

Lectotypification of two names in *Limoniastrum* (Plumbaginaceae)

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Abstract The halophytic shrub genus *Limoniastrum* has recently been recircumscribed to include only two Mediterranean-Saharan species, *Limoniastrum monopetalum* (L.) Boiss. (≡ *Statice monopetala* L.) and *L. guyonianum* Boiss. Protologues of both species are briefly discussed and lectotypes are designated using material at BM (Herb. Clifford) and G (Herb. Boissier).

Keywords lectotypification; *Limoniastrum guyonianum*; Linnaean name; Plumbaginoideae; *Statice monopetala*

■ INTRODUCTION

The genus *Limoniastrum* Heist. ex Fabr. (Plumbaginaceae) currently comprises two species of halophytic shrubs, *L. monopetalum* (L.) Boiss. (≡ *Statice monopetala* L.) and *L. guyonianum* Boiss. (Crespo & Lledó, 2000; Lledó & al., 2000), which are found mostly in coastal and saline dry areas of the Mediterranean and northern Saharan Africa (Ozenda, 1983; Dijkema & al., 1984; Barone & al., 1995). The molecular study by Lledó & al. (2000) showed that *Limoniastrum* s.l. was not monophyletic as traditionally circumscribed, and it was divided into three genera, *Ceratolimon* M.B.Crespo & Lledó, *Limoniastrum* s.str., and *Saharanthus* M.B.Crespo & Lledó, each well characterized from morphological and biogeographical points of view (Crespo & Lledó, 2000; Fabregat & al., 2003). This multigeneric classification had previously been accepted by Linczevski (1968), who had, however, applied two names that are not admissible (Crespo & Lledó, 2000): *Bubania* Girard, nom. nov. pro *Limoniastrum* L., nom. superfl. et illeg. (Art. 52.1 & 52.2 in McNeill & al., 2012) (currently named *Ceratolimon*) and “*Caballeroa*” Font Quer, nom. inval., provisionally proposed but not accepted by the author as a replacement name for *Lerrouxia* Caball. 1935, non *Lerrouxia* Mérat 1812 (see Crespo & Zijlstra, 2012; Applequist, 2013) (currently named *Saharanthus*).

Species of *Limoniastrum* s.str. are ecologically and economically significant (Debouba & al., 2013). *Limoniastrum monopetalum* was described from Sicily (Italy) by Linnaeus (1753: 276) as *Statice monopetala*. It is a shrub of whitish-grey aspect, with leaves narrowly spatulate, and stems and branches densely beset with white calcareous depositions. This

species has been the subject of many studies regarding its ecology, distribution, genetics and taxonomy (El-Shourbagy & al., 1984; Rubio & al., 1984; Crespo & Lledó, 2000; Lledó & al., 2000; El-Morsi, 2010; Zahran & El-Amier, 2013). *Limoniastrum guyonianum* was described by Boissier (1848: 689) from eastern Algeria, during the French scientific expeditions carried out in northern Africa within the 19th century, though it extends through Egypt (Greuter & al., 1989). It resembles *L. monopetalum* but is readily recognized by its narrower sub-cylindrical leaves, divaricated many-branched inflorescence, and smaller flowers (Quézel & Santa, 1963; Qaiser & Siddiqi, 1984; Boulos, 2000). It has been used in local communities as forage for camels (Laudadio & al., 2009), and recently its medicinal potential has been reassessed (Trabelsi & al., 2012; Debouba & al., 2013; Krifa & al., 2013).

From the standpoint of nomenclature, both species names appear to be not yet typified and they are investigated here as part of the researches on the genus *Limoniastrum* and relatives in both the project “Flora Valentina” (by P.P. Ferrer-Gallego, E. Laguna, and M.B. Crespo—see, e.g., Crespo & Lledó, 2000; Lledó & al., 2000; Crespo & Zijlstra, 2012) and the initiative “Italian Loci Classici Census” (by D. Iamónico and M. Iberite—see, e.g., Iamónico, 2012; Iamónico & Peruzzi, 2014; Iberite & al., 2013).

■ TYPIFICATIONS

Limoniastrum Heist. ex Fabr., Enum.: 25. 1759 ≡ *Bubania* Girard in Mém. Sect. Sci. Acad. Sci. Montpellier 1: 182. 1848, nom. superfl. et illeg. ≡ *Limionides* Kuntze, Revis.

Gen. Pl. 2: 394. 1891, nom. superfl. et illeg. – Type: *Limoniastrum articulatum* Moench, nom. superfl. et illeg. (≡ *Statice monopetala* L.; *Limoniastrum monopetalum* (L.) Boiss.).

Statice monopetala

Linnaeus's protologue (1753: 276) consists of "STATICE caule fruticoso folioso, floribus solitariis, foliis lanceolatis vaginantibus", followed by two synonyms, the first one ("Statice foliis caulinis lanceolato-linearibus") cited from Linnaeus (1738: 116) and Royen (1740: 192), the second synonym ("Limonium lignosum") from Boccone (1674: 34, 35); the provenance ("Habitat in Sicilia") is also provided. Boccone (l.c.) presented two illustrations (tt. 16 and 17) that can be considered original material for the name *Statice monopetala*.

One specimen useful for the purposes of typification is preserved at BM (Herb. Clifford: 116, *Statice* 3, barcode 000558477 [digital image!]). This sheet bears a plant with leaves and flowers, and the annotation by Linnaeus "*Limonium siculum lignosum, gallas ferens et non ferens / Statice monopetala*", partially linked to the Boccone's synonym cited by Linnaeus (1753). This material is part of the original material and eligible as lectotype.

In the Linnaean Herbarium at LINN there is a sheet (No. 395.18, image available at: <http://linnean-online.org/3697/>), containing two specimens in very good condition. However, this sheet lacks the relevant *Species Plantarum* number ("11" in the case of *S. monopetala*) and is to be considered a post-1753 addition to the collection and not original material for the name (the Linnaean script is "*S. monopetala*") (see Turland & Jarvis, 1997; Turland, 2006; Jarvis, 2007). Actually, this plant came from C. Alströmer (there is also Alströmer's annotation "33.a.").

Furthermore, a herbarium sheet was found in Herb. Smith at LINN (No. 552.6) which contains three specimens of *Statice monopetala* (No. 552.6.1—image available at: <http://linnean-online.org/33761/>; No. 552.6.2—image available at: <http://linnean-online.org/33762/>; No. 552.6.3—image available at: <http://linnean-online.org/33763/>). However, this material is part of the Smith's collection and thus is not original material, it being a post-1753 acquisition (see Jarvis, 2007: 228–229).

Finally, one sheet is preserved at S-LINN (IDC 132.5, image available at: <http://linnaeus.nrm.se/botany/fbo/s/bilder/stati/statmon1.jpg>), containing two specimens with leaves and flowers in very good condition, and bearing the annotation "*11 monopetala*". According to C.E. Jarvis (pers. comm.), several difficulties exist to accept this sheet as original material. Although it is possible (but not certain) that the "11" (that matches the relevant *Species Plantarum* number) was written by Linnaeus, "*monopetala*" was indeed written by his son. In addition, Linnaeus added a symbol at the base of the specimen that is associated with specimens collected by Hasselquist in the Middle East. There is also a question about the date of acquisition. Most of Hasselquist's specimens reached Linnaeus after publication of *Species Plantarum*, and probably the sheet 132.5 is one of those post-1753 additions (C.E. Jarvis, pers. comm.). For this reason Jarvis (2007) has not included the S-LINN

sheet as original material, and consequently we prefer to leave it apart.

We have been unable to trace any further original material in any other Linnaean and Linnaean-linked herbaria.

All the elements discussed (specimen from Clifford; illustrations by Boccone) match the Linnaean diagnosis and correspond to the current concept of the species (see, e.g., Quézel & Santa, 1963; Pignatti, 1972; Guinochet & Vilmorin 1973; Crespo & Lledó, 2000). Although the illustration in Boccone (1674) is fully identifiable as Linnaeus's *Statice monopetala*, the specimen in BM (Herb. Clifford: 116, *Statice* 3) is selected here, since a specimen is generally preferable to an illustration.

***Limoniastrum monopetalum* (L.) Boiss.** in Candolle, Prodr. 12: 689. 1848 ≡ *Statice monopetala* L., Sp. Pl.: 276. 1753 ≡ *Limoniastrum articulatum* Moench, Methodus: 423. 1794, nom. illeg. (Art. 52.1 & 52.2) ≡ *Bubania monopetala* (L.) Girard in Mém. Sect. Sci. Acad. Sci. Montpellier I: 183. 1848 ≡ *Limoniodes monopetala* (L.) Kuntze, Revis. Gen. Pl. 2: 394. 1891 – **Lectotype (designated here):** Herb. Clifford: 116, *Statice* 3 (BM barcode 000558477 [digital image!]). — Image of lectotype available at <http://www.nhm.ac.uk/resources/research-curation/projects/clifford-herbarium/lgimages/BM000558477.JPG>

Limoniastrum guyonianum

Limoniastrum guyonianum was described by Boissier (1848: 689), who attributed the authorship of the species to Michel Ch. Durieu de Maissonneuve, and placed his new species together with *L. monopetalum*. Original material of the former was collected in May 1847 by Dr. Jean L.G. Guyon, in the surroundings of Biskrah (or Biscara), eastern Algeria, an area where the plant was said to be abundant (Guyon, 1852: 237; Guinée, 1870).

Several specimens have been studied including material matching Boissier's protologue and corresponding to the current concept of the species. They all were collected by Guyon at the type locality, and were later distributed to several researchers who conserved them in their personal herbaria. Two sheets, which are relevant for the purposes of typification, are at G-BOIS. Sheet G00309004 [digital image!] includes two labels ("*Statice Guyoniana* Boiss. / Très répandu dans le terrain rocailleux du / territoire de Biskrah. Rare dans le sable. / Recueilli par M. Guyon Chirurgien en Chef de / l'armée d'Afrique au pourtour des eaux thermales / de Biskrah, le 1^{er} mai 1847.", and "*Limoniastrum guyonianum* Durieu") and it can be considered part of the original material. Sheet G00309003 [digital image!] cannot be accepted as original material, since it represents a post-addition to Boissier's collection (the sheet bears the script "*Dans les environs de / Biscara, parmi les rochers / (Algerie) / M. Guyon 1849*").

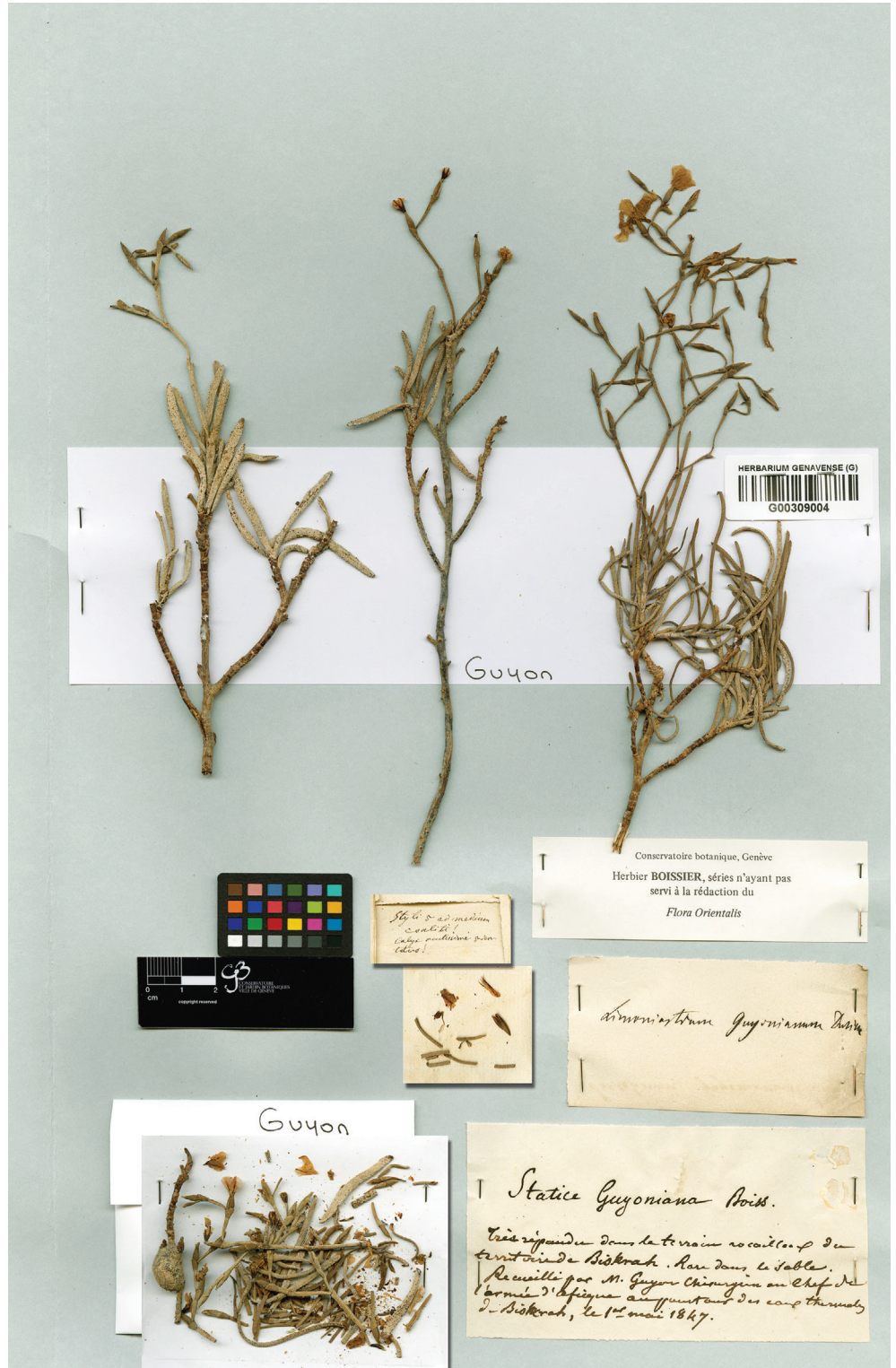
Relevant material is also preserved at MPU (Frédéric de Girard's collections). The sheet MPU021562 [digital image!] includes material belonging to *L. guyonianum*, which was sent to Girard by Guyon in November 1848. It is currently marked

as “isotype”, though it should probably be regarded as an isosyntype.; it may not have been examined by Boissier.

Material is at M which is also marked as “isotype”. The sheet M-0105918 [digital image!] includes several fragments probably from a single plant and bears two labels. One of them (“*Statice Guyonii* Dur. / Nota. Sur cette plante croit / une gale

due à une nouvelle / espèce de phalène, qui vient / d’être nommée *Oecocecis / Guyonella* Guenée”) is handwritten by Guyon, and lacks any indication to collection locality and date. The second label includes the scripts “HERBARIUM REGIUM MONACENSE” (typewritten) and “*Limoniastrum guyonianum* / Durieu / Schultes” (handwritten), plus “ALGIER. [pressed]

Fig. 1. Lectotype of *Limoniastrum guyonianum* Boiss. (G00309004). (Photograph by courtesy of the herbarium G; reproduced with permission).



1845” and “GUYON. [pressed]” and it was probably added to complement the former. The collection year is perhaps incorrect as the specimens used for the description of *Limoniastrum guyonianum* were collected in 1847 (see Guyon, 1852). It is not considered for lectotypification, since it cannot conclusively be accepted as original material.

According to all statements above, the sheet G00309004 appears to be the only extant original material for the name *Limoniastrum guyonianum* that was examined by Boissier. Fortunately it corresponds to the current concept of the species (see, e.g., Quézel & Santa, 1963; Qaiser & Siddiqi, 1984; Boulos, 2000) and it is therefore designated as lectotype.

Limoniastrum guyonianum Durieu ex Boiss. in Candolle, Prodr. 12: 689. 1848 ≡ *Limoniodes guyoniana* (Durieu ex Boiss.) Kuntze, Revis. Gen. Pl. 2: 394. 1891 – **Lectotype (designated here)**: “Très répandu dans le terrain rocailleux du territoire de Biskrah. Rare dans le sable. Recueilli par M. Guyon Chirurgien en Chef de l’armée d’Afrique au pourtour des eaux thermales de Biskrah, le 1^{er} mai 1847” (G barcode G00309004 [digital image!]). — For an image of the lectotype, see Fig. 1.

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