var. *hastifolia* Vis., Fl. Dalm., 1: 237 (1842b), *syn. nov.* – Lectotype (designated here): [Icon] Tab. VII (Scopoli 1787). Image of the lectotype available at <http://bibdigital.rjb.csic.es/ing/Libro.php?Libro=2427&Pagina=27>.

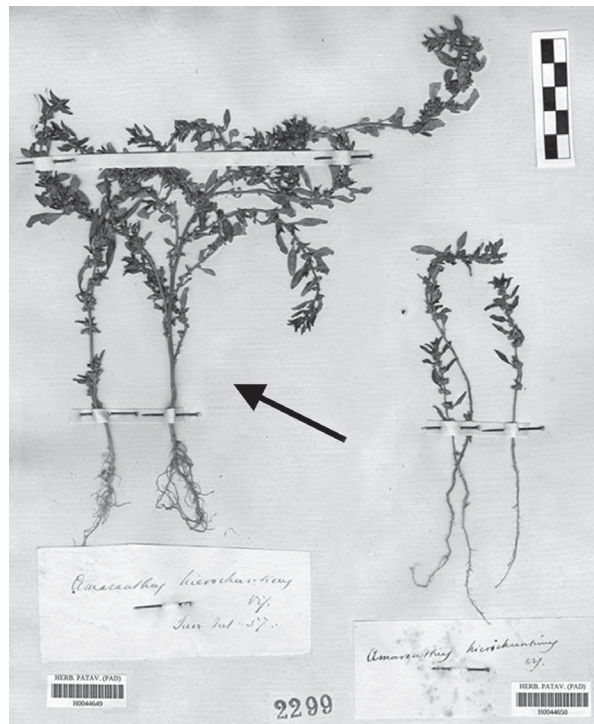
= *Atriplex patula* L., Sp. Pl. 2: 1053 (1753) var. *patula* – Lectotype (designated by Taschereau 1972: 1574): no. 1221.19 (LINN!, image available at <http://linnean-online.org/12331/>).

*Chenopodium album* L. var. *oblongum* Vis., Fl. Dalm., 1: 240 (1842b), *syn. nov.* – Lectotype (designated here):

[Icon] Tab. 1150 [MLC in original] (Oeder et al. 1761–1883, Image of the lectotype available at <http://bibdigital.rjb.csic.es/ing/Libro.php?Libro=4586&Pagina=86>).

= *Chenopodium album* L., Sp. Pl. 1: 219 (1753) subsp. *album* – Lectotype (designated by Brenan in Turrill & Milne-Redhead 1954: 6: no. 313.8 (LINN!, image available at <http://linnean-online.org/3082/>).

= *Chenopodium lanceolatum* Muhl. ex Willd., Enum. Pl.: 291 (1809) – Lectotype (designated here): *Pennsylvania, G. H. E. Muhlenberg s.n.* (B-W\_05365-010!, Image of the lectotype available at <http://herbarium.bgbm.org/object/BW05365010>; see also Ropert 2000+).



**Figure 1:** Lectotype of the name *Amaranthus hierichuntinus* (PAD-H0044649!); arrow indicates the lectotype.

**Slika 1:** Lektotip imena *Amaranthus hierichuntinus* (PAD-H0044649!); puščica označuje lektotip.

## Acknowledgements

We are grateful to the Directors and Curators of all quoted Herbaria for their support during the visits of the first author, the loans of specimens/photographs and requests of information. Special thanks to Rossella Marcucci (Herbarium of Padua, Italy) for the permission to reproduce the image of the lectotype of *Amaranthus hierichuntinus* (no further reproduction or distribution is permitted by any means).

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