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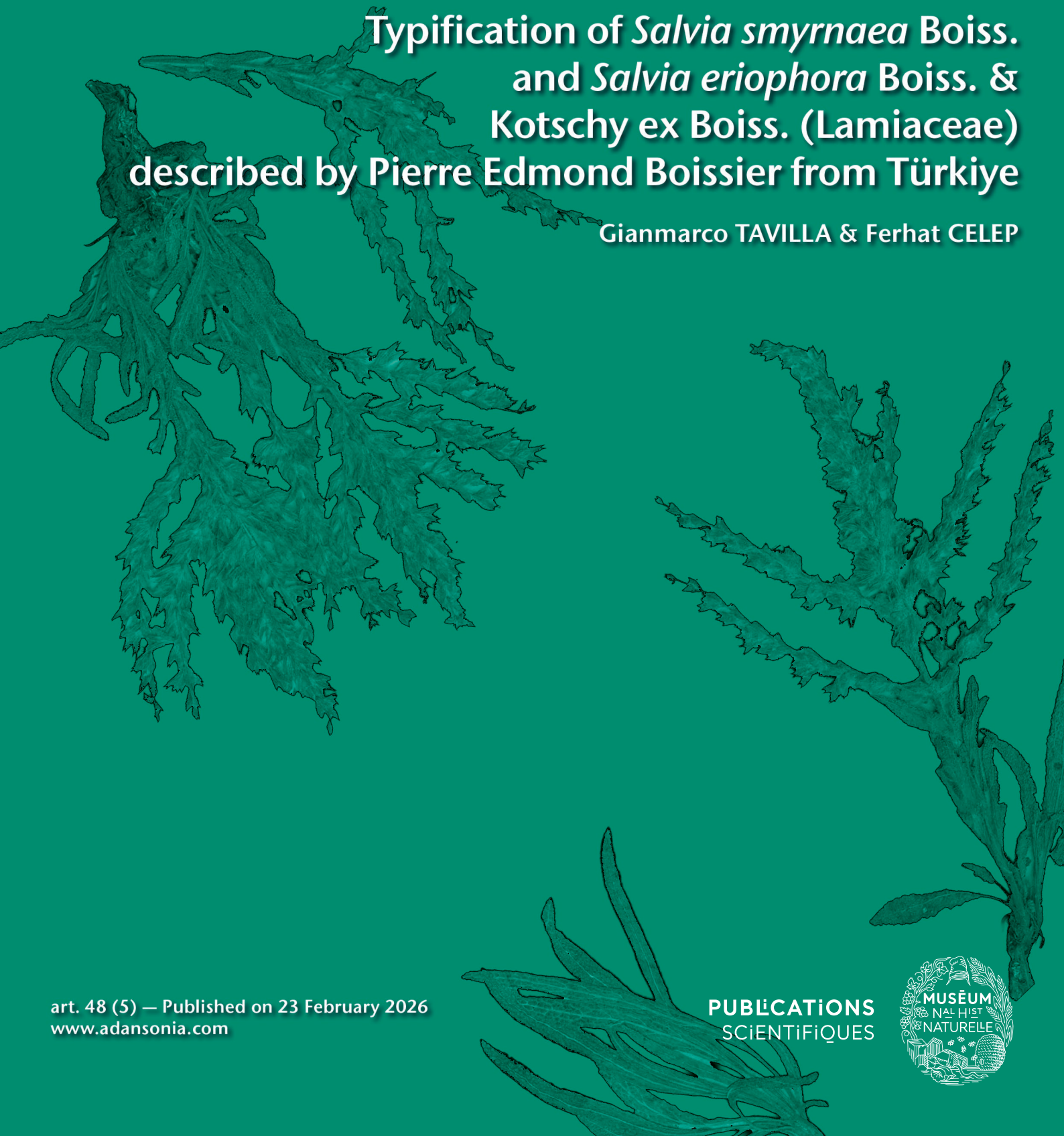
Gianmarco TAVILLA & Ferhat CELEP



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Typification of *Salvia smyrnaea* Boiss. and *Salvia eriophora* Boiss. & Kotschy ex Boiss. (Lamiaceae) described by Pierre Edmond Boissier from Türkiye

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KEY WORDS
Endemic species, second-step lectotypification, Türkiye, Ian Hedge.

ABSTRACT
A contribution to the typification of two endemic species of *Salvia* from Türkiye is presented. The names of *S. smyrnaea* Boiss. and *S. eriophora* Boiss. & Kotschy ex Boiss. are inadvertently lectotypified, and therefore, require second-step lectotypification. The designated lectotypes of *S. smyrnaea* and *S. eriophora* are housed at the Geneva herbarium from the Boissier collection.

MOTS CLÉS
Espèces endémiques, second-step lectotypification, Turquie, Ian Hedge.

RÉSUMÉ
Typification de Salvia smyrnaea *et* Salvia eriophora *(Lamiaceae) décrites par Pierre Edmond Boissier de Turquie.*
Une contribution à la typification de deux espèces endémiques de Salvia de Türkiye est présentée. Les noms de *S. smyrnaea* Boiss. et *S. eriophora* Boiss. & Kotschy ex Boiss. ont été inopinément lectotypifiés et nécessitent donc une nouvelle lectotypification. Les lectotypes désignés pour *S. smyrnaea* et *S. eriophora* sont conservés à l'herbier de Genève dans la collection Boissier.

INTRODUCTION

The genus *Salvia* L. is the largest one in the family Lamiaceae having nearly 1000 species that are really diverse and worldwide distributed (Walker & Sytsma 2007; Rose *et al.* 2021; Celep & Doğan 2023; POWO 2025). The genus has its main center of species diversity in Central and South America, southwestern Asia and the Mediterranean region, and Eastern Asia (Walker & Sytsma 2007). Etlinger (1777) published the first botanical monograph on *Salvia* and recognized 49 species. The first infrageneric classification of the genus was made by Bentham (1833), based on the morphology of the calyx, corolla and stamen, and was later revised by Briquet (1897). Since then, many scientists have contributed to the evolution of these classifications (Pobedimova 1954; Wu 1977; Murata & Yamazaki 1993). On the other hand, some researchers have avoided subgeneric and sectional classifications by describing "species groups" or small sections (Epling 1938-1939; Hedge 1974; 1982). Currently, molecular phylogenetic studies have shown that *Salvia* is not monophyletic and five other genera, namely *Dorystaechas* Boiss. & Heldr. ex Benth., *Meriandra* Benth., *Perovskia* Kar., *Rosmarinus* L., and *Zhumeria* Rech.f. & Wendelbo, are embedded within it (Walker & Sytsma 2007; Walker *et al.* 2015; Drew *et al.* 2017; Fragoso-Martínez *et al.* 2018; Kriebel *et al.* 2019).

As part of ongoing studies on the taxonomy of the genus *Salvia* (Tavilla 2025), the species *S. smyrnaea* and *S. eriophora* are revised from a nomenclatural point of view. These two species are listed in the *Flora of Turkey and East Aegean Islands* (Hedge 1982), and Hedge indicated a holotype for each taxon. This statement should be interpreted as inadvertent lectotypification (Prado *et al.* 2015). Therefore, a second-step lectotypification for these two names is required in order to designate a single lectotype (Art. 9.17; Turland *et al.* 2018, hereafter ICN).

TAXONOMY

Family Lamiaceae Martinov
Genus *Salvia* L.

Salvia smyrnaea Boiss.

Diagnoses Plantarum Orientalium Novarum, ser. 1, 5: 5 (Boissier 1844).

Type material. — **Türkiye** • B1 Izmir, in cacumine montis Tartali (Tahtali Da.) ad orientem Smyrneam (Izmir); V.1842; *Boissier* (G); first-step lectotype designated by Hedge (1982: 429) • Cacumine montis ad orientem Smyrnae; V. 1842; *Boissier*; second-step lectotype (**here designated**): G-BOIS [G00156010]! (Fig. 1) • same data; isolectotypes: G[G00085141, G00085166, G00435332]!, GH[GH0001884]!, JE[JE00002705]!, K[K000509016, K000509017]!, LE[LE00016783]!, MW[MW0594584]!, NY[NY00000353]!, P[P00714794, P00714795, P00714797, P00714798]!, US[US00517381]! • same data; syntypes: HBG[HBG518237]!, M[M0099274]!

Distribution and ecology

Salvia smyrnaea is a narrow endemic species found in the Kemalpaşa District of İzmir and the Söke District of Aydın provinces in western Türkiye (Hedge 1982; Celep 2010; POWO 2025). It thrives on calcareous rocks in open *Pinus* sp. forests, around the summit of Nif mountain, in gravelly places at an altitude of 900-1510 m (Celep 2010; Celep *et al.* 2011). According to Celep & Doğan (2023), the conservation status of *S. smyrnaea* is assigned as Endangered (EN) based on IUCN (2022) criteria.

Notes

Salvia smyrnaea was validly described by Boissier (1844) in the *Diagnoses Plantarum Orientalium novarum*. In the protologue, Boissier indicated "Tartali ad orientem Smyrnae" as the habitat where the species was collected. Today, this area corresponds to Nif Mountain between the Torbalı and Kemalpaşa districts of İzmir. Based on herbarium searches, we found four herbarium sheets (G00156010, G00085141, G00085166, G00435332) in Geneva herbarium, which is typically the herbarium where Boissier type material is stored (Stafleu & Cowan 1976). Among them, one sheet (G00156010) belongs to the G-BOIS collection. Moreover, several duplicates were found in other herbaria, such as GH, HBG, JE, K, LE, M, MW, NY, P and US (herbarium acronyms follow Thiers 2025). The specimens housed in G that are labelled with a "Typus" red label typically indicate that the material has not been published as specifically designated. While other specimens in different herbaria are recognized as isotypes, these herbarium sheets often bear a yellow abbreviated label "Herb. E. Boissier, *Salvia smyrnaea* Boiss., Mons Tartali suprà Smyrnam, Maio 1842".

Hedge (1982) carried out an inadvertent lectotypification due to the statement "type" which can be considered a valid type designation and should be corrected under lectotype according to Art. 7.11 of ICN. However, there are several specimens in G which is the herbarium reported by Hedge (1982). Therefore, a second-step lectotypification is needed to clarify the name of *S. smyrnaea* and designate a single lectotype (Art. 9.17). According to the label on the G00085141 specimen, Hedge revised this one, which is part of the syntypes but is not found in Boissier's herbarium. Therefore, we prefer to designate the G-BOIS specimen as a lectotype, which represents a well-preserved specimen of the species that displays all the diagnostic morphological features needed for the identification of the species, such as leaves mostly basal, ovate-oblong to oblong, flowering stems glandular below, calyx upper lip clearly 3-dentate, corolla with subequal lips. Therefore, it corresponds to the current application of the name (Hedge 1982).

Salvia eriophora Boiss. & Kotschy ex Boiss.

Flora Orientalis 4 (2): 611 (Boissier 1879).

Type material. — **Türkiye** • C5 Adana/Nigde, ab Jool Baatch (Yol Bahçe) ad radices montis Allahdagh (Ala Da.) Ciliciae; 1525 m alt.: 3.VI.1859; *Kotschy 229*; G; first-step lectotype designated by Hedge (1982: 437) • ab Jool Baatch ad radices montis Allahdagh Ciliciae; 5000'; 3.VI.1859; *Kotschy 229*; second-step lectotype (**here designated**): G-BOIS [G00156025]!, (Fig. 2)

Fig. 1. — Lectotype of *Salvia smyrnaea* Boiss. (G00156010) © Conservatoire & Jardin botaniques de la Ville de Genève.

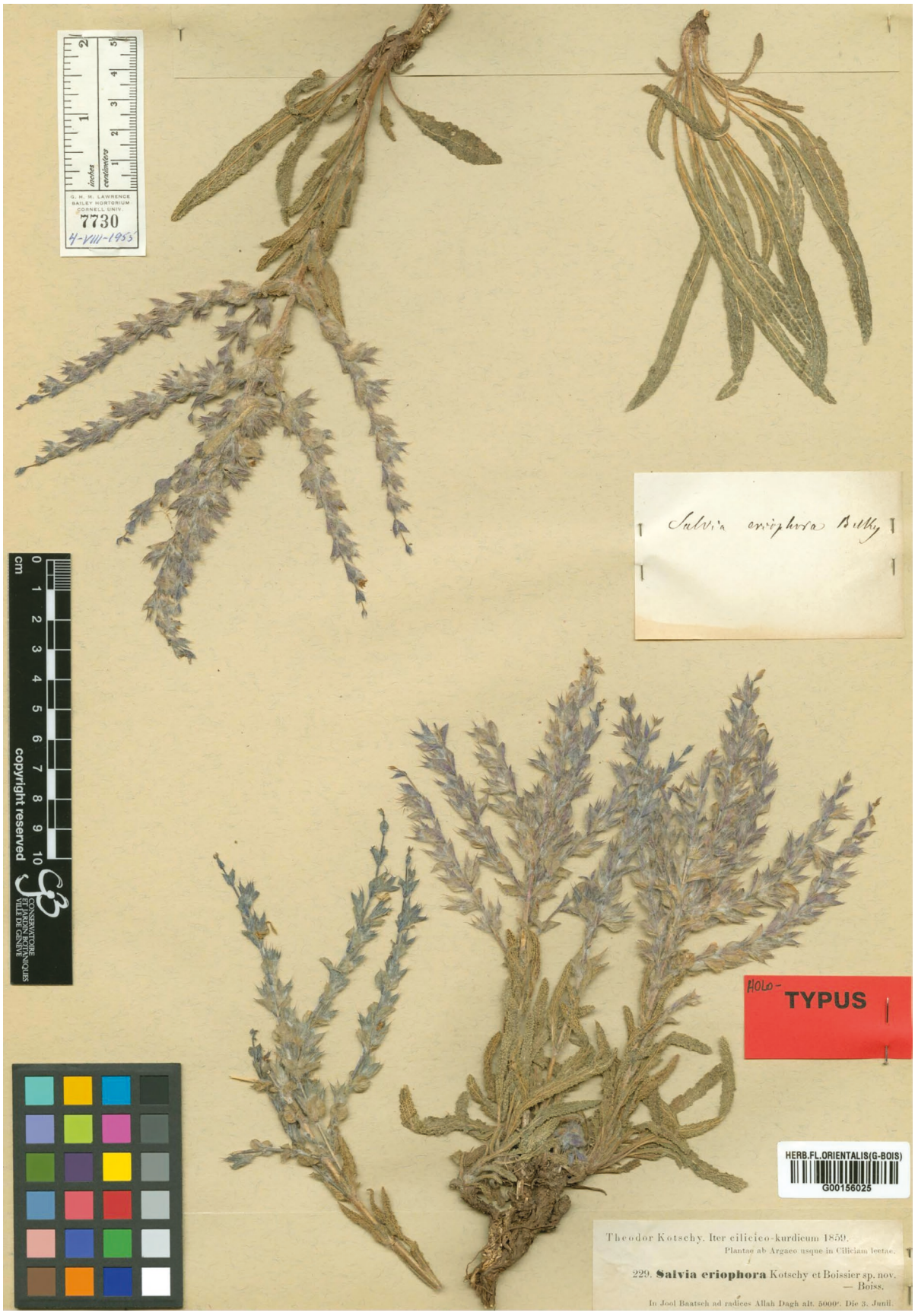

FIG. 2. — Lectotype of *Salvia eriophora* Boiss. & Kotschy ex Boiss. (G00156025) © Conservatoire & Jardin botaniques de la Ville de Genève.

• same data; isolectotypes: B[B100264866]!, BM[BM000950400]!, G[G00085150, G00446594]!, JE[JE00001470]!, K[K000929731]!, L[L.2793331]!, MW[MW0594577]!, P[P00714732, P00714733, P00714734]!, S[S08-10892]!

Distribution and ecology

The native range of this very rare endemic species is central and southern Türkiye, growing on rocky limestone slopes and high mountain steppe at an altitude of 1525-1880 m (Hedge 1982; POWO 2025). However, at present, this species could not be collected from the *locus classicus* (C5 Adana/Niğde, central southern Türkiye) due to uncertainty regarding the locality. Later, it was found at the second locality by P. H. Davis (Hedge 1982) that this species is naturally distributed only in the high mountain steppe in the pass (at an altitude of 1850-1880 m) between Pınarbaşı and Gürün in Kayseri/Sivas, with only a limited number of individuals. In this area, individuals have to survive under the pressure of overgrazing and road construction activities (Kahraman *et al.* 2012). According to IUCN (2022) criteria, this species can be classified as Critically Endangered (Kahraman *et al.* 2012; Celep & Doğan 2023).

Notes

Boissier (1879) described this species in *Flora Orientalis*. He determined the material and described several new species to science, frequently relying solely on Kotschy's specimens (Lack 2020). Boissier indicated "Hab. ab Jool Baatch ad radices montis Allahdagh Ciliciae 5000' (Ky. 229!)", which means he particularly observed the specimen numbered 229 from the Kotschy collection, and it can be considered original material. However, Hedge (1982) used the term holotype ("holo. G") that must be corrected to lectotype. Due to the occurrence of three herbarium sheets with the same labels in G (G00085150, G00156025, G00446594), a second-step lectotype is required to designate a single specimen. Additionally, several duplicates of the original material were found in the B, BM, JE, K, L, MW, P, and S herbaria. The specimens in the G herbarium bear the typical red label with the word "Typus", while the other syntypes, deposited in the herbaria BM, P, and S, refer to the type collection. Only the specimen deposited in the MW herbarium bears a modern label with the word "isolectotypus" but does not refere to any bibliographic source where a lectotypification could have been performed. Therefore, to the best of our knowledge, this name remains inadvertently typified according to the ICN articles. The sheet G00156025 from the Boissier collection is chosen here as second-step lectotype. It includes a label with the number 229; therefore, it is in accordance with the protologue reference. Furthermore, the selected specimen shows the main morphological features of *S. eriophora*: stems densely arachnoid-lanate above; leaves linear-oblong, calyx tubular-campanulate, teeth long-subulate, corolla lobes not widely diverging, tube straight, upper lip straight. Thus, it confirms the current application of the name (Hedge 1982).

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