



## Lectotypification of *Muscari heldreichii* (Asparagaceae) from Greece

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The genus *Muscari* Miller (1754: 926; Asparagaceae) comprises about 80 species (Böhnert *et al.* 2023) of mainly spring-flowering geophytes and, like many other genera in the Mediterranean, it has a long and turbulent taxonomic history (Garbari & Greuter 1970, Davis & Stuart 1980, Speta 1982). The most recent attempt to formalize the generic boundaries was made by using genome-wide single nucleotide polymorphism data resulting in a comprehensive generic treatment in its widest sense that accepts five subgenera, of which one is described as new (Böhnert *et al.* 2023). The genus in its current circumscription sensu Böhnert *et al.* (2023) is mainly distributed in the Mediterranean region, but reaches as far as temperate Europe in the west to Afghanistan in the east (Davis & Stuart 1980, Breckle & Rafiqpoor 2010), while Turkey and Greece must be regarded as centres of species diversity for the genus (Davis & Stuart 1984, Dimopoulos *et al.* 2013, Böhnert & Lobin 2017). Several species have attracted horticultural attention for centuries and subsequently many species have been described from cultivation, which led to a complex taxonomic situation, and several taxonomic names still remain without typification.

Greece has been recognized as a global centre of vascular plant diversity and endemism in the Mediterranean (Barthlott *et al.* 2005), with over 5700 documented species (Dimopoulos *et al.* 2013). During the preparation of a taxonomic treatment for the Flora of Greece project concerning the genus *Muscari*, two of the 15 species documented for that country turned out to need lectotypification. Here, we designate a lectotype for the name *Muscari heldreichii* Boissier (1859: 109), an often-overlooked species that has been regarded, e.g., by Davis & Stuart (1980), as a synonym of *Muscari botryoides* (Linnaeus 1753: 318) Miller (1768: unpagged). In recent years, however, the species has been widely accepted by several authors (e.g., Dimopoulos *et al.* 2013, Böhnert *et al.* 2023). This view was now confirmed after examining material held at Berlin Herbarium (B) as well as digital material from other herbaria (G-BOIS, JE, MPU, S, WU), therefore we must conclude that the recognition as an independent species is justified.

*Muscari heldreichii* Boissier (1859: 109) (Fig. 1)

≡ *Botryanthus heldreichii* (Boissier) Jordan & Fourreau (1870: 24).

[*Muscari hymenophorum* Heldreich ex Boissier (1859: 109), nom. inval. pro syn.].

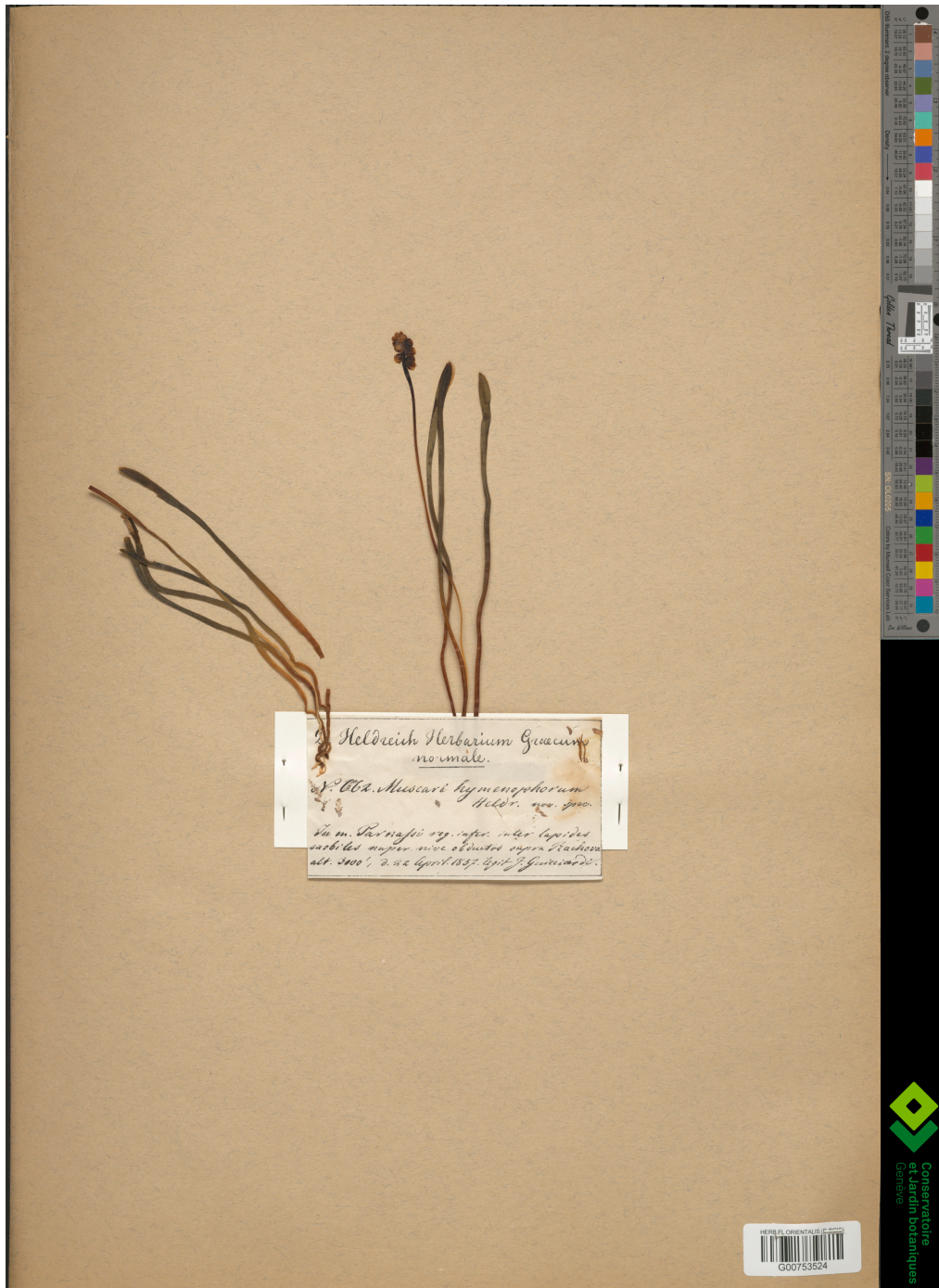
**Lectotype (designated here):**—[GREECE]. In m. Parnassi reg. infer. Inter lapides mobiles nuper nive obductos supra Rachova alt. 3000', 22 April 1857, *J. Guicciardi s.n.*, De Heldreich Herbarium Graecum Normale 662 (G00753524 photo! Fig. 1; isolectotypes: B 10 1158044!, MPU014552 photo!, MPU014553 photo!, JE00020018 photo!, S-G-7334 photo!, WU0079234 photo!).

**Protologue citation:**—“Hab. in regione inferiori montis *Parnassi* inter lapides mobiles nive nuper obductos supra *Rachova* alt. 3000' fine Aprilis 1857. cl. Guicciardi.—Descr. e specim. vivis e bulbis Parnassicis vere 1858 enatis”.

**Additional specimens examined:**—GREECE. Arcadia [Achaia], [Kalavryta], in regio superiori mt. Chelmos (Aroania vet.) supra pagum Sudena, alt 2000–2200 m, 20 July 1893, *de Halácsy s.n.* (B 10 1201991!); [Kreta], [Rethymnon], M. Ida: im Felsgerölle der Gipfelregion, 29 May 1904, *Dörfler 951* (B 10 9008653!); Prov. Peloponnisos, Nom. Achaia: Chelmos (Aroania), Nordhänge in der Nähe des Kataphygion des Alpin-Klubs Kalavrita. Felsschutt Schrofren, Kalk, 2100–2200 m, 18 June 1886, *M. Erben s.n.* (B 10 1016481!); m. Chelmos: in regione alpine, nives, 7000', 29 July 1848, *n.a.* (G00753534 photo!).

**Notes:**—This small alpine species is probably among the least known members of the genus *Muscari*. It shares some morphological similarities with *Muscari botryoides* in which it was synonymized by some authors, but is smaller with generally fewer flowers and those are of a brighter colour with faint white stripes. Additionally, the species is found only

in alpine habitats above 2000 m of elevation in the mountains of central Greece, the Peloponnese mountains as well as on Crete. *Muscari botryoides* is usually absent in elevation above 2000 m and is further barely documented from Peloponnese and missing on Crete. The original description was made by E. Boissier (1859) in his *Flora Orientalis* based on a gathering made by J. Guicciardi near mount Parnassus in present Kentriki Ellada province. The respective gathering was distributed under exsiccate nr. 662 of the Herbarium Graecum Normale of T. Heldreich. Seven specimens of this gathering are located in different herbaria, namely Berlin (B), the Boissier herbarium held in Geneva (G-BOIS), Jena (JE), Montpellier (MPU), Stockholm (S) and Vienna (WU). Among those seven specimens, the one in Stockholm is by far the most complete one incl. multiple well-preserved plants, however, the specimen held in Geneva (G-BOIS) must be regarded as the lectotype since it is presumably the one that was used to make the description, hence it is here selected as lectotype and the others as isolectotypes. Some confusion may arise from the fact that the specimens referring either to the name *M. heldreichii* or to *M. hymenophorum*. Obviously, T. Heldreich regarded his gathering 662 as a new species and designated on his herbarium labels a new name, but Boissier did not follow and named the new taxon in honour of T. Heldreich.



**FIGURE 1.** Lectotype of the name *Muscari heldreichii* Boissier (G, Boissier collection (G-BOIS), barcode G00753524 ©: Conservatoire et Jardin botaniques de la Ville de Genève), published with permission.

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