

Neotypification of *Stomatanthes helenae* (Buscal. & Muschl.) Lisowski (Asteraceae): the curious history of an African specimen

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Abstract

GROSSI, M. A. (2011). Neotypification of *Stomatanthes helenae* (Buscal. & Muschl.) Lisowski (Asteraceae): the curious history of an African specimen. *Candollea* 66: 361-366. In English, English and French abstracts.

The holotype of the name of the Central African species *Stomatanthes helenae* (Buscal. & Muschl.) Lisowski (Asteraceae), initially described as *Eupatorium helenae* Buscal. & Muschl., was destroyed during the World War II. No other original material of this name was found, except for an illustration housed at BR. A specimen from BRLU herbarium is chosen here as neotype of *Eupatorium helenae*. Additionally, a re-description of the species, an illustration, a distribution map, as well as a key to the African species of *Stomatanthes*, are provided.

Key-words

ASTERACEAE – EUPATORIEAE – EUPATORIINAE – *Stomatanthes* – Africa – Typification

Résumé

GROSSI, M. A. (2011). Néotypification de *Stomatanthes helenae* (Buscal. & Muschl.) Lisowski (Asteraceae): la curieuse histoire d'un spécimen africain. *Candollea* 66: 361-366. En anglais, résumés anglais et français.

L'holotype du nom de l'espèce africaine *Stomatanthes helenae* (Buscal. & Muschl.) Lisowski (Asteraceae), initialement décrite comme *Eupatorium helenae* Buscal. & Muschl., a été détruit pendant la Seconde Guerre Mondiale. Aucun autre matériel original de ce nom n'a été retrouvé, à l'exception d'une illustration déposée à BR. Un spécimen de BRLU est choisi ici comme néotype pour le nom *Eupatorium helenae*. De plus, une description plus complète de l'espèce, une illustration, une carte de distribution, ainsi qu'une clé des espèces africaines de *Stomatanthes*, sont fournies.

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Introduction

Stomatanthes R. M. King & H. Rob. (*Asteraceae*, *Eupatorieae*) is a genus of ca. 17 species mostly concentrated in Brazil, but with a disjunct distribution in Africa (KING & ROBINSON, 1987; GROSSI & NAKAJIMA, 2009). *Stomatanthes* is characterized by its 4-12 florets per capitula with funnelliform or tubular white corollas, glabrous or glandular, with triangular lobes. Occasionally, there are stomata on the outer surface corolla. The style base is papillose or with simple uniseriate hairs, and the achenes are densely setuliferous with a distinctive carpodium (KING & ROBINSON, 1970; KING & ROBINSON, 1987). There are four African species mainly distributed in central Africa: *Stomatanthes africanus* (Oliv. & Hiern) R. M. King & H. Rob., *S. meyeri* R. M. King & H. Rob., *S. zambiensis* R. M. King & H. Rob., and *S. helenae* (Buscal. & Muschl.) Lisowski. During a revision in progress of the genus *Stomatanthes*, the author found difficulties while searching the type material of the name of one of the African species, *Stomatanthes helenae*.

Stomatanthes helenae was originally described under the genus *Eupatorium* by BUSCALIONI & MUSCHLER (1913). The original material of this species was collected in a steppe between Broken-Hill and Buana-Mukuba, Zambia, by the Duchess Helena of Aosta. The Duchess performed between 1908 and 1911 numerous collecting trips to tropical Africa. Her African collections were studied by MUSCHLER & BUSCALIONI (1913) who described many new species, including *E. helenae* Buscal. & Muschl. In the original description of *E. helenae* the authors did not cite any illustration of the species. The holotypes of the names of those new species were held at the Herbarium of Berlin (B) (BUSCALIONI & MUSCHLER, 1913; SCHUBERT & TROUPIN, 1952). According to WHITE (1962), some of the Duchess of Aosta's collections are preserved in Florence (FI or FT), but they have never been fully written up.

In 1915, botanists of the Berlin Herbarium (ENGLER & al., 1915) published several modifications to Muschler and Buscalioni's work on African collections, transferring many species to synonymy and performing other taxonomic arrangements. In that work, the botanists established that the type specimen of *E. helenae* was not in the same condition as the rest of the material collected by the Duchess of Aosta, suggesting that this could be an American specimen mixed in her African collection. Unfortunately, the World War II destroyed most of the specimens at B, including those of *E. helenae* (WHITE, 1962).

SCHUBERT & TROUPIN (1952), however, found in the herbaria of the National Botanical Garden of Belgium (BR, now at Meise) a set of illustrations of most of the new species of the African expedition, including *E. helenae*, with the initials "GB". The illustrations were also published by Maurizio Piscicelli who accompanied the Duchess on her trip through Africa.

PISCICELLI's book (1913) was published in Naples and contained numerous illustrations and a map. For each new species described by MUSCHLER & BUSCALIONI (1913), a description in Italian with the location of specimens, many observations, and a figure identical to those of Belgium but without the initials "GB" were provided. SCHUBERT & TROUPIN (1952) were not able to identify the artist who made these drawings. RYDING (2001) suggested that the artist could be a woman known as Miss Bartuschi. Apparently, only two copies of Piscicelli's book were found, one at the Botanical Institute of the University of Florence, Italy, and the other at the Library of the Congress, Washington, DC (SCHUBERT & TROUPIN, 1952). One set of the original drawings went to Belgium and possibly Piscicelli took with him another set of the illustrations when he returned to Italy. The BR herbarium sent me an illustration of *E. helenae* which is a reproduction of that published by Piscicelli. This illustration has a label attached to the herbarium sheets on which drawing is mounted signed by E. Robbrecht: "These illustrations were probably sent to BR by Buscalioni, who corresponded with BR staff members and met one in Berlin" (Fig. 1). On the label, E. Robbrecht mentioned that VELDKAMP (1968) designates the drawing of *E. helenae* as lectotype of *Biophytum helenae* Buscal. & Muschl. (*Oxalidaceae*). This is a mistake, since Veldkamp designated as lectotype for *Biophytum helenae* the illustration number XXIV, whereas the illustration number of *Eupatorium helenae* is LX.

The illustration of *E. helenae* does not match exactly with the original description of this species. According to the original description, the involucre is biseriate whereas it appears uniseriate in the illustration (Fig. 1).

SCHUBERT & TROUPIN (1955) described the work of Piscicelli and offered more information about the locations of the species collected by the Duchess. They mention that, according to Piscicelli's book, *E. helenae* is distributed in the region of Lake Banguelo, in northern Zambia, thus confirming the African distribution of this species.

LISOWSKI (1991), in his treatment of the *Asteraceae* for the Flora of Central Africa, transferred *E. helenae* to the genus *Stomatanthes*. This author mentioned that the holotype of *Eupatorium helenae* was deposited in B and destroyed during the World War II, but he did not designate a lectotype.

As the original material of *Stomatanthes helenae* at B is destroyed, and no duplicates were found (fide Mauro Raffaelli, FT; Giovanna Abbate, RO; Piero Cucchini, FI; Annalisa Mangaglia, BOLO), and as the illustration does not match exactly the original description, a neotypification of this species is performed here. The selected specimen, located at BRLU, fits appropriately with the original description and was collected close to the type locality. In addition, a re-description of *S. helenae* with an illustration and a key to the African species of *Stomatanthes* is provided.



Fig. 1. – Illustration of *Eupatorium helenae* Buscal. & Muschl. found in BR.

Typification

Eupatorium helenae Buscal. & Muschl. in Bot. Jahrb. Syst. 49: 505. 1913.

≡ *Stomatanthes helenae* (Buscal. & Muschl.) Lisowski in Fragm. Flor. Geobot. Suppl. 1: 456. 1991.

Type: ZAMBIA. **Copperbelt:** Steppe zwischen Broken-Hill und Buana-Mukuba, 18.I.1910, *Aosta 410* (holo-: B, destroyed).

Neotype (designated here): ZAMBIA. **Copperbelt:** entre Ndola et Mufulira, Dembo, 30.I.1960, *Duvigneaud 5313* (BRLU!).

Perennial herbs or subshrubs 1.5 m tall, with xylopodium. *Stems* erect, reddish, moderately branched, terete, striated, densely strigose-tomentulose in young parts glabrous at the base. *Leaves* alternate or opposite, densely arranged on stems, sessile or shortly petiolate, petiole 0.5-1.5 mm long, glabrous to puberulous, with few, simple, eglandular trichomes beneath, blade 3.5-8 cm long × 0.5-1.5 cm wide, membranaceous to subcoriaceous, oblong-lanceolate or elliptic-lanceolate, rarely linear, base cuneate, apex acute, margins strongly serrate, teeth thickened and rounded at apex, slightly pubescent when young becoming glabrous at maturity; trinerved, venation prominent on both faces, strongly reticulate, two lateral veins reaching the middle of the blade. *Heads* homogamous, grouped into a corymbose confluence, peduncles 0.2-1.2 cm, striated, densely pubescent. Involucre campanulate, 4-5 mm long × 3 mm wide, 2-3 seriate; phyllaries 6-8, membranaceous, outer phyllaries 4 mm long, scarious at the margins, inner phyllaries 6 mm long, oblong, apex acute to acuminate, glabrous, ciliate at the margins. *Receptacle* slightly convex, glabrous. *Florets* 5-8, bisexual, 4-5 mm long, corollas funnelform, shortly 5-lobed, tube 2-3 mm long × 0.6-0.8 mm wide, with glandular and non glandular hairs, throat setose, lobes 0.60-0.80 mm long × 0.45-0.60 mm wide, papillose, triangular, with stomata. *Anthers* 1.8-2 mm long, base rounded, anther collar cylindrical, 0.3 mm long × 0.18 mm wide, with 2-3 layers of transversely banded cells, anther appendages, widely oblong, 0.30 mm long × 0.30 mm wide. *Style* base not enlarged, covered with one-celled simple hairs, shaft 6.5-7 mm long, style branches 3-3.5 mm long, papillose. *Achenes* 3-3.5 mm long, prismatic, 5-6 ribbed, densely sericeous (twin-hairs and branched hairs); carpodium distinct, 0.1 mm long × 0.25 mm wide, cells subquadrate. *Pappus* 5-6 mm long, uniseriate, of ca. 60 scabrous, persistent bristles, with slender tips, apical cells acute. *Pollen grains* spheroidal, P × E = (18 × 20) μm, tricolporate, echinate (Fig. 2).

Distribution. – This species is restricted to southern of Democratic Republic of Congo and northern Zambia (Fig. 3). *Stomatanthes helenae* is here proposed as Vulnerable, according to IUCN criteria (IUCN, 2010), due to its restricted distribution range and the absence of recent collections suggesting a decrease in population size.

Additional material examined. – All the specimens cited by LISOWSKI (1991) are confirmed. The following gatherings are added:

DEMOCRATIC REPUBLIC OF CONGO (ex ZAIRE). Haut-Katanga: entre Mindigi et Menda, 5.XII.1959, *Duvigneaud 4416, 4417* (BRLU); Menda, 6.XII.1959, *Duvigneaud 4446* (BRLU).

ZAMBIA: Entre Ndola et Mufulira, Dembo, 30.I.1960, *Duvigneaud 5313* (BRLU) [neotype].

Stomatanthes helenae inhabits open forests and savannas, from 1000 to 2000 m. This species resembles *S. africanus*, a highly variable species widely distributed in central Africa but differs by its glabrous phyllaries (vs. pubescent in *S. africanus*), leaves with few, simple, eglandular trichomes (vs. leaves with glandular trichomes in *S. africanus*), florets 5-8 (vs. 4-5 in *S. africanus*), phyllaries 6-8 arranged in 2-3 series (vs. phyllaries 5-7 arranged in 1-2 series in *S. africanus*) and mesophyll with areas of lignified parenchyma between adaxial and abaxial palisade clorenchyma (vs. mesophyll without areas of lignified parenchyma between adaxial and abaxial palisade clorenchyma).

Key to the African species of *Stomatanthes*

1. Lower leaves in whorls of three, upper ones alternate, rarely opposite; achenes glabrescent *Stomatanthes zambiensis*
- 1a. Lower leaves alternate, upper ones opposite or alternate; achenes densely setose 2
2. Leaves sub-triangular, base truncated or rounded; anther appendages truncate, emarginate *Stomatanthes meyeri*
- 2a. Leaves ovate or oblong-lanceolate, base cuneate or rounded; anther appendages ovate, not emarginate 3
3. Leaves eglandular beneath; phyllaries glabrous *Stomatanthes helenae*
- 3a. Leaves glandular beneath; phyllaries pubescent *Stomatanthes africanus*

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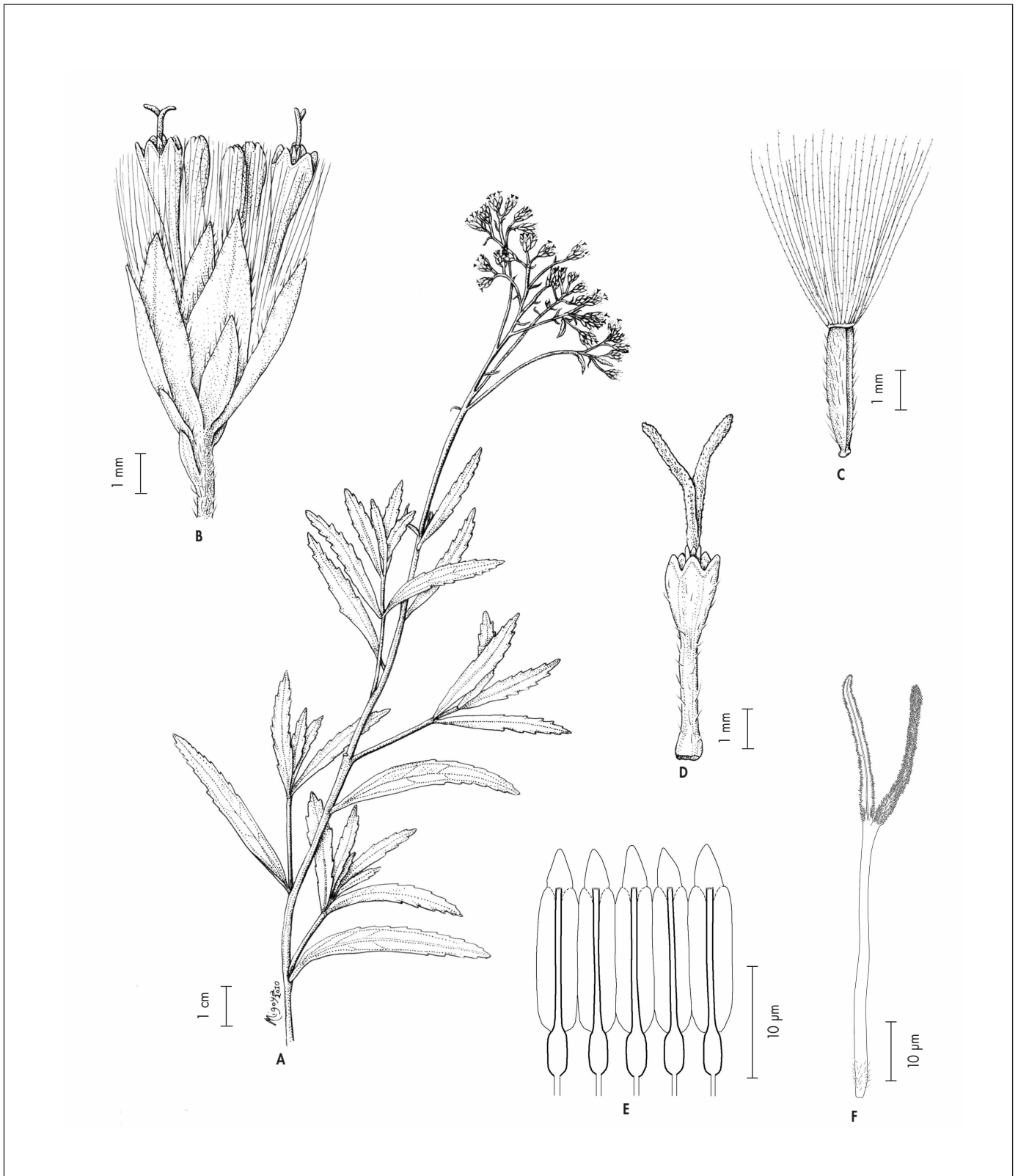


Fig. 2. – *Stomatanthes helenae* (Buscal. & Muschl.) Lisowski. **A.** Habit; **B.** Head; **C.** Achene; **D.** Corolla; **E.** Stamens; **F.** Style. [Duvigneaud 5313, BRLU]

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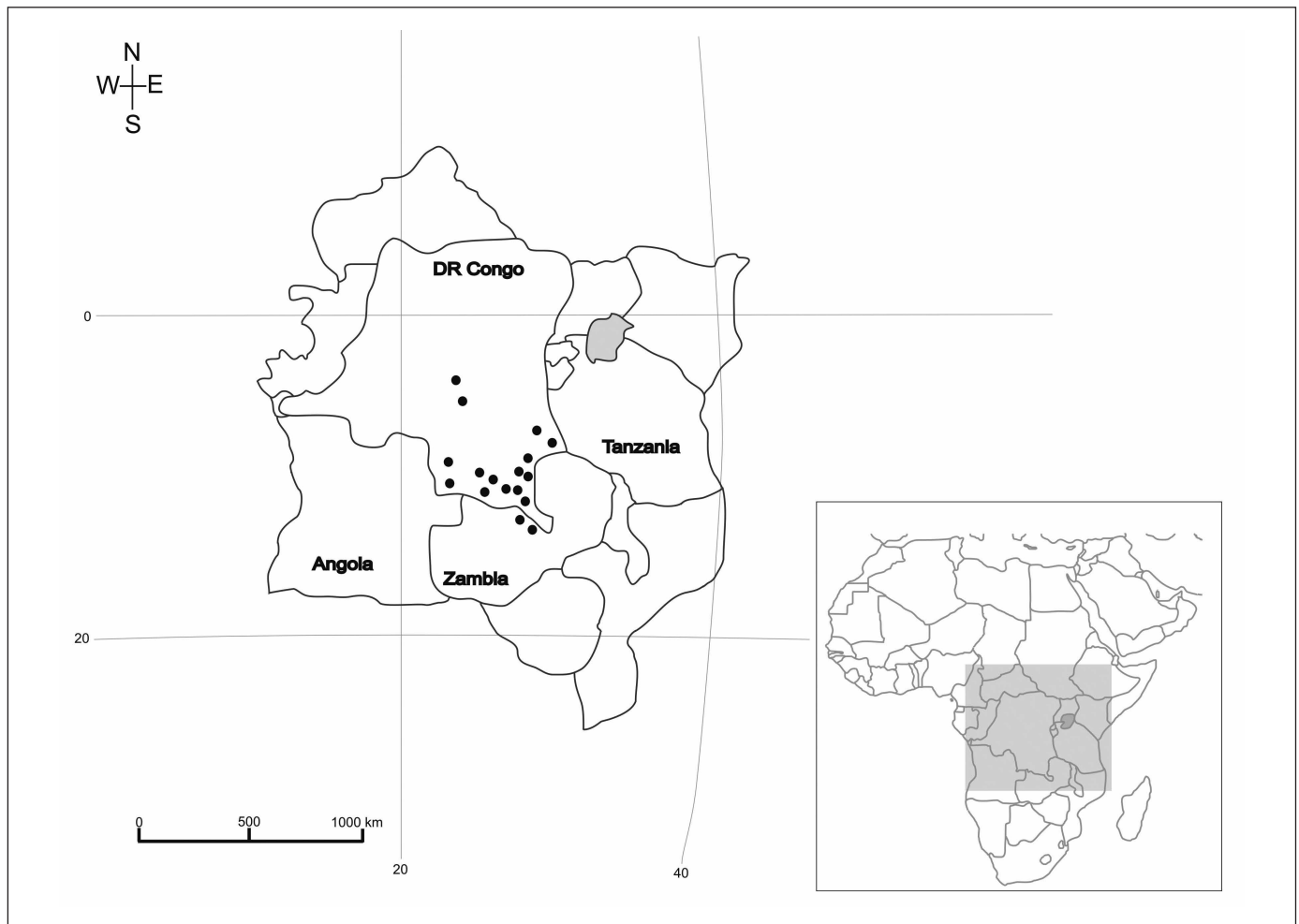


Fig. 3. – Distribution map of *Stomatanthes helenae* (Buscal. & Muschl.) Lisowski (●).