

**Type material of names based on plants from Namibia
collected by F. Schäfer and kept at the Senckenberg
Museum of Natural History, Görlitz (GLM)**

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Abstract

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The GLM herbarium collection houses vascular plant specimens from Namibia collected between 1909 and 1913 by Fritz Schäfer. Duplicates at Berlin-Dahlem (B) were partly destroyed during World War II, and further duplicates are known only in few cases at Zurich (Z) and Cape Town (NBG). At GLM we traced 27 type specimens of 20 validly published names, for eight of these names no further type material is known to have been preserved elsewhere. We typify the names involved and designate Schäfer specimens preserved at the herbaria GLM or B, respectively, as lectotypes for *Abutilon schaeferi*, *Anthericum apicicolum*, *A. diphyllum*, *A. glutinosum*, *Aster schaeferi*, *Gnidia suavissima*, *Hermannia seitziana*, *Lachenalia klinghardtiana*, *Lebeckia cinera* var. *schaeferi*, *Oldenlandia schaeferi*, *Pelargonium grandicalcaratum*, *P. squarrosus*, *Solanum schaeferi* and *Viscum schaeferi*, and a Dinter specimen preserved at NBG for *Pelargonium mirabile*.

Additional key words: Moritz Kurt Dinter, southern Africa, flowering plants, herbarium, typification

Introduction

Fritz Schäfer (b. 21.2.1881 in Görlitz?, d. 1931 in Görlitz) was a physician and amateur botanist. According to a dossier in the herbarium of the Senckenberg Museum of Natural History at Görlitz (GLM), he moved to former German Southwest Africa (today Namibia) in 1907 and worked there first at a railway construction enterprise and since 1911 at the Deutsche Diamantgesellschaft, which exploited the diamond deposits around Lüderitzbucht (Fig. 1). Between 1909 and 1913 he collected plants and also vertebrate animals in Southwest Africa (Dinter 1918; Dunger 1986; Frahm & Eggers 2001; Hardtke & al. 2004; GLM dossier). In 1910 Schäfer met Moritz Kurt Dinter, the leading botanist at that time in Southwest Africa, who

later described Schäfer as a good observer of the flora and who pointed out the “excursion” into Schäfer’s herbarium as the most notable event at his stay at Seeheim (Dinter 1918). In 1914 Schäfer came back to Germany and served in WW I in Europe (GLM herbarium dossier). After the war, Schäfer was first in Küstrin (Dinter 1920) and from 1920 in Spitzbergen (GLM herbarium dossier). In 1927 he returned to Görlitz.

Already from an early stage Schäfer was in close contact with the GLM herbarium. In a letter to the GLM curator Hugo von Rabenau he names him his teacher and fatherly friend and remembers his own preparatory work in the herbarium under Rabenau’s supervision. In 1910/11 Schäfer donated 750 Southwest African plant specimens

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to the GLM collection and in 1915/16 another 100 specimens. In 1927 he donated his whole herbarium to the GLM (GLM herbarium dossier).

Original descriptions of taxa based on Schäfer's collections were published by the Berlin botanists Harms (1912), Pilger (1913), Krause (1913, 1921), Ulbrich (1913), Engler & Krause (1914), Dammer (1915), Knuth (1918) and Engler (1919). They partly refer simultaneously to Schäfer and to Dinter gatherings as syntypes, or to material that simultaneously bears a Schäfer and a Dinter number. The latter fact (see under *Manulea schaeferi* Pilger, below) shows that both had exchanged material at that time already (see also under *Hermannia seitziana* Engl., below).

It is not known to what degree Schäfer material was included by Dinter in his "specimens for literature" swap agreement with the Botanical Museum in Berlin (Dinter 1918). At any rate, the fact that in some cases (see below) specimens with the same number from Schäfer's collection were the bases of independent descriptions of taxa by Dinter and by Berlin botanists shows that Schäfer material had also come to B independent of Dinter.

Dinter (1914) also mentions Schäfer as a collector of succulent plants that had been sent via Berlin to the Giardini Botanici Hanbury in La Mortola, Italy.

In 1920 Dinter dealt with material from Southwest Africa that was sent to him by Schäfer (Dinter 1920). Additionally, Dinter revised the Schäfer material that was at GLM at that time already. The result was his publication "Plantae novae Schäferianae" (Dinter 1920) with descriptions of several new taxa.

The aim of the present publication is to identify type material among Schäfer's specimens at GLM, duplicates at B and elsewhere, to typify the corresponding names and so to clarify the status of the material.

Material and methods

Potential type material from Schäfer's collection at GLM was identified on the basis of the labels of the specimens compared with the protologues (original descriptions) of the respective taxa as well as with the information given by Merxmüller (1966–72). Related material at Berlin-Dahlem (B) was searched for, using also the online database (Röpert 2000+) as well as the unpublished catalogue of Dinter, which is preserved at B (Unpublished Sources



Fig. 1. Backside text of the photograph (our translation from German): "Three German physicians in the African desert. Dr Robert Mähnz, Dr Fritz Schäfer, Dr Hans Schäfer" (from the GLM herbarium dossier).

no. 3). Furthermore, the correspondence between Dinter and Rabenau (Director of the GLM herbarium in 1920), which is preserved in the autograph collection of the Senckenberg Museum of Natural History in Görlitz, was studied. In addition, other herbaria that are known to hold Dinter specimens were consulted and the online database of Zurich (Z) (Anonymus 2010) and the Aluka database (Aluka 2010) were consulted for possible type material of the taxa considered here. Herbarium abbreviations follow Thiers (2008+).

Results

We traced at GLM altogether 357 Schäfer specimens collected in Southwest Africa between 1909 and 1913. They often bear annotations by Dinter. Among them are 27 type specimens of different status related to 20 taxon names; one former GLM specimen was later accessioned at B. Two specimens are the basis of invalid or unpublished names, which are listed in a separate section, below, two were cited in a nomenclaturally superfluous publication (see under *Pelargonium mirabile*).

Description of new taxa by Berlin authors and independently by Dinter concerns material collected in 1913 in the Klinghardt Mts. Particularly in the case of *Pelargonium grandicalcaratum* Knuth it is obvious that duplicates came to B independently of Dinter, since this taxon was described before Dinter got access to Schäfer's collections from this area (see below). An index of 84 numbers of plant specimens collected by Schäfer mostly in the Klinghardt Mts, which is available in the herbarium dossier of GLM, bears the date 28.1.1916. It refers

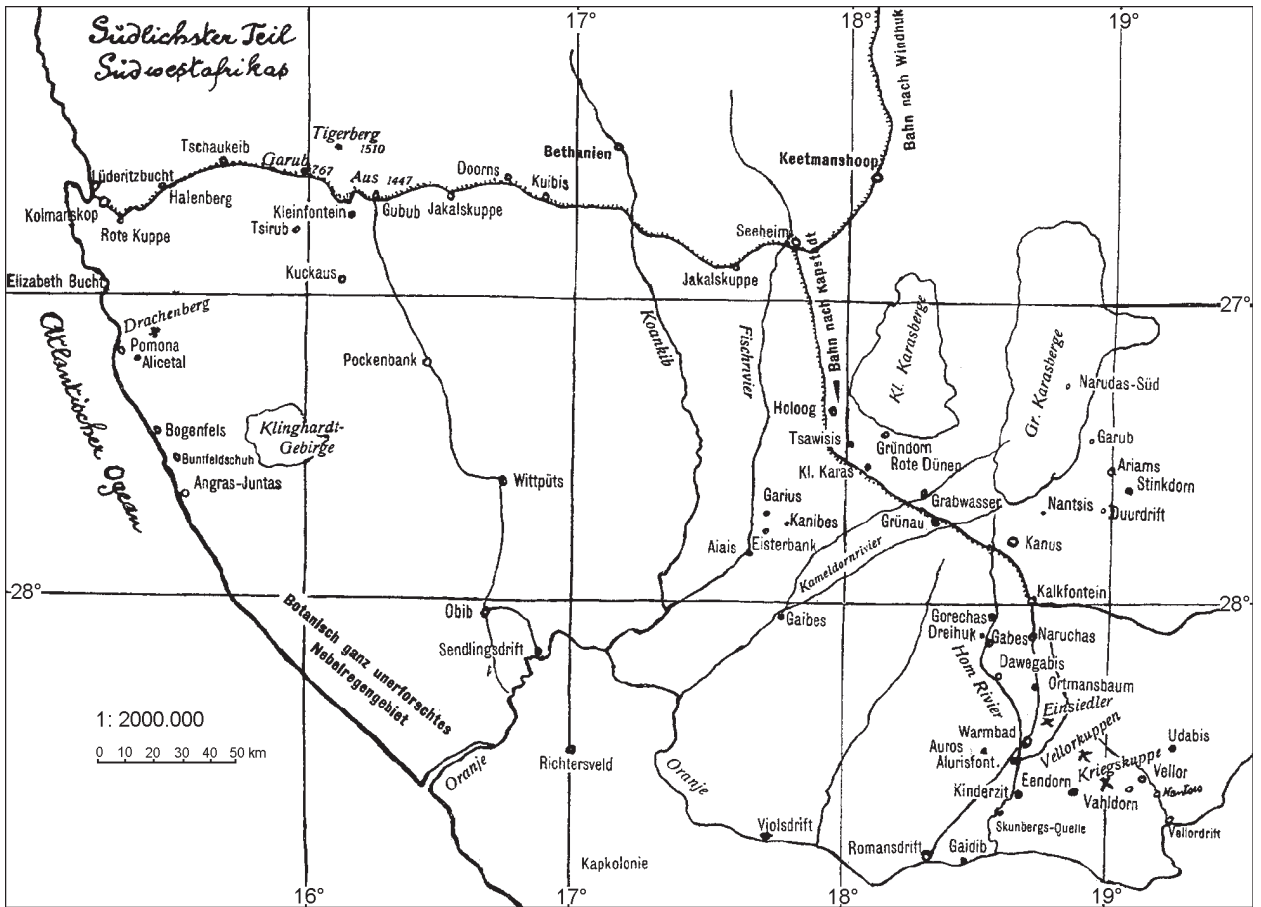


Fig. 2. A map of the southern part of Southwest Africa, showing most of Schäfer's collection sites (from Dinter 1928, with kind permission of Gustav Winter Druckerei und Verlagsgesellschaft m.b.H., Herrnhut).

probably to the accession of 100 specimens in 1915–16. It is nearly identical with the species list given by Dinter (1920) who refers to specimens collected by Schäfer that had “mostly been determined in Berlin”. A note by Rabenau from January 1920 in the GLM herbarium dossier mentions an “index of Mr Volkens, Dahlem” comprising Schäfer specimens at GLM, which was loaned to Dinter (Dahlem stands for the herbarium of B).

Of the 11 “Plantae novae Schäferianae” that were first described by Dinter (1920), 8 taxa are represented with type material at GLM. The wording of Dinter evokes the impression that he had received all of the underlying material from Schäfer himself, but Dinter's letters to Rabenau show that he received only a single packet directly from Schäfer, containing specimens from the Klinghardt Mts collected in 1913. Further material he borrowed from GLM. It is not known how many material Dinter took out from Schäfer's packet. Of the taxa described by Dinter (1920), *Ferraria schaeferi* and *Pharnaceum longearistatum* were not found at GLM now. From the material borrowed from GLM, Dinter mentions in his letters the number of 9 “half sheets”, i.e. duplicates that he wished to get for his own collection as well as for Schinz. Furthermore, he kept the specimen of *Lotononis rabenaviana* (Schäfer 101, see below) and that of an unknown

Scrophulariaceae (Schäfer 413); the latter in order to be sent to Schinz for determination, with the proposed genus name “*Schaeferothamnus*”.

Material from Dinter's collection has come into possession of several herbaria besides GLM and B. However, Schäfer specimens seem to have been amongst it only in few cases (see below). Dinter's collecting activities for Z had ended in 1905 already, before he got into contact with Schäfer (Dinter 1918). At STU, no material of the considered taxa could be traced. Dinter types that are housed there originate from Schlenker's herbarium (Joßberger in litt.; Peines & Engelhardt 2006). At M, Dinter material is dated from the 1930s or later, which means that there is probably no material related to that at GLM (Schuhwerk in litt.). Information regarding Schäfer material of *Aster schaeferi* at K and at BM (Grau 1973) is erroneous (see below).

The title of Dinter's unpublished catalogue (see Unpublished Sources no. 3) suggests that Dinter collected material for a “Landesherbarium”, probably referring to the collections of the former Landesmuseum in Windhoek, and it might be possible that Schäfer material incorporated in Dinter's collection was among this material. It is, however, not clear whether any of these specimens has ever reached this museum. Dinter (1923) mentions that after

WW I he found his herbarium, which he left in Southwest Africa in 1914, to be in good condition at its place in his home. This herbarium he later sold to South Africa (Schade 1955), what is most probably the way the *Manulea schaeferi* duplicate came to Cape Town (NBG). It is therefore not very likely though possible that further duplicates of Schäfer's early collections incorporated into Dinter's herbarium remained in Namibia. An overview on related specimens at WIND and other Namibian institutions is not possible, yet (Hillebrecht in litt.).

Below we list the names that are represented at GLM with type material collected by Fritz Schäfer. Most of the collection sites are shown in Fig. 2.

The names are arranged by families in alphabetical order with the monocotyledons following the dicotyledons. The structure of the entries is as follows: (1) The name based on material by Schäfer with bibliographic reference. (2) If different, the correct name of the taxon, unless stated otherwise, according to Germishuisen & Meyer (2003). The taxonomically correct name is always given in bold face. (3) Type citation in the protologue. (4) Status of the type(s) and citation of the label text of the type material, including isotypes and syntypes/paralectotypes known to exist. (5) Notes on the typification or the collections.

Scans of the specimens will be made available via internet at the SeSam database of the Senckenberg Gesellschaft für Naturforschung.

List of names

Dicotyledoneae

Amaranthaceae

Hermbstaedtia schaeferi (Schinz) Schinz & Dinter
 ≡ *Celosia schaeferi* Schinz in Vierteljahrsschr. Naturf. Ges. Zürich 66: 221–222. 1921.

Type citation: “Gross-Namaland: leg. Dr Schaefer, commun. Kurt Dinter, bei der Station Gawachab”.

Holotype: [Namibia], Gross Namaland, Gawachab, 1918, *Schaefer s.n.* (Z 000000267); putative isotypes: “*Celosia schaeferi* Schinz sp. nov., Gawachab, 2.1910, Schäfer 390” (GLM 160382); “*Hermbstädтия* spec. nov. (wird von Schinz veröffentlicht [see Schinz 1921]), det: Schinz, Gawachab, Bez. Keetmanshoop, 2.1910, leg. Dr F. Schäfer No 390” (GLM 102620); “*Celosia schaeferi* Schz., Gawachab bei Seeheim, 2.1910, Schäfer 390” (B 100154175, 100154176).

As holotype of *Celosia schaeferi* a specimen in Z is annotated (Anonymous 2010). This approach is in accordance with Rec. 9A.4 of the Code (McNeill & al. 2006) and should therefore be followed. However, the collection date “1918” given by Anonymous (2010) is surely not correct. All other Southwest African collections of Schäfer originate from between 1909 and 1913; see also the biographical data on Schäfer in the introduction.

Unfortunately, the collection number of Schäfer is neither preserved on the holotype nor documented in the pro-

tologue, thus it is not clear with last certainty whether the holotype and the GLM specimens are duplicates. Despite the differing notice regarding the collection date on the holotype, this is, however, much more probable than the assumption that these are separate gatherings. Dinter's letter to the GLM curator Rabenau (Unpublished Sources no. 2) proves that he forwarded Schäfer material of this species from GLM to Schinz, which is confirmed by the information in the protologue. This must have been one of the 9 “half sheets” (duplicates) that Dinter (Unpublished Sources no. 1) requested for himself and for Schinz, since the only two further specimens that Dinter (Unpublished Sources no. 2) named as temporarily remaining in his hands are the explicitly mentioned numbers 101 and 413. The GLM material most probably represents isotypes. B 100154175 and B 100154176 are duplicates of the GLM material and thus probable isotypes as well.

According to annotations of Dinter on the specimens at B, the collection site Gawachab is situated near Seeheim.

Asteraceae

Felicia filifolia subsp. *schaeferi* (Dinter) Grau

≡ *Aster schaeferi* Dinter in Repert. Spec. Nov. Regni Veg. 16: 339. 1920.

Type citation: “Namaland: Tafelberge bei Buntfeldschuh, Dr Schäfer 507”.

Lectotypus (hic designatus): [Namibia], “*Aster schaeferi* Dtr. sp. nov., Buntfeldschuh, 7.1913, Dr F. Schäfer 507” (GLM 145550).

No duplicate could be traced at B or elsewhere. In the case that no duplicates ever existed, this would be the holotype. This is, however, not sure; we therefore choose GLM 145550 as the lectotype of *Aster schaeferi*.

Grau (1973) mentions the holotype as being housed at K and a duplicate at BM. At K there is, indeed, a folder of *Felicia filifolia* subsp. *schaeferi* marked as “type”. It, however, contains a specimen collected by Dinter (Hind in litt.). Also at BM, *F. filifolia* is represented only by Dinter specimens from the 1920s and no Schäfer gatherings of any taxon are in the BM type specimen database (Hunnex in litt.).

Fabaceae

Lotononis rabenaviana Dinter & Harms in Repert. Spec. Nov. Regni Veg. 16: 344. 1920.

Type citation: “Schäfer no. 101, Sandboden bei Klein Karas, 1300 m, 1909”.

Holotype: [Namibia], “Kl. Karras. 4.1901” [year “9” by the same hand altered to “1”], Schäfer 101 (B 100349155).

According to Dinter (Unpublished Sources no. 1), he had borrowed the specimen Schäfer 101 from GLM and wished to keep it for a longer time for the diagnosis.

Dinter (Unpublished Sources no. 2) mentioned that the sheet was in B with Harms at that moment. While the specimen originally came to Berlin as a loan, it was later accessioned there and incorporated. No document about the circumstances is extant, perhaps there is a connection with the fact that after the death of Rabenau in 1921 the GLM herbarium was without curation for a longer time.

Lebeckia cinerea var. *schaeferi* Dinter in Repert. Spec. Nov. Regni Veg. 16: 342. 1920.
= *Lebeckia cinerea* E. Mey.

Type citation: “Granitberg zwischen Prinzenbucht und Prinzenbucht, Dr Schäfer 598”.

Lectotypus of *Lebeckia cinerea* var. *schaeferi* (hic designatus): [Namibia], “*Lebeckia cinerea* var. *Schäferi*, Granitberg zwischen Prinzenbucht und Bogenfels, 9.1912, leg. Dr F. Schäfer 598” (GLM 129928); isolectotypes: “*Lebeckia cinerea* E. Mey. var. *Schaeferiana* Dtr., det: Dinter, Granitberg zwischen Prinzenbucht und Bogenfels, 9.1912, leg. Dr F. Schäfer 598” (GLM 112798); “*Lebeckia cinerea* E. Mey. var. *Schaeferiana* Dtr., Granitberg zwischen Prinzenbucht und Bogenfels, 9.1912, Dr Schäfer 598” (B 100216800).

The specimen here chosen as lectotype of *Lebeckia cinerea* var. *schaeferi* is the best developed and the only one annotated with this name; the duplicate at B, with the label in Dinter’s hand, is rather sparse, consisting of one shoot only. The varietal name “*schaeferiana*” as given on the isolectotype sheets was published by Dinter (1922: 437) as a nomen nudum.

Melolobium stenophyllum Harms in Repert. Spec. Nov. Regni Veg. 11: 86. 1912

= *Melolobium macrocalyx* var. *longifolium* Dümmer
Type citation: “Sandverhaar, tiefer Dünensand, 800 m (Dinter no. 1176, 1.1910)” and “ebendort (Schäfer no. 278, 1.1910)” and “Witvley-Marienthal, grosse rote Dünen (Dinter no. 1976, 3.1911)”.

Lectotype of *Melolobium stenophyllum* (designated by Moteete & Wyk 2006): [Namibia], “Witvley-Marienthal”, Dinter 1976 (SAM 73605 at NBG). – Paralectotype: “*Melolobium stenophyllum* Harms, Sandverhaar, 1.1913, Schäfer 278” (GLM 129932).

Melolobium stenophyllum was lectotypified by Moteete & Wyk (2006) with a specimen from the SAM collection at NBG that is said to be a duplicate of Dinter 1976 and to originate from the Sandverhaar. Nevertheless, this is not in accordance with the information given in the protologue; it could either be a duplicate of Dinter 1976 or one of the two Sandverhaar collections. Unfortunately, the authors did not provide the specimen number. According to a scan sent to us, there is a duplicate of Dinter 1976 originating from “Witvley-Marienthal” (SAM 73605). Although it does not bear any annotation regarding lectotypification, we suppose that

this is the lectotype. The collecting site is not situated in the Sandverhaar, but at a place among dunes between Witvley (Witley) and Marienthal (see Dinter 1918: 44; this location is outside the map of our Fig. 2).

“Ebendort” (“just there”) as the collecting site of Schäfer 278 refers to the Sandverhaar (see order of type citation above). The GLM specimen is thus a syntype, or paralectotype, respectively. It is likely that Dinter 1176 and Schäfer 278 are duplicates (see below under *Hermannia engleri*).

No material could be traced at B.

Geraniaceae

Monsonia namaensis Dinter in Repert. Spec. Nov. Regni Veg. 16: 344. 1920

= *Monsonia luederitziana* Focke & Schinz

Type citation: “Dr Schäfer 55, Namaland: An der Strecke Seeheim-Kalkfontein, auf überschwemmt gewesenen Boden” and “Dtr. 2040, Seskamelbaum, Satansplatz”.

Lectotype of *Monsonia namaensis* (designated by Venter 1979: 77): [Namibia], “Satansplatz 25.3.1911, Dinter 2040” (SAM 72744 at NBG); paralectotype: “*Monsonia* spec., Seeheim Kalkfontein km 16, an überschwemmt gewesenen Stellen, häufig, nach *Mentha piperita* riechend, 2.[19]09, Schäfer 55” [by Schäfer]; “*Monsonia namaensis* Dtr. sp. nov. / Seit vielen Jahren von mir für *M. umbellata* gehalten von der sie sich aber durch größere Blüten, deren Petalen viel länger als der Kelch ist, größere Blütenzahl der Dolden und breitreieckige Nebenblätter unterscheidet” [by Dinter] (GLM 104540).

The specimen SAM 72744 was annotated as lectotype by Venter in 1978. The GLM specimen is a syntype or paralectotype, respectively. No material could be traced at B and no duplicates are known to exist somewhere else.

The collecting site of the lectotype, given with “Seskamelbaum, Satansplatz” in the protologue and with “Satansplatz” on the label, is a not precisely determinable location between the farms Seskamelboom and Satansplatz (Dinter 1918: 49–50).

Pelargonium mirabile Dinter, Neue Pfl. Deutsch-Südwest-Afr.: 47. 1914 [& in Repert. Spec. Nov. Regni Veg. 16: 342. 1920], non Sweet 1828.

=? *Pelargonium crassicaule* L’Hér.

Type citation: “Rote Kuppe (Wüste östlich Lüderitzbucht) Dtr. Nr. 2600”

Lectotypus (hic designatus): [Namibia], “Rote Kuppe, cult. Okahandja Febr. 1913, Dinter 2600” (SAM 72776 at NBG; isolectotype: SAM 72805 at NBG).

Dinter (1914) gives a short but formally sufficient description and also provides an instructive photograph of the plants. The name can thus safely be regarded as validly published, but is illegitimate as a later homonym of *Pelargonium xmirabile* Sweet. Dinter (1920), how-

ever, considered his publication of the name in 1914 as insufficient, provided a more detailed description and cites two syntypes: “Dtr. no. 2600, Namaland: Auf den Gneißbergen der Roten Kuppe, 2 km nördlich der Station in Hunderten von Exemplaren, Jan. 1910” and “Dr Schäfer 577, Geröll des Dreikugelbergs im Klinghardtgebirge”.

Following Dinter (1920), other authors, e.g. Walt & Vorster (1981), considered the name of 1914 to be a “nom. subnud.”, which is, however, no category of the Code (McNeill & al. 2006), and cite the name from the 1920 publication. Consequently, the two collections cited in the latter work were considered as syntypes.

Taking the name as validly published in the 1914 publication, the *Schäfer 577* gathering cited by Dinter (1920) has no type status and a lectotype can thus be chosen only from *Dinter 2600*, of which material is known only to be extant in SAM at NBG.

Both SAM specimens were annotated by Vorster in 1979 as “syntype of *Pelargonium mirabile* Dinter”. The identification of this material as types is surely correct, although the collecting dates differ between the description and the labels. The note “cult. Okahandja” shows that Dinter cultivated these plants (or this single plant, later divided) that were originally collected by him at the Rote Kuppe in 1910 in his garden in Okahandja until they flourished in 1913. There is no evidence against the assumption that the trunk was taken from the garden together with the flowering shoots. Our impression from the scans of the *Dinter 2600* specimens sent to us from NBG is that the elements originate from a single plant that was divided into a couple of parts and thus preserved at one time (McNeill & al. 2006: Art. 8.2); the two specimens at SAM may therefore be regarded as duplicates. The collecting date is February 1913.

Two specimens of the collection *Schäfer 577* are preserved at GLM: “*Pelargonium mirabile* Dtr. sp.n., det: Dinter, Klinghardtgebirge, Geröll des Dreikugelberges, 14.8.1913, leg. *Dr F. Schäfer 577*” (GLM 112797, 132652).

Walt & Vorster (1981) point out some morphological differences between typical *Pelargonium crassicaule* and *P. mirabile* and synonymised them only with reservations. Thus, although both were synonymised also by Germishuizen & Meyer (2003), further taxonomic studies are desirable.

Pelargonium grandicalcaratum R. Knuth in Repert. Spec. Nov. Regni Veg. 15: 135. 1918

Type citation: “Geröll am Abhang des Dreikugel-Berges im Klinghardt-Gebirge (Schäfer a. 1913 no. 579, Typus in herb. Berol.!)”.

≡ *Pelargonium squarrosum* Dinter in Repert. Spec. Nov. Regni Veg. 16: 343. 1920, nom. illeg.

Type citation: “Schäfer 579, Namaland: Geröll am Abhang des Dreikugelbergs im Klinghardtgebirge, bisher nur einmal gefunden”.

Lectotypus of *Pelargonium grandicalcaratum* and *P. squarrosum* (hic designatus): [Namibia], “*Pelargonium squarrosum* Dtr. sp. nov., Klinghardtgebirge, Geröll am Abhang des Dreikugelberges – sparriger Strauch, 14.8.[19]13, leg. *Dr F. Schäfer 579*” (GLM 132767); isolectotype: “*Pelargonium squarrosum* Dtr. spec. nov., det: Dinter, Klinghardtgebirge, Dreikugelberg, Bez. Lüderitzbucht, 14.8.1913, leg. *Dr F. Schäfer 579*” (GLM 132768).

The holotype of *Pelargonium grandicalcaratum* was apparently lost when the Berlin herbarium was destroyed by the air raid in 1943. Walt & Vorster (1988) assumed that also “the type specimen” of *P. squarrosum* “was destroyed during the Second World War”. However, Dinter (1920) did not designate a certain specimen of the collection *Schäfer 579* as type and actually two duplicates of *Schäfer 579* are extant at GLM. The neotypification of *P. grandicalcaratum* by Walt & Vorster (1988: 61) is superseded by the above lectotypification, which is done simultaneously with the same sheet also for *P. squarrosum* to assure their homotypy.

Malvaceae

Abutilon schaeferi Ulbr. in Bot. Jahrb. Syst. 51: 17. 1913
= *Abutilon dinteri* Ulbr. (Merxmüller 1969: 82:5 in Merxmüller 1969–72)

Type citation: “Groß-Namaland: an Wegen und Revieren bei Aus (Dr Schaefer, Südwest n. 361!, vereinzelt blühend und fruchtend, ohne Datum 1910)”.

Lectotypus of *Abutilon schaeferi* (hic designatus): [Namibia], “*Abutilon Schaeferi* Ulbrich, an Wegen und Revieren bei Aus, 1910, *Schäfer 361*” (GLM 104697).

No duplicate was traced at B or elsewhere. The material at B was apparently destroyed in 1943.

Rubiaceae

Oldenlandia schaeferi K. Krause in Bot. Jahrb. Syst. 48: 405–406. 1913

= *Kohautia caespitosa* Schnizlein

Type citation: “Schäfer n. 335, Bezirk des Namaqualandes: auf den Bergen hinter Klein-Karas. – Mit Blüten und Früchten gesammelt im Februar 1911”.

Lectotypus of *Oldenlandia schaeferi* (hic designatus): [Namibia], “*Oldenlandia Schaeferi* Krause sp. nov., Berge hinter Klein Karas bei km 112, 2.1910, *Schäfer 335*” (GLM 139520).

Whereas the collecting date reads “2.1910” on the sheet, Krause cited “2.1911” in the protologue. However, the collection number leaves no doubt regarding the identity. No specimen could be traced at B or elsewhere. In the case that no duplicates ever existed, the GLM specimen would be the holotype but it is more likely that a specimen was preserved at B that was destroyed in 1943. We therefore choose GLM 139520 as lectotype of *Oldenlandia schaeferi*.

Scrophulariaceae

Manulea schaeferi Pilger in Bot. Jahrb. Syst. 48: 436. 1913

Type citation: “Dr Schäfer 41 (Koll. Dinter n. 1327), Groß-Namaqualand: Klein-Karas, bei 1300 m auf Sandboden, blühend und fruchtend im Juni 1909”.

Lectotype (designated by Hilliard 1994: 320): [Namibia], “Karas, 6.1909, Dinter M. K. 1327” (SAM 67658 at NBG); isolectotype: “*Manulea Schaeferi* Pilger sp. nov., Sandboden bei Station Kl. Karras, 1300 m, 6.1909, Schäfer 41” (GLM 138085).

The above cited SAM specimen at NBG is annotated with “lectotype of current name” proving its identity with Hilliard’s lectotypification.

Manulea robusta Pilger in Bot. Jahrb. Syst. 48: 437–438. 1913

Type citation: “Dinter n. 1069a!, Groß-Namaqualand: Aus, felsige Rinnsale bei 1400 m – Blühend und fruchtend im Januar 1910“ and “Dr Schäfer 252 – Berge bei Aus – 1909”.

Lectotype (designated by Hilliard 1994: 385): [Namibia], Aus, 10.1. 1910, Dinter M. K. 1069A (SAM 74427 at NGB); isolectotype: [Namibia, Aus], 10.1. 1910, Dinter 1069 (SAM 67661 at NBG); paralectotype: “*Manulea robusta* Pilger sp. nov., Aus, sine anno, leg. F. Schäfer 252” (GLM 138086).

The SAM specimen at NGB cited as lectotype is annotated with “lectotype of current name” proving its identity with Hilliard’s lectotypification.

Solanaceae

Solanum schaeferi Dammer in Bot. Jahrb. Syst. 53: 343–344. 1915

= *Solanum burchellii* Dunal

Type citation: “Dr Schäfer 323, Deutsch-Südwest-Afrika: Kanus, 2.1910”.

Lectotypus (hic designatus): [Namibia], “*Solanum schaeferi* U. D., Kanus, 1.1910, Schäfer 323” (GLM 137593).

Whereas the collecting date reads “1.1910” on the sheet, Dammer wrote “2.1910”. However the collection number leaves no doubt regarding the identity. No duplicates could be traced at B or elsewhere. In the case that no duplicates ever existed, the GLM specimen would be the holotype but it is more likely that a specimen was preserved at B, where Dammer was curator (Wagenitz 2009), and was destroyed in WWII. We therefore choose GLM 137593 as lectotype of *Solanum schaeferi*.

Sterculiaceae

Hermannia patellicalyx Engl. in Bot. Jahrb. Syst. 55: 358. 1919

Type citation: “Dr Schäfer 501, Groß-Namaland: am Tafelberg bei Buntfeldschuh”.

Holotype: [Namibia, Namaland], “Tafelberg bei Buntfeldschuh, 7.1913, Dr Schäfer 501” (B 100349156); isotypes: “*Hermannia patellicalyx* Engl. (1919), det: Dinter, Tafelberge bei Buntfeldschuh, Bez. Lüderitzbucht., 7.1913, leg. Dr F. Schäfer 501” (GLM-133620); “*Hermannia Schaeferiana* Dtr. sp. nov., Tafelberg bei Buntfeldschuh, 7.13, leg. Dr F. Schäfer 501” (GLM 132621).

The Berlin specimen can be considered as the holotype, since Engler worked at B and there is no evidence that he had seen any of the other duplicates (McNeill & al. 2006: Rec. 9A.4). The GLM specimens are thus isotypes.

The name *Hermannia schaeferiana* Dinter mentioned on the labels has not been published.

Hermannia seitziana Engl. in Bot. Jahrb. Syst. 55: 370. 1919

= *Hermannia dinteri* Engl. 1907, non Schinz 1898 = *Hermannia engleri* Schinz 1910 (Verdoorn 1980)

Type citation: “Dinter n. 1178 – Blühend im Januar 1910, Sandverhaar, um 800 m” and “Schäfer n. 285, blühend im Januar 1910”.

Lectotypus of *Hermannia seitziana* (hic designatus): [Namibia], “*Hermannia feddiana* Dtr. = *H. seitziana* Dtr., Sandboden in Sandverhaar, 1.1910, Schäfer 285” (B 100349154); isolectotypes: “*Hermannia seitziana* Engler, det: Dinter, Sandboden in Sandverhaar, 1.1910, Bez. Keetmanshoop, leg. Dr F. Schäfer No 285” (GLM 133619); “*Hermannia Feddeana* Dtr. sp. nov., Sandboden in Sandverhaar, 1.1910, Schäfer No 285” (GLM 104715); paralectotype: “Sandverhaar, 15.1.1910, Dinter M. K. 1178” (SAM 69933 at NBG).

Dinter (1918: 32–33) describes his visit in the Sandverhaar between Kuibis and Seeheim on 15.1.1910 where he collected “the new *Hermannia Feddeana*” and his meeting with F. Schäfer in Seeheim later on the same day. So it is most likely that in this case the material in Schäfer’s herbarium originates from Dinter’s gathering and the syntypes cited in the protologue in fact represent duplicates (the notice “leg. Dr F. Schäfer” on GLM 133619 originates from a series of printed labels that were attached to sheets of the Schäfer herbarium, certainly without having proven the collector in each case). At any rate, the specimen at B is the only preserved type material of this species at the institution where the author worked. Therefore we choose this as lectotype of *Hermannia seitziana*. The name *Hermannia feddeana* Dinter (1918: 32) should best be regarded as invalid, the descriptive statement given in passing not satisfying the requirements of Art. 32.1(d) (McNeill & al. 2006), otherwise it would be another synonym of *H. engleri*.

Thymelaeaceae

Gnidia suavissima Dinter in Repert. Spec. Nov. Regni Veg. 16: 340. 1920.

Type citation: “Dr Schäfer 504, Namaland: zwischen Angras Juntas und Buntfeldschuh”.

Lectotypus (hic designatus): [Namibia, Namaland], “*Gnidia suavissima*, zwischen Angras-Juntas u. Buntfeldschuh, niederliegender in der Windrichtung gestreckter Zwergstrauch mit sehr wohlriechenden Blüten, 7.1913, leg. Dr F. Schäfer 504” (GLM 101451); isolectotype: B 100349157.

Viscaceae

Viscum schaeferi Engl. & K. Krause in Bot. Jahrb. Syst. 51: 470. 1914.

Type citation: “Namabezirk: Am Fischfluss bei Seeheim (Schäfer n. 465. – Mit Blüten und jungen Früchten gesammelt im März 1910)” and “bei Seeheim auf *Maerua Schinzii* schmarotzend (A. Engler, Reise nach Deutsch-Südwestafrika n. 6601. – Mit älteren Früchten gesammelt Ende April 1913)”.

Lectotypus (hic designatus): [Namibia], “*Viscum Schaeferi* Engl. u. Krause, Am Fischfluss bei Seeheim auf No. 466 (*Maerua*) schmarotzend, 3.1910, Schäfer 465” (GLM 119349); isolectotype; “*Viscum Schaeferi* Engl. u. Kraus., Bezirk Keetmanshoop, Am Fischfluss bei Seeheim auf *Maerua Schinzii* schmarotzend, 3.1910, det. Engl. u. Kraus., leg. Dr F. Schäfer 465” (GLM 112799).

No further type specimen was traced at B or elsewhere; also Balle (1968) did not mention any specimen of these gatherings in the consulted herbaria. The specimen selected as lectotype is in much better condition than the other specimen.

Monocotyledoneae

Asphodelaceae

Anthericum diphyllum Dinter in Repert. Spec. Nov. Regni Veg. 16: 338. 1920.

Type citation: “Dr Schäfer 553, Namaland: Klinghardtgebirge. Gipfel des Dreikugelberges zwischen Felstrümmern”.

≡ *Anthericum apicicum* K. Krause in Bot. Jahrb. Syst. 52: 236. 1921, nom. illeg.

Type citation: “Groß-Namaqualand: Im Klinghardtgebirge auf dem Gipfel des Dreikugelberges zwischen Felstrümmern (Schäfer n. 553. – Blühend und fruchtend gesammelt im September 1913)”.

= *Trachyandra muricata* (L. fil.) Kunth

Lectotypus of *Anthericum diphyllum* and *A. apicicum* (hic designatus): [Namibia], “*Anthericum diphyllum* Dtr., Klinghardtgebirge, Gipfel des Dreikugelberges, zwischen Felstrümmern, 14.8.1913, Dr Schäfer 553” (B 10 0165920); isolectotypes: “*Anthericum diphyllum* Dtr. sp. nov., Klinghardtgebirge: zwischen Felstrümmern des Dreikugelberges, 14.8.1913, leg. Dr F. Schäfer 553” (GLM 122024); “*Anthericum diphyllum* Dtr. sp. nov., det: Dinter, Klinghardtgeb.,

Gipfel des Dreikugelberges, Bez. Lüderitzbucht, 14.8.1913, leg. Dr F. Schäfer 553” (GLM 105511, 114978).

The specimen at B was interpreted as “holotype” of *Anthericum diphyllum* by Obermeyer (1962). However, there is neither an accordant notice of Dinter on that sheet, nor did Dinter (1920) refer to a certain specimen as the type. It is also not possible to interpret the specimen at B as the holotype on the basis of Rec. 9A.4 of the Code (McNeill & al. 2006), since Dinter did not work at B and there is evidence that he had seen the duplicates that are now at GLM. The existing specimens therefore have to be treated as syntypes among them a lectotype has to be chosen.

Although *Anthericum apicicum* is based on Schäfer 553 as well, Obermeyer (1962) cites the holotype at B as “probably destroyed”. That would mean that *A. diphyllum* and *A. apicicum* were based on different specimens of Schäfer 553. Krause’s citation of the collecting time with “September” is surely an error.

It seems reasonable to select one specimen as lectotype for both names to assure their homotypy.

Anthericum glutinosum Dinter in Repert. Spec. Nov. Regni Veg. 16: 338. 1920

= *Trachyandra laxa* (N. E. Br.) Oberm.

Type citation: “Dr Schäfer 559, Namaland: Sandfelder zwischen Pietab und Sargdeckel im Klinghardtgebirge”.

Lectotypus of *Anthericum glutinosum* (hic designatus): “*Anthericum glutinosum* Dtr. sp. nov., det: Dinter, Klinghardtgebirge, Sandfelder zwischen Pietab und Sargdeckel, Bez. Lüderitzbucht, 14.8.1913, leg. Dr F. Schäfer 559” (GLM 112793).

No duplicates could be traced at B or elsewhere. Obermeyer (1962) cites a “holotype” at B as “probably destroyed”. Independent of the question, whether the specimen at B was the holotype, the existence of a further duplicate beside that at GLM in the past and its destruction require a lectotypification with the remaining material. The specimen designated as lectotype is the only known extant material of the collection Schäfer 559.

Hyacinthaceae

Lachenalia klinghardtiana Dinter in Repert. Spec. Nov. Regni Veg. 16: 341–342. 1920.

Type citation: “Dr Schäfer 554, Namaland: Zwischen Felsgeröll des Dreikugelberges im Klinghardtgebirge”.

Lectotypus (hic designatus): [Namibia], “*Lachenalia klinghardtiana* Dtr. sp. nov., Klinghardtgebirge: Dreikugelberg zw. Felsgeröll, Bl. braun gefleckt, 14.8.1913, Dr Schäfer 554” (B 100167127); isolectotypes: “*Lachenalia klinghardtiana* Dtr. sp. nov., Klinghardtgebirge: Felsgeröll auf dem Dreikugelberge, 14.8.1913 (Blätter braun gefleckt wie bei *Or-*

chis mac.), leg. Dr F. Schäfer 554" (GLM 160250, 160251).

The specimen at B was annotated as "holotype" by A. Sölch in 1959. However, there is neither an accordant notice of Dinter on that sheet, nor did Dinter (1920) refer to a certain duplicate as the type. It is also not possible to interpret the specimen at B as the holotype on the basis of Rec. 9A.4 of the Code (McNeill & al. 2006), since Dinter did not work at B and there is evidence that he had seen the duplicates that are now at GLM. A holotype does therefore not exist and a lectotype has to be chosen from among all duplicates.

Material related to invalid names

Othonna lasiocarpa (DC.) Sch. Bip. (*Asteraceae*)

– *Othonna schaeferi* Muschler in Repert. Spec. Nov. Regni Veg. 20: 316. 1924, nom. nud.

Cited material: "Dr Schäfer 1276, N.: Klein Karas."

Based on: "*Othonna Schaeferi* Muschler sp. nov., Klein Karas, 4.2009, Schäfer 231" (GLM 143248).

The collection number cited in Dinter (1924: 316) does not seem to be Schäfer's one but Dinter's number, as is proven by a corresponding entry in Dinter's catalogue: "1276/ *Othonna* 11 *Schaeferi* Muschler / Kl. Karas / Schäfer" (Unpublished Sources no. 3). This may have been among the losses at B.

Microdon bosciaefolius Dinter in Repert. Spec. Nov. Regni Veg. 19: 236. 1923/24, nom. nud. (*Scrophulariaceae*)

Cited material: "Dr Schäfer 590, N.: Granitberg zw. Prinzenbucht und Bogenfels".

Based on: "*Microdon bosciaefolius* Dtr. sp. nov., det: Dinter, Granitberg zw. Prinzenbucht u. Bogenfels, 9.1912, leg. Dr F. Schäfer No. 590" (GLM 139386)

No duplicate is known elsewhere.

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Unpublished sources

(1) Letter of K. Dinter to Dr von Rabenau, dated 17.1.1920. – Autograph collection of the Naturfor-

schende Gesellschaft zu Görlitz in the Library of the Senckenberg Museum für Naturkunde Görlitz.

- (2) Letter of K. Dinter to Dr von Rabenau, dated 6.2.1920. – Autograph collection of the Naturforschende Gesellschaft zu Görlitz in the Library of the Senckenberg Museum für Naturkunde Görlitz.
- (3) Dinter K.: Catalog der seit März 1906 für das Berliner und das Landesherbarium gesammelten Pflanzen. – Manuskript in the Herbarium Archives of the Botanic Garden and Botanical Museum Berlin-Dahlem.

References

- Aluka 2010: Aluka/African Plants. – Published at <http://www.aluka.org/> [last access 23 April 2010]
- Anonymous 2010: Typusbelege der Herbarien Z+ZT und ZSS. – Published at <http://www.zuerich-herbarien.uzh.ch/datenbanken/typusbelege.php> [last access 22 April 2010]
- Balle S. 1968: Les Loranthacées de l' Afrique du Sud-Ouest. – Mitt. Bot. Staatssamml. München **7**: 119–209.
- Dammer U. 1915: *Solanaceae africanae* III. – Bot. Jahrb. Syst. **53**: 325–357.
- Dinter K. 1914: Neue und wenig bekannte Pflanzen Deutsch-Südwest-Afrikas. – Okahandja: by the author.
- Dinter K. 1918: Botanische Reisen in Deutsch-Südwest-Afrika. – Repert. Spec. Nov. Regni Veg., Beih. **3**: 1–169.
- Dinter K. 1920: Plantae novae Schaeferianae. – Repert. Spec. Nov. Regni Veg. **16**: 335–344.
- Dinter K. 1922: Index der aus Deutsch-Südwestafrika bis zum Jahre 1917 bekannt gewordenen Pflanzenarten XII. – Repert. Spec. Nov. Regni Veg. **18**: 423–444.
- Dinter K. 1923: Succulentenforschung in Südwestafrika. Erlebnisse und Ergebnisse meiner Reise im Jahre 1922. – Repert. Spec. Nov. Regni Veg., Beih. **23**: 1–145.
- Dinter K. 1924: Index der aus Deutsch-Südwestafrika bis zum Jahre 1917 bekannt gewordenen Pflanzenarten. XVII. – Repert. Spec. Nov. Regni Veg. **20**: 314–316.
- Dinter K. 1928: Sukkulantenforschung in Südwestafrika. II. Erlebnisse und Ergebnisse meiner Reise in den Jahren 1923 bis 1925. – Herrnhut i. Sa.: Winter
- Dunger W. (ed.) 1986: Die Sammlungen des Staatlichen Museums für Naturkunde Görlitz – Forschungsstelle. – Abh. Ber. Naturkundemus. Görlitz **59** Suppl.: 1–72.
- Engler A. 1919: *Sterculiaceae africanae* VI. – Bot. Jahrb. Syst. **55**: 350–380.
- Engler A. & Krause K. 1914: *Loranthaceae africanae* V. – Bot. Jahrb. Syst. **51**: 454–471.
- Frahm J.-P. & Eggers J. 2001: Lexikon deutschsprachiger Bryologen. – Bonn & Schenefeld: by the authors.
- Germishuizen G. & Meyer N. L. (ed.) 2003: Plants of southern Africa. – Strelitzia **14**.

- Grau J. 1973: Revision der Gattung *Felicia* (Asteraceae). – Mitt. Bot. Staatssamml. München **9**: 195–705.
- Hardtke H.-J., Klenke F. & Ranft M. 2004: Biographien sächsischer Botaniker. – Ber. Arbeitsgem. Sächs. Bot., ser. 2, **19**: 1–477.
- Harms H. 1912: Neue Arten der Gattung *Melolobium* Eckl. & Zeyh. aus Deutsch-Südwestafrika. – Repert. Spec. Nov. Regni Veg. **11**: 84–88.
- Hilliard O. M. 1994: The *Manueleae*, a tribe of *Scrophulariaceae*. – Edinburgh: Edinburgh University.
- Knuth R. 1918: *Geraniaceae novae* I. – Repert. Spec. Nov. Regni Veg. **15**: 135–138.
- Krause K. 1913: *Rubiaceae africanae* III. (VII.). – Bot. Jahrb. Syst. **48**: 403–433.
- Krause K. 1921: *Liliaceae africanae* VI. – Bot. Jahrb. Syst. **52**: 235–239.
- McNeill J., Barrie F. R., Burdet H. M., Demoulin V., Hawksworth D. L., Marhold K., Nicolson D. H., Prado J., Silva P. C., Skog J. E., Wiersema J. H. & Turland N. J. 2006 (ed.): International Code of Botanical Nomenclature (Vienna Code). Electronic version of the original English text adopted by the Seventeenth International Botanical Congress Vienna, Austria, July 2005 – Published at <http://ibot.sav.sk/icbn/main.htm>. [accessed 20th April 2010].
- Merxmüller H. (ed.) 1966–72: Prodrömus einer Flora von Südwestafrika. – Lehre: Cramer.
- Moteetee A. & Wyk B.-E. van 2006: A revision of the genus *Melolobium* (*Genisteae*, *Fabaceae*). – S. African J. Bot. **72**: 51–98.
- Peines T. & Engelhardt M. 2006: Das Herbarium von Karl Schlenker. – Jahresh. Ges. Naturk. Württemberg **162**: 129–135.
- Obermeyer A. A. 1962: A revision of the South African species of *Anthericum*, *Chlorophytum* and *Trachyantha*. – Bothalia **7**: 669–767.
- Pilger R. 1913: *Scrophulariaceae africanae* II. (V.) Neue Arten aus Deutsch Südwest-Afrika. – Bot. Jahrb. Syst. **48**: 434–472.
- Röpert D. (ed.) 2000+ [continuously updated]: Digital specimen images at the Herbarium Berlinense. – Published at <http://ww2.bgbm.org/herbarium/default.cfm> [last accessed 22 April 2010].
- Schade A. 1955: Kurt Dinter zum Gedächtnis. – Nat. Lusatia **3**: 4–16.
- Schinz H. 1921: Beiträge zur Kenntnis der afrikanischen Flora (XXX). – Vierteljahrsschr. Naturf. Ges. Zürich **66**: 221–266.
- Thiers B. 2008+ [continuously updated]: Index herbariorum: A global directory of public herbaria and associated staff. – New York Botanical Garden: published at <http://sweetgum.nybg.org/ih/> [last accessed 20.4.2010].
- Ulbrich E. 1913: Die Malvaceen von Deutsch-Südwestafrika und ihre Beziehungen zum übrigen Afrika. – Bot. Jahrb. Syst. **51**: 1–63.
- Venter H. J. T. 1979: A monograph of *Monsonia* L. (*Geraniaceae*). – Meded. Landbouwhoogeschool **79-9**.
- Verdooren I. C. 1980: Revision of *Hermannia* subgenus *Hermannia* in southern Africa. – Bothalia **13**: 1–63.
- Wagenitz G. 2009: Die Erforscher der Pflanzenwelt von Berlin und Brandenburg. – Verh. Bot. Vereins Berlin Brandenburg Beih. **6**: 157–556.
- Walt J. J. A. van der & Vorster P. J. 1981: Pelargoniums of Southern Africa **2**. – Cape Town: Juta & Co.
- Walt J. J. A. van der & Vorster P. J. 1988: Pelargoniums of Southern Africa including some representative species from other parts of the world **3**. – Kirstenbosch: National Botanic Gardens.