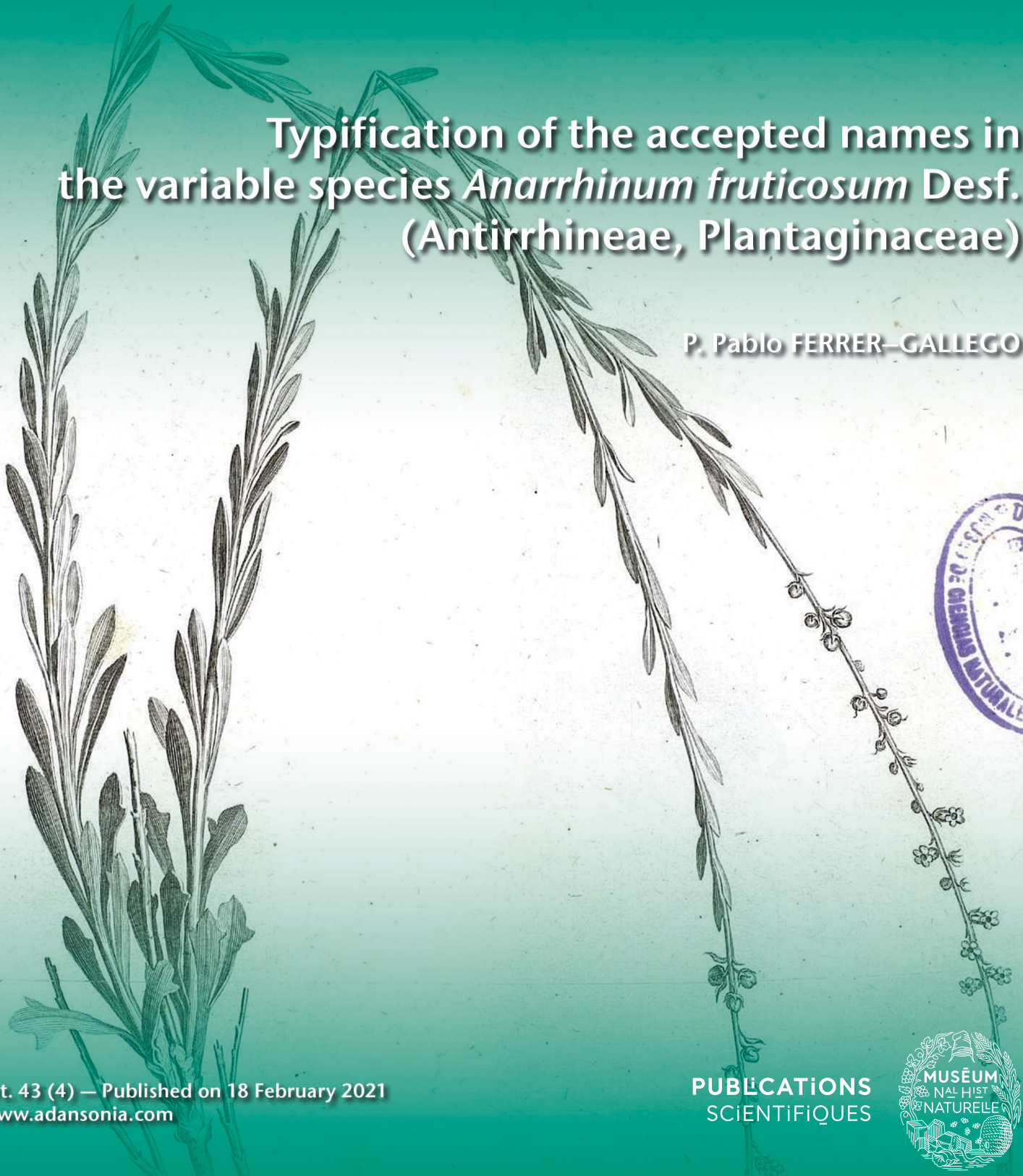


Typification of the accepted names in
the variable species *Anarrhinum fruticosum* Desf.
(Antirrhineae, Plantaginaceae)

P. Pablo FERRER-GALLEGO



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ISSN (imprimé / *print*): 1280-8571/ ISSN (électronique / *electronic*): 1639-4798

Typification of the accepted names in the variable species *Anarrhinum fruticosum* Desf. (Antirrhineae, Plantaginaceae)

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Submitted on 8 November 2019 | accepted on 14 July 2020 | published on 18 February 2021

Ferrer-Gallego P. P. 2021. — Typification of the accepted names in the variable species *Anarrhinum fruticosum* Desf. (Antirrhineae, Plantaginaceae). *Adansonia*, sér. 3, 43 (4): 31-36. <https://doi.org/10.5252/adansonia2021v43a4>. <http://adansonia.com/43/4>

ABSTRACT

Anarrhinum fruticosum Desf. (Antirrhineae, Plantaginaceae) is a very variable species. Three subspecies are currently recognized: *A. fruticosum* subsp. *fruticosum*, *A. fruticosum* subsp. *brevifolium* (Cosson & Kralik) D.A. Sutton (synonym of *A. brevifolium* Cosson & Kralik), and *A. fruticosum* subsp. *demnatense* (Cosson) Maire (synonym of *A. demnatense* Cosson). *Anarrhinum brevifolium* was recently typified by Domina & El Mokni (2019), while these other two names are discussed and lectotypified in the present paper. Lectotypes are designated from an illustration published by Desfontaines (*A. fruticosum*), and a specimen from P-Cosson herbarium (*A. demnatense*).

KEY WORDS
Antirrhineae,
Plantaginaceae,
Anarrhinum,
Cosson,
Desfontaines,
lectotypifications.

RÉSUMÉ

Typification des noms acceptés dans l'espèce variable Anarrhinum fruticosum (Antirrhineae, Plantaginaceae). *Anarrhinum fruticosum* Desf. (Antirrhineae, Plantaginaceae) est une espèce très variable. Trois sous-espèces sont actuellement reconnues: *A. fruticosum* subsp. *fruticosum*, *A. fruticosum* subsp. *brevifolium* (Cosson & Kralik) D.A. Sutton (synonyme de *A. brevifolium* Cosson & Kralik) et *A. fruticosum* subsp. *demnatense* (Cosson) Maire (synonyme de *A. demnatense* Cosson). *Anarrhinum brevifolium* a été récemment typifié par Domina & El Mokni (2019), tandis que ces deux autres noms sont discutés et typifiés dans le présent article. Des lectotypes sont sélectionnés à partir d'une illustration publiée par Desfontaines (*A. fruticosum*) et d'un spécimen de l'herbier P-Cosson (*A. demnatense*).

MOTS CLÉS
Antirrhineae,
Plantaginaceae,
Anarrhinum,
Cosson,
Desfontaines,
lectotypifications.

INTRODUCTION

The genus *Anarrhinum* Desf. (*Antirrhineae*, *Plantaginaceae*) comprises 6-8 biennial or perennial herbs or dwarfs distributed in S- and W-Europe, N-Africa and SW-Asia. The greatest diversity of this genus is in the western Mediterranean region (Fernandes 1959, 1972; Sutton 1988; Marhold 2011).

Anarrhinum fruticosum Desf., as currently defined (see e.g., Sutton 1988; Bolòs *et al.* 2005; Ibn Tattou 2007; Amich 2009), represents a very variable species, and it includes the following three subspecies: subsp. *fruticosum*, subsp. *brevifolium* (Cosson & Kralik) D.A. Sutton (synonym of *A. brevifolium* Cosson & Kralik), and subsp. *demnatense* (Cosson) Maire (in Jahandiez & Maire 1934: 681) (synonym of *A. demnatense* Cosson), all with a chromosome number $2n = 18$ (Humphries *et al.* 1978). The study of the morphology of this species has been published by Sutton (1988), as well as a first contribution on cytotaxonomy (Humphries *et al.* 1978). However, from the nomenclatural point of view, these three names are untypified and are here examined.

MATERIAL AND METHODS

The type designation is based on the searching and examination of original material and the analysis of the protologues. The herbaria codes cited through the text follow Thiers (2020 [continuously updated]). The articles follow the *Shenzhen Code* (ICN, Turland *et al.* 2018).

BACKGROUND AND TYPIFICATION OF THE NAMES

Anarrhinum fruticosum s.str. is a glabrous and perennial plant, with stems up to 80 cm, slender, leaves linear to linear-lanceolate, sessile, glabrous, basal leaves up to 15-35(-40) × 5-15 mm, spatulate, entire or weakly and distantly dentate, cauline leaves distant, 10-20 × 1-5 mm, mostly linear to oblanceolate, entire, a few sometimes toothed or lobed (leaves 4-15 × 1.3-5 mm, obovate to elliptic, acute, entire or serrate in subsp. *brevifolium*, and 5-11 × 1-4 mm, elliptic to oblanceolate, acute to obtuse in subsp. *demnatense*); inflorescences are simple or branched, lax; pedicels c. 0.75-1.3 mm, shorter than the bracts; calyx divided more or less to base, calyx-lobes 0.9-1.3 mm (calyx-lobes 0.2-0.4 mm in subsp. *demnatense*, and 0.4-0.8 mm in subsp. *brevifolium*), oval-lanceolate, acute, glabrous; corolla ca. 3-3.5 mm, dull blue or violet; tube gibbous at the base but not spurred; fruits 2.5-4 × 2.3 mm; seeds dark brown, 0.9-1.2 mm, with tubercles long (0.8-0.9 mm with tubercles long in subsp. *demnatense* and 0.7-0.8 mm with tubercles short in subsp. *brevifolium*) covered with low, obtuse or rounded tubercles (Sutton 1988; Bolòs & Vigo 1996; Bolòs *et al.* 2005; Amich 2009).

Anarrhinum fruticosum s.str. is distributed in North Africa (Algeria, and Morocco) and SE Iberian Peninsula (Alicante), the subsp. *brevifolium* is distributed in North Africa (Libya, and Tunisia), and subsp. *demnatense* is endemic of Morocco (High Atlas) and Mauritania (Rigual 1972; Sutton 1988; Ibn Tattou 2007; Le Floc'h *et al.* 2010; Rankou *et al.* 2013; African Plants Database 2019).

SYSTEMATICS

Anarrhinum fruticosum subsp. *fruticosum*

LECTOTYPIFICATION

The protologue of *Anarrhinum fruticosum* (Desfontaines 1798: 52) consists of a short diagnosis (“ANARRHINUM frutescens; ramis virgatis, filiformibus; foliis perennantibus; imis spathulatis; racemis interruptis; corollis ecaudatis”), a detailed description (in Latin), and several geographical provenances (“HABITAT in Atlante prope Tlemsen [currently Tlemcen in western Algeria], Mascar [central Algeria] et Cafsam [currently Gafsa in northern Tunisia]”). Desfontaines (l.c.) also published an excellent illustration (“Tab. 142”) that is part of the original material and therefore considered for the typification purpose. Tab. 142 illustrates a stem with leaves, flowers (with several details) and fruits (Fig. 1). This morphology is consistent with the current concept of the species (Fernandes, 1972; Sutton, 1988; Amich 2009).

Sutton (1988: 255) indicated: “Type: Algeria: in Atlante prope Tlemsen [Tlemcen] *Desfontaines s.n.* (syn. P-Desf.); Mascar *Desfontaines s.n.* (syn. P-Desf.). Tunisia: Cafsam [Gafsa] syn. P- *Desfontaines s.n.* (syn. P-Desf.)”. However, this is not an effective lectotype designation, because three different “specimens” were mentioned as “type” (see Art. 8.1 of *ICN*). Furthermore, no specimen of *Anarrhinum fruticosum* collected by Desfontaines and deposited at P was traced. In addition, note that Sutton (1988: 255) indicated this material with a question mark, and he also mentioned “I have not been able to examine Desfontaines material at Paris yet to make the selection”.

René Louiche Desfontaines (1750-1833) was a French botanist, professor at the Jardin des Plantes in Paris. The personal herbarium of this author is now preserved at many herbaria, i.e. BM, C, CGE, FI (acquired via Webb) LIV, MPU, P (incl. PC, P-DESF, P-JU and P-LA) (see Stafleu & Cowan 1976: 627, 628).

We have found a herbarium sheet of *Anarrhinum fruticosum* at MPU (barcode MPU020302). The sheet bears two fragments with leaves, flowers and fruits, and the following label: “Anarrhinum fruticosum / ex herbario D. Desfontaines” [probably handwritten by Candolle] (image available at <https://herbier.umontpellier.fr/zoomify/zoomify.php?fichier=MPU020302>). Unfortunately, the date of collection or the provenance of the specimen is not reported on the label of the sheet and, as a consequence, we cannot be sure that it has been collected before 1798. Therefore MPU020302 cannot be treated as original material and is not eligible as lectotype of *Anarrhinum fruticosum*.

Another specimen was found at B (Willdenow Herbarium, barcode B-W11330-01-0, image available at <https://www.jacq.org/detail.php?ID=940496>). This specimen, a stem with leaves and flowers, is annotated by Willdenow as: “An. fruticosum 1” [at the top of the sheet] and “Desfontaines W” [at the bottom]. However, this material cannot be treated as original material of *A. fruticosum* because the date of collection and provenance of the specimen are not reported on the sheet.

ANARRHINUM fruticosum.

142.



FIG. 1. — Lectotype of *Anarrhinum fruticosum* Desf., illustration in Desfontaines (1798: pl. 142).

We have not found any specimen of this species collected by Desfontaines in any of the consulted herbaria (e.g., BM, C, CGE, FI, LIV, P).

In conclusion, among the mentioned elements, only the illustration published by Desfontaines (1798: pl. 142) can be used for the lectotypification purpose. This illustration matches both the protologue and current concepts of the name (e.g., Sutton 1988; Bolòs & Vigo 1996; Bolòs *et al.* 2005; Ibn Tattou 2007; Amich 2009).

Anarrhinum fruticosum Desf. subsp. *fruticosum*
(Fig. 1)

Flora Atlantica 2: 52, tab. 142 (1798). — Type: [illustration] “*Anarrhinum fruticosum*” in Desfontaines, *Flora Atlantica*: tab. 142. 1798 (lecto-, here designated, Fig. 1).

Anarrhinum fruticosum subsp. *demnatense* (Cosson) Maire
Catalogue des plantes du Maroc, vol. 3: 681 (1934).

LECTOTYPIFICATION

Sutton (1988: 257) indicated the type as: “Type: Morocco: Ga; Demnate, Djebel Imiifry, 18 vii 1879, *Ibrahim s.n.* (iso. BM!)”. However, this is not an effective designation according to Art. 9.12 of the *ICN* because this specimen at BM cannot be considered as part of the exsiccatum of the Société Dauphinoise cited in the protologue. In fact, Cosson (1891: 84), in the protologue, stated: “*A. Demnatense* Coss. in herb. – Exs. Soc. Dauph. Mar. 522 bis (sub *A. fruticosum*)”. A diagnosis, a complete description of the species is provided by Cosson (l.c.), as well as the provenance “In colibus calcareis apricis. – Mar. Dj. Imiifry in provincia Demnate ad boreali-orientem urbis Maroc. Imperio Maroccano peculiare”. Moreover an excellent and detailed illustration was given (Tab. 152, showing two stems with leaves, flowers and fruits, and several flowers details; image available at <https://www.biodiversitylibrary.org/item/113581#page/53>). The specimens cited by Cosson (1891) in the protologue are syntypes according to the Art. 9.6 and Art. 40 Note 1 of *ICN*. Based on the Art. 9.12 of the *ICN*, this material has priority in the lectotype designation.

There is a specimen at P (P038882611) which bears six stems, with leaves, flowers and fruits, and a printed label (“Société dauphinoise, 1882. / N° 522 bis. *Anarrhinum fruticosum* / Desf. fl. Atl. II, p. 52, t. 142. – DC. Prodr. X, 289. / Djebel Imiifry, province de Demnat (Maroc). / 4 juillet 1881. / Leg. Ibrahim, / Dr. E. Cosson.”) (Fig. 2). In addition, another specimen at P (P03882610) was traced. Although not identified as “Société dauphinoise, 1882/N° 522 bis”, it belongs probably to this collection since it was collected in the same place by Ibrahim on 4 July 1881, and likely to be a syntype. On the other hand, other specimens (see e.g., P [barcode P03882612] and MPU [barcode MPU237886; image available at <https://explore.recolnat.org/occurrence/2314BEC16FA04046B07B81C98F8A9F8C>]) were collected

by Ibrahim in Djebel Imiifry (Demnate), but on 18 July 1879 (as the specimen at BM cited by Sutton [1988] as “type”), and not on 4 July 1881 as reported in the above mentioned syntypes (P038882611 and P03882610).

In conclusion, among the material above cited, I here designated as the lectotype of *Anarrhinum demnatense* the specimen P03888261 because it is the only sure specimen that can be identified as part of the exsiccatum of the Société Dauphinoise with number “522 bis”, such as part of the original material (Art. 9.4 of *ICN*).

Anarrhinum demnatense Cosson
(Fig. 2)

Illustrationes Florae Atlanticae 2: 84, t. 152 (1891). — *Anarrhinum fruticosum* subsp. *demnatense* (Cosson) Maire in Jahandiez & Maire, *Catalogue des Plantes du Maroc* 3: 681 (1934). — Type: Morocco, Djebel Imiifry, province de Demnat, 4.VII.1881, *Ibrahim s.n.* (exsiccata “Société dauphinoise, 1882”. N° 522 bis. Dr. E. Cosson. *Anarrhinum fruticosum*) (lecto-, P[P038882611] digital image! here designated (Fig. 2); isolecto-, P[P03882610]).

Acknowledgements

Thanks to Ranee Prakash (Herbarium BM) for the great help in the study of the herbarium sheets. Thanks are due to two anonymous reviewers and Thierry Deroin for the help.

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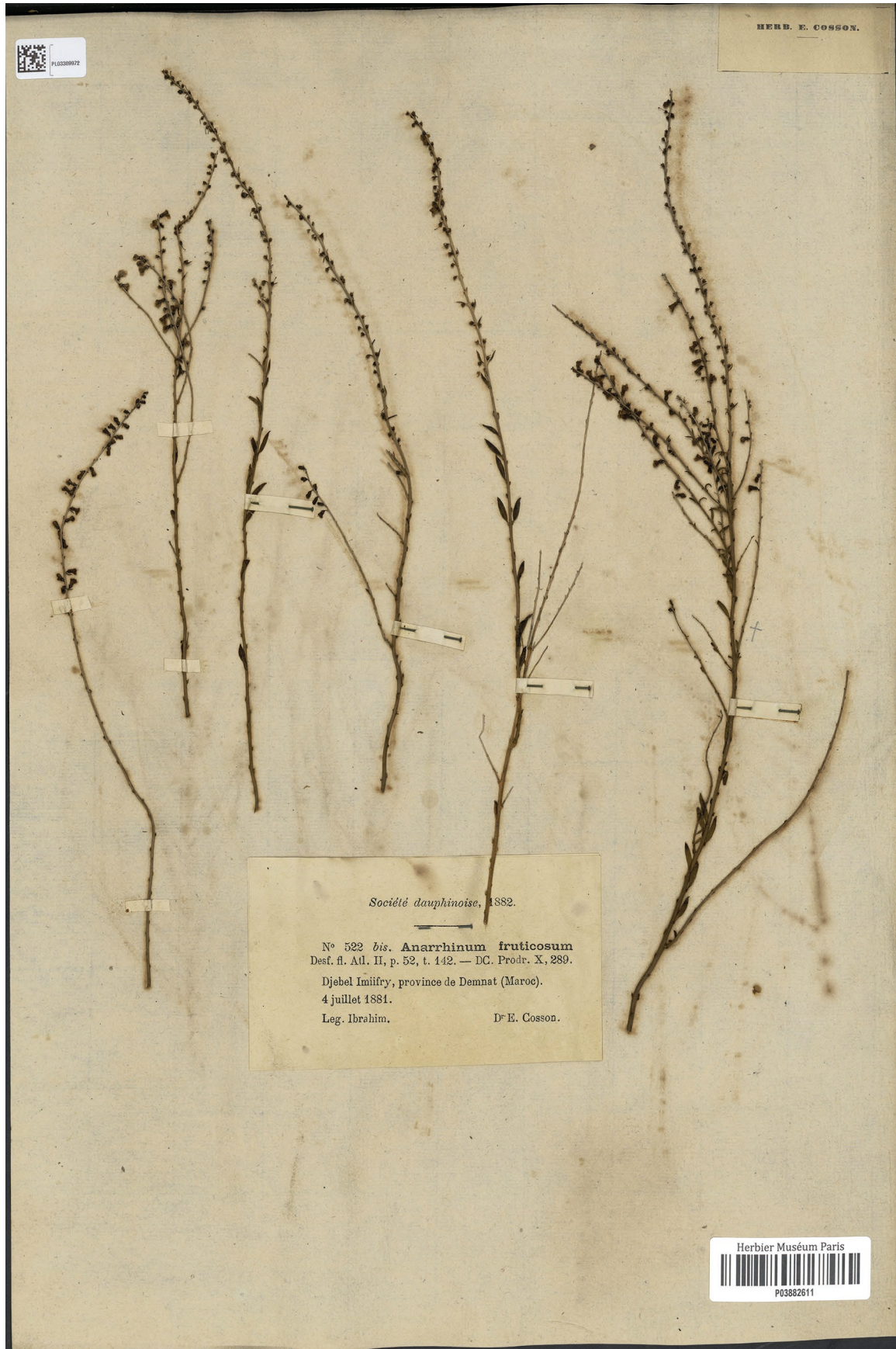


FIG. 2. — Lectotype of *Anarrhinum demnatense* Cosson (P03882611).

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*Submitted on 8 November 2019;
accepted on 14 July 2020;
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