

NOMENCLATURE ARTICLE

Nomenclatural type of the Linnaean name *Sibthorpia africana* and its synonym *Sibthorpia balearica* (Plantaginaceae, Sibthorpieae)

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Abstract The nomenclatural type of the Linnaean name *Sibthorpia africana* (Plantaginaceae, Sibthorpieae) is discussed and revised. An illustration published by Shaw in 1738 is selected as the lectotype of the name. *Sibthorpia balearica* is another name in this group, published by Knoche in 1922, and treated in this paper as a heterotypic synonym of the Linnaean name. This name had previously been lectotypified by Hedberg in 1955 from a specimen kept at K. This typification is narrowed to a single specimen by a “second-step” lectotypification.

Keywords Balearic Islands; holotype; Knoche; lectotype; nomenclature; Shaw; “second-step” lectotypification; syntype; typification

■ INTRODUCTION

Sibthorpia L. (Plantaginaceae, tribe Sibthorpieae) is a genus with five currently recognized species distributed in Europe, Madeira, Africa and America (Hedberg, 1955, 1975; Albach & al., 2021).

Sibthorpia africana L. is a species endemic to the Balearic Islands (Spain) (Webb, 1968; Rico, 2009). This species and the Madeiran *S. peregrina* L. are diploid sister species with the basic chromosome number $x = 10$ (Hedberg, 1975; Albach & al., 2021). *Sibthorpia africana* is a branched perennial herb with procumbent stems, with leaves not more than 15 mm wide, with 5–14 obtuse to subacute lobes; peduncles flexuose, leaves and calyx grey-hirsute with hairs >1 mm; petiole 5–25(–70) mm long; pedicel 8–20(–35) mm long, usually coiled in the fruit; corolla 4–7 mm in diameter, yellow (rarely white); fruits 2–3 mm, and seeds 0.8–1 mm (Hedberg, 1955; Rico, 2009).

Knoche (1922) suggested that the name *Sibthorpia africana* should be applied to plants inhabiting Africa, and he therefore described the Balearic plants as *S. balearica*. This interpretation was not accepted by Hedberg (1955), Webb (1968), Bolòs & Vigo (1996), Rico (2009) and Albach & al. (2021), and they continued to apply the Linnaean name to the Balearic endemic species. On the other hand, Knoche (1922: 391) stated that “Grâce à l’obligeance de M. le Dr. Stapf, j’ai pu voir, à Kew, la plante de Shaw. M. Stapf a appelé mon attention sur les différences qui existent entre cette plante et les plantes des îles Baléares [...]. Les graines de la plante de Shaw sont lises, tandis que celles de ma plante ont la surface creusée de petites fossettes.” (Thanks to the kindness of

Dr. Stapf, I was able to see Shaw’s plant at Kew. Mr. Stapf called my attention to the differences between this plant and the plants of the Balearic Islands [...]. The seeds of Shaw’s plant are smooth, while those of my plant have small dimples on the surface). However, the name *S. balearica* was traditionally – and still is – accepted as a heterotypic synonym of *S. africana* (Hedberg, 1955; Webb, 1968; Bolòs & Vigo, 1996; Rosselló & Sáez, 2000; Rico, 2009).

The only reference to *Sibthorpia africana* occurring in North Africa is by Linnaeus (1753), who deduced this from Shaw’s work. Currently, it is considered endemic to the Balearic Islands (POWO, 2022). Perhaps the assumption of a Balearic origin for *S. africana* is erroneous, or this species has disappeared in Africa (or has not been located since Shaw). In this sense, Knoche (1922: 391) mentioned “Shaw, l.c. a récolté en Afrique septentrionale une plante qui a servi à Linné comme base de son espèce, *Sibthorpia africana*. Personne, depuis, ne l’a retrouvée et aucun auteur ne la signale dans les flores de cette region. Il est, par conséquent, bien douteux que cette plante ait été réellement recueillie en Afrique septentrionale” (Shaw, l.c. collected in North Africa a plant that served Linnaeus as the basis of his species, *Sibthorpia africana*. No one has since found it and no author mentions it in the floras of this region. It is therefore very doubtful that this plant was actually collected in northern Africa). However, according to Valdés (2021), there is little doubt that Shaw’s plant was collected either in North Africa or in other territories he visited during his stay in Algiers.

Linnaeus published three names at the rank of species in the genus *Sibthorpia* (Linnaeus, 1753). Effective typifications

have already been published for two of these names: *S. europaea* and *S. peregrina* (see Hampshire, 1993). Previously, Hedberg (1955) had mentioned the “lectotypes” of *S. europaea* and *S. peregrina* from specimens at LINN, Nos. 793.1 and 475.1, respectively. However, these two specimens are not annotated by Linnaeus and are not original material for these names. Hedberg (1955: 174) also indicated a type for *S. africana*; however, the specimen selected by this author is not eligible to serve as lectotype (see below and Jarvis, 2007).

This contribution aims to clarify the type of *Sibthorpia africana* and to increase the number of designated types included in “Index Balearicum”, a checklist of the vascular plants described from the Balearic Islands (Rosselló & Sáez, 2000, 2008, 2017; Ferrer-Gallego & al., 2019, 2020, 2021).

■ MATERIALS AND METHODS

This work was undertaken based on the study of the protologue of *Sibthorpia africana* (Linnaeus, 1753). The designation of type is based on the consultation of original material: relevant specimens and illustrations cited in the protologue. All original elements (specimens and illustrations) used to describe this species have carefully been evaluated to determine the precise taxonomic application of the name.

■ TYPIFICATIONS OF THE NAMES

The protologue of *Sibthorpia africana* (Linnaeus, 1753: 631) includes a diagnosis “SIBTHORPIA foliis orbiculatis integris crenatis, pedunculis solitariis” followed by the synonym “Chrysosplenii foliis planta aquatica, flore flavo pentapetalo” from Shaw (1738: no. 149, fig. 149). The protologue also cites a locality “Habitat in Africa.” The reference quoted by Linnaeus (Shaw, 1738: no. 149 [p. 39] and fig. 149) includes an illustration “149 Chrysosplenii facie &c.” that can be treated as original material.

Hedberg (1955: 174) indicated a Shaw specimen at K (“Shaw’s afric. 149’, ex herb. Goodenough”) as the “holotype”. This sheet, currently barcoded K000405815, bears a poorly preserved specimen, and a handwritten label annotated with “*Sibthorpia europaea*? | sp. distincta? | Ex herb. Goodenough, | Shaw’s afric. 149 + fig. 149”. The sheet also bears a revision label “Holotype of *Sibthorpia* | *africana* L. Sp. pl. 631 (1753) | Locality uncertain; the species | appears to be endemic to the | Balearic I. | Determinavit O. Hedberg 1952” (Fig. 1).

However, this specimen was never seen by Linnaeus and, therefore, it is not part of the original material for the name and was not eligible to serve as lectotype (Jarvis, 2007). However, it is of interest because it may have served as voucher (or typotype) specimen for Shaw’s illustration. A typotype (not defined in the *Shenzhen Code*) is a specimen from which a type illustration was prepared.

Unfortunately, we were unable to locate any extant original material in the Linnaean and Linnaean-linked herbaria.

The geographical provenance cited in the protologue by Linnaeus “Habitat in Africa” was taken from Shaw (1738: 37). However, Shaw (1738) gave no indication on where this plant was collected, and Linnaeus supposed that it was native to Africa. This species has never been collected again in North Africa (Valdés, 2021). According to Webb (1968) and Rico (2009), the epithet “*africana*” was based on false information; the species that grows on the high mountains of tropical Africa is *S. europaea*. In Shaw’s work, the origin of the species is given only exceptionally. Shaw (1738: no. 149) described *S. africana* as “*Habitu est hirsuto, conglomerata, Cuscutae instar. Flores longis pediculis annexi sunt. Petala non fimbriata. Fructus mitrae episcopalis formâ. Calyx integer arcte fructum amplectitur.*”

Thomas Shaw (1694–1751) was a British clergyman and traveller, chaplain to the British factory in Algiers between 1720 and 1733 (Todd, 1791). He was an explorer in the Maghreb, but never visited the Balearic Islands (Seccombe, 1909). After his death, the plants collected by Shaw along with all other volumes of dried plants in his possession, books of Natural History, manuscripts, etc., were deposited at the University of Oxford, as this was his last wish (Todd, 1791). Fortunately, there is a

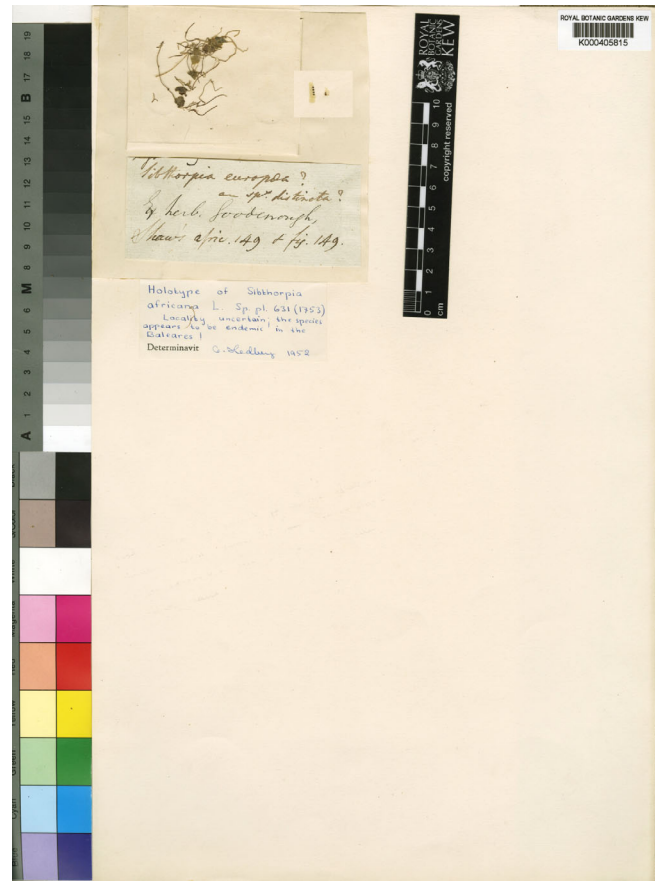


Fig. 1. Shaw specimen at K (Shaw’s afric. 149, ex herb. Goodenough) of *Sibthorpia africana* L., K000405815. Photograph by courtesy of the Herbarium K, reproduced with permission.

specimen of *Sibthorpia africana* collected by Shaw at OXF (Stephen Harris, pers. comm.). This sheet (without code or barcode) bears a complete specimen, with leaves and flowers, and a printed “label” that was cut out from Shaw (1738): “149 Chrysosplenii foliis Planta aquatica, flore flavo, pentapetalo. *Habitu est hirsuto, conglomerata, Cuscutae instar. Flores longis pediculis annexi sunt. Petala non fimbriata. Fructus mitrae episcopalis formâ. Calyx integer arcte fructum amplectitur*”. The sheet also bears at the base a stamp “Dr SHAW circa 1700 | BARBARY” (Fig. 2). This specimen is a voucher for Shaw’s (1738) illustration “149 *Chrysosplenii facie &c.*”. This material collected by Shaw was not studied by Linnaeus and so is not part of the original material (see Jarvis, 2007) for the Linnaean name *Sibthorpia africana*. However, herbarium material such as this can be of assistance in interpreting Shaw’s illustrations (which were used by Linnaeus) and may be considered as “typotype” material if it is clear that the illustration was originally prepared from the OXF and not from the K specimen.

Since an extensive search for original material of *Sibthorpia africana* failed to locate any extant specimens, the only

element used by Linnaeus to describe this species is Shaw’s illustration (1738: fig. 149).

Shaw (1738: fig. 149) illustrated a plant with leaves, flowers and fruits (Fig. 3). Fortunately, this drawing shows some diagnostic characters of *Sibthorpia africana* (e.g., leaves with 5–12 lobes, peduncles flexuose, flowers solitary in leaf-axils, pedicel longer than subtending petiole) that are essential to distinguish it from other morphologically close taxa (e.g., *S. europaea* L. and *S. peregrina* L.). In addition, the description of this species that was published by Shaw (1738) matches with the concept of *S. africana* (“flore flavo” and “*Flores longis pediculis annexi sunt*”). Consequently, the application of this name based on Shaw’s illustration is unambiguous and clearly represents the traditional concept of *Sibthorpia africana* (e.g., Hedberg, 1955; Webb, 1968; Bolòs & Vigo, 1996; Rico, 2009; Albach & al., 2021).

Hedberg (1955: 175) mentioned that the type of *Sibthorpia balearica* is a specimen from “Mallorca, Barranco de

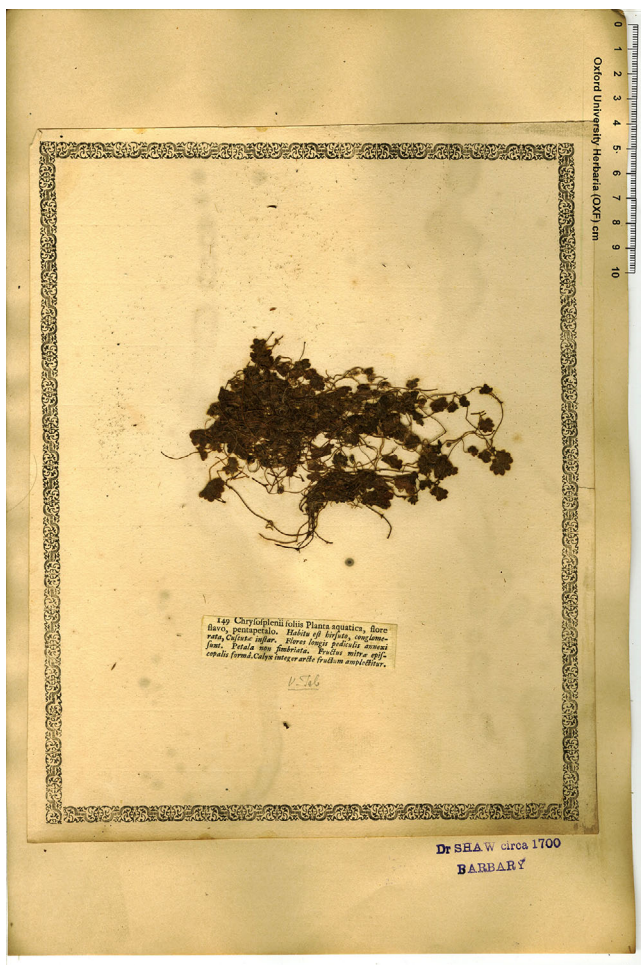


Fig. 2. Herbarium material preserved at OXF that is a voucher for Shaw’s illustration “149 *Chrysosplenii facie &c.*” published by Shaw (1738: fig. 149). Photograph by courtesy of the Herbarium OXF, reproduced with permission.

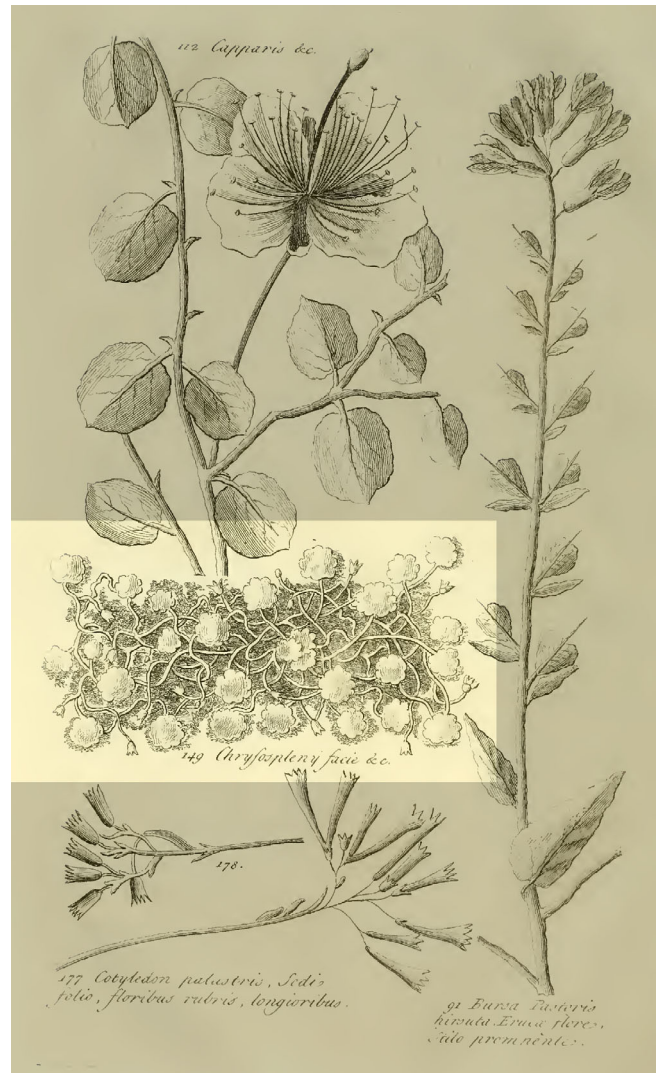


Fig. 3. Lectotype of *Sibthorpia africana* L., icon “149 *Chrysosplenii facie &c.*” in Shaw (1738: fig. 149).

Soller, 16.5.1864, Bourgeau 2781 (K, lecto.)”. The typification by Hedberg (1955), supported by Rosselló & Sáez (2000), is effective and must be followed. However, in K, there are two specimens from Bourgeau’s 2781 gathering that contain material of *S. balearica* from “Mallorca, Barranco de Soller, 16.5.1869 [not 1864 as was mentioned by Hedberg (1955: 175)]”. The sheet with barcode K001222613 bears a well-preserved and complete material, and the original handwritten label of Bourgeau: “E. Bourgeau. Pl. d’Espagne. Baléares. 1869. | 2781 Sibthorpia Africana L. | Disandra Africana Cambess. Enum. Bal. t. 18. | (Coss.) | Majorque: lieux couverts ombragés du Barranco | de Soller. | 16 mai.”. The other sheet, with barcode K001222612, also has a good material and the same handwritten label.

The typification proposed by Hedberg (1955) does not distinguish between these two sheets; it should be further narrowed to a single specimen by a “second-step” lectotypification according to Art. 9.17 of the ICN (Turland & al., 2018). Thus, of the two specimens at K mentioned above, the specimen



Fig. 4. Lectotype of *Sibthorpia balearica* Knoch, K001222613. Photograph by courtesy of the Herbarium K, reproduced with permission.

barcoded K001222613 is designated to serve as the second-step lectotype of the name *Sibthorpia balearica* (Fig. 4).

In addition, the protologue of *Sibthorpia balearica* (Knoche, 1922) also includes five other gatherings, cited as: (1) “MAJORQUE: commun, dans les fentes des rochers, murs humides, etc., dans la Sierra. Commence à fleurir dans des stations favorisées en Janvier, et jusqu’au mois de Septembre sur les hauts pics. Floraison surtout d’Avril-Juin. 75-1355 mètres (1430 *Bianor*)”; (2) “MINORQUE: (uniquement sur calcaire!) «forme à fleur blanche à Se Roca de Mercadal» (*Rod.*) [J.J. Rodríguez Femenias]”; (3) “IVICE: (*Barc.*) [F. Barceló y Combis]”; (4) “[IVICE:] Santa Ines, Cala Torretes (*Gros*) [E. Gros]”; (5) “[IVICE:] Cala de Eubarca, Lladalt (*Font*) [P. Font Quer]”. There is a relevant specimen at BC that belongs to a gathering cited in the protologue (Eivissa, Cala de las Torretes). The sheet, barcoded BC 45556, bears well-developed and complete material, with leaves, flowers and fruits. The lectotype selected in this paper (K001222613) and the rest of the syntypes that make up the Bourgeau’s 2781 gathering, and the specimen at BC match with the concept of the name *S. balearica* as a heterotypic synonym of *S. africana* (see Hedberg, 1955; Bolòs & Vigo, 1996; Rico, 2009).

***Sibthorpia africana* L., Sp. Pl.: 631. 1753 – Lectotype (designated here):** [illustration] “149 *Chrysosplenii facie &c.*” in Shaw, Spec. Phytogr. Afr. &c. [with separate pagination included in: Shaw, Travels or Observations Relating to Several Parts of Barbary and the Levant]: fig. 149. 1738. [For an image of the lectotype of *Sibthorpia africana*, see Fig. 3.]

= *Sibthorpia balearica* Knoche, Fl. Balear. 2: 390. 1922 ≡ *S. europaea* var. *balearica* (Knoche) L.Chodat in Bull. Soc. Bot. Genève 15: 247. 1924 ≡ *S. europaea* f. *balearica* (Knoche) L.Chodat in Bull. Soc. Bot. Genève 15: 181. 1924 – **Lectotype** (first-step designated by Hedberg in Bot. Not. 108: 175. 1955, **second-step designated here**): Spain, Mallorca (Balearic Islands), Barranco de Soller, 16 May 1869, *E. Bourgeau* 2781 (K barcode K001222613!; isolectotypes: BM barcode BM014124081!, BR barcode 0000036143849!, G barcodes G00398274!, G00398275!, G00398276!, K barcode K001222612!).

■ AUTHOR CONTRIBUTIONS

PPFG, Conception, design, nomenclatural analysis, consulting with specialists, and writing; LS, Conception, selection of plant materials, analysis of the specimens and their interpretation, literature and text review. — PPFG, <https://orcid.org/0000-0001-7595-9302>; LS, <https://orcid.org/0000-0003-4551-2432>

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