

¹ Freie Universität Berlin, Institut für Biologie, Systematische Botanik und Phytogeographie, Berlin

² Technische Universität Berlin, Herbarium BTU, Berlin

UTE MÜLLER-DOBLIES¹ & DIETRICH MÜLLER-DOBLIES²

De Liliifloris Notulae 8. Two new *Massonia* species (Hyacinthaceae) from South Africa

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Abstract

A re-investigation of the Stockholm paratype of *Massonia tenella* SOLAND. ex BAKER 1871, DRÈGE 3509 (K, S!) from Witbergen (—3027CA, Lady Grey) in the Eastern Cape in combination with the study of a living seedling leaf from a second locality confirmed our cautious earlier suggestion (U. & D. MÜLLER-DOBLIES 1997) that it is a new species. *Massonia wittebergensis* U.MÜLL.-DOBLIES & D.MÜLL.-DOBLIES has a unique leaf indument in Massonieae of laterally compressed curved emergences in DRÈGE's herbarium specimen. Living emergences of a seedling leaf are less laterally compressed. Living and herbarium emergences share a further unique detail: the rounded tip is uneven with projecting cells. As to the distribution, *M. tenella* is only known from the Bokkeveld escarpment (Western Cape, BAKER 1897), whereas *M. wittebergensis* occurs in the Drakensberge eight degrees longitude further east in the Eastern Cape.

As to the second species treated here, a closer investigation of a leaf and a withered fresh inflorescence showed that it is a new species too: *Massonia sempervirens* U.MÜLL.-DOBLIES, G.MILKUHNS & D.MÜLL.-DOBLIES. The retired horticulturist, Gottfried Milkuhn (Dresden), had received this enigmatic remarkable evergreen *Massonia* species in 2007 from a Dutch succulent grower as “*Whiteheadia jasminiflora*” from Prince Albert (Western Cape).

Introduction

In our Massonieae paper (U. & D. MÜLLER-DOBLIES 1997: 74) we discussed the paratype DRÈGE 3509 (K, S!) of *Massonia tenella* SOLAND. ex BAKER 1871, re-established from the

synonymy of *M. echinata* L.F. (overlooked and thus not quoted by JESSOP 1976 among his 24 synonyms of *M. echinata*). The Drège material came from Witbergen (—3027CA, Lady Grey) in the north-eastern part of the Eastern Cape. BAKER (1871) quoted only two collections in the protologue: “Masson! Drège 3509!”. In 1997: 74 we thought, that JESSOP (1976) had proposed *MASSON s.n.* as lectotype of *Massonia tenella*¹. As JESSOP, however, does not quote *Massonia tenella* at all in his paper of 1976, we have to confess that our statement about the lectotype was premature. We hereby select *Masson s.n.* as lectotype of *Massonia tenella* SOLAND. ex BAKER 1871. Thus, DRÈGE 3509 is left as paratype.

Our comment in U. & D. MÜLLER-DOBLIES (1997: 74) run: “DRÈGE 3509 ... has a unique indumentum of laterally compressed curved bristles and belongs possibly into the *M. jasminiflora* complex. When returning the last remnants of our Stockholm herbarium loan this spring we had a careful re-examination of the DRÈGE 3509 specimen and came to the result, that it is in fact a new species.

When we visited the living bulb collection of Dipl.-Ing. Gottfried Milkuhn, in his little private greenhouse, Dresden, on May 30th 2010 he showed us a pot with a single upright leaf, all other seedlings sown in October 2008 (and November 2009) were already resting. Milkuhn had received the seeds from the nursery African Bulbs, Cameron & Rhoda McMaster, Napier in the Western Cape, under the name *Massonia*

¹ according to this note on the BM sheet.

sp. from the locality Tiffindell in the Eastern Cape. Milkuhn gave us the little leaf blade (22 × 7 mm) for our investigation and only left the petiole of 30 mm above ground in the pot.

Returned home, we could confirm from the characteristic indument, that the Tiffindell plant is conspecific with DRÈGE's Witbergen (= Wittebergen) plant.

As to the second *Massonia* species we were asked in Mid-February 2010 by the above mentioned retired horticulturist G. Milkuhn, Dresden, about a remarkable *Massonia* species, which he cultivated in his little private greenhouse. He had received in 2007 from the Dutch succulent grower Cok & Ine Grootcholten, Honselersdijk, two two year old seedlings, which flowered under his care for the first time on February 1st 2010 after three years of further cultivation. From Cok & Ine Grootcholten he had received them as "*Whiteheadia jasminiflora*" from Prince Albert, Western Cape. The flower was not that of a *Whiteheadia* at all, but a *Massonia* flower. The *Massonia* species, which was at least in cultivation consistently evergreen, appeared to him so enigmatic that he contacted two bulb specialists already in January 2010. He sent photos of non flowering plants to Petra Wester (for the time being doing research work on *Whiteheadia* in Stellenbosch). Wester felt that she did not know the plant, and she gave him our e-mail address. From the impressive size of the evergreen leaves and the winter-rainfall distribution far away from any *Massonia jasminiflora* of the summer-rainfall region, we felt immediately that this might be a new species.

After a closer investigation of a leaf and a withered fresh inflorescence of the enigmatic remarkable evergreen *Massonia* species, which we received on May 30th 2010, however, we could confirm, that this species has little to do with *Massonia jasminiflora*, but is a close ally of *Massonia hirsuta*, thus a species of its own.

This new species is known in cultivation not only from the previously mentioned source C. & I. Grootcholten who said that they got the seeds from Silverhill Seeds, Kenilworth (Cape Town), but also from a second independent source, Gordon Summerfield in Stellenbosch. Summerfield reported that the seedlings of *Massonia jasminiflora* sold to Milkuhn in 2008

originated from the locality Winburg in the Free State. Among these *M. jasminiflora* seedlings one seedling was remarkable by its evergreen leaves and turned out in 2010 by vegetative details to be conspecific with *M. sempervirens*. As G. Summerfield assures that he had never the Prince Albert plant at his disposal, this second source must be independent from the Prince Albert one.

Materials and methods

The paratype of *Massonia tenella* SOLAND. ex BAKER 1871, DRÈGE 3509 (G!, K, S!) from Witbergen was re-investigated. Furthermore the notes on *M. hirsuta* LINK & OTTO (1828) and its four synonyms quoted in U. & D. MÜLLER-DOBLIES (1997) with the addition of a fifth synonym, *M. modesta* FOURC. (1932) were reconsidered.

The following cultivated plants could be investigated:

- 1) a leaf of a 19 months old seedling of *Massonia wittebergensis* (identified by comparison with DRÈGE 3509), seeds collected by C. McMaster (owner of the nursery African Bulbs in Napier, Western Cape) from above Tiffindell (Eastern Cape), sold in 2008 and 2009 as *Massonia* sp. and grown by the retired horticulturist, G. Milkuhn, in his little private greenhouse, Dresden (voucher now in B!).
- 2) a leaf and a withered inflorescence of *Massonia sempervirens* (having flowered in February 2010 and photos) of two plants received in 2007 as two year old seedlings from the Dutch succulent grower C. & I. Grootcholten, as "*Whiteheadia jasminiflora*" from Prince Albert, Western Cape and cultivated to a first flower on February 1st 2010 by the above mentioned Milkuhn (voucher now in B!).
- 3) a leaf of a two year old seedling of *Massonia sempervirens* from Winburg, Free State, seeds received as *Massonia jasminiflora* from G. Summerfield.

As to the methods see e.g. U. & D. MÜLLER-DOBLIES (1996) and U. & D. MÜLLER-DOBLIES (1997).

Taxonomic results

1. *Massonia tenella* BAKER (1871: 389) sp. *resurrecta* in U.MÜLLER-DOBLIES & D.MÜLLER-DOBLIES 1997: 74, but not accepted by MANNING & GOLDBLATT (2003)

Type: South Africa, without locality, MASSON, DRÈGE 3509. In Flora Capensis (1897: 409) BAKER adds, that there is a drawing at the British Museum from a plant obtained in Bokkeland (obviously collected by MASSON) that flowered in England in July 1794. Thus, we can complete the above Type specification: MASSON s.n. (BM lectotypus hic designatus and drawing from a plant that flowered in England), DRÈGE 3509 (G!, K, S! paratypus hic designatus).

Syn. nov.: *Massonia latebrosa* MASSON ex BAKER (1886: 336). – Type: Bokeveld, Aug. 1792, leg. MASSON s.n. (BM drawing holo. selected by JESSOP 1976: 414, BOL copy seen by JESSOP, a MASSON specimen without locality in G matches the BM drawing fide JESSOP 1976: 414 (treated as 15th synonym of *Massonia echinata* L.F.)/still recognized as a species by BAKER in Flora Capensis (1897: 411).

2. *Massonia wittebergensis* U.MÜLL.-DOBLIES & D.MÜLL.-DOBLIES sp. nova

Type: South Africa, Eastern Cape. – 3027CA* (Lady Grey): Wittebergen [= “Witbergen”], on stony and rocky mountain sheets, [begin of the ascent of the Drège brothers along the Kraiirivier, thus on the western and southern slopes of the Wittebergen, 7000–8000', January 7th 1833 fl.] [day and year according to the itinerary in GUNN & CODD 1981: 139, DRÈGE 3509 (G!, K, S! holo.)].

Massonia wittebergensis ab omnibus ceteris *Massoniis* paginae superioris foliorum setis eximiis distincte differt: setae lateraliter compressae, saepe incurvatae, et praesertim apice rotundata cellulis eminentibus scabriter coronata.

* Note on the quarter degree square 3027CA: This quarter degree square is taken from LEISTNER & MORRIS 1976: 551 for Witbergen – Drège. From C. McMaster we got the GPS coordinates of his Wittebergen locality of a little summer flowering *Massonia* sp., which is conspecific with *Massonia wittebergensis* according to McMaster's photographs seen. According to the localities “I, a, 46–57” in DRÈGE (1844: 51–53) and the itinerary in GUNN & CODD (1981: 139) the DRÈGE brothers climbed the Wittebergen starting along the Kraiirivier, thus on the western and southern slopes of the Wittebergen, and according to the collecting data of the locality

no. I, a, 57 the flowering *Massonia* was collected at “7000–8000” s.m. For the time being it remains an open question, whether Drège at that height collected still in 3027CA (as LEISTNER & MORRIS quote) or already in 3027CB, where there is McMaster's locality. In any case DRÈGE's altitude 7000–8000' and McMaster's altitude 2300 m s.m. agree very well.

Etymology of the epithet: named after the Drakensberg Wittebergen (“Witbergen” in DRÈGE's “Documents”).

Bulb solitary, 13–15 mm in diam., with a thin brown coat. Leaves very firm in texture, ascending (possibly only in Drège's herbarium specimens and ± flat on the ground in the field) ovate, 20–23 mm long and 15 mm broad, with a boat-shaped tip, glabrous below, margin papillose, upper side with characteristic laterally compressed bristles 0.6 up to 1.0 mm in length which are often curved and not rarely forked, and which bear on the rounded top evenly dispersed protruding cells. Inflorescence about 12 mm high. Lower pedicels about 2–4 mm long. Lowest bract 13 mm long with a red margin, glabrous. Flower rotate, white. Perigone tube 4–6 mm long, segments 3.0–3.5 mm long and 1.5–1.7 mm broad at the base, without a sigmoid curve. Filament tube 0.2–0.3 mm high, free part of the filaments 1.5–1.8 mm, at the base 0.7–0.8 mm broad. Anther 0.8 mm long, blue. Style exceeding throat by 4 mm, thus about twice as long above the throat as filaments.

Diagnostic characters: *Massonia wittebergensis* is the only *Massonia* species with a very characteristic indumentum on the upper side of the leaves of laterally compressed bristles of 0.6 up to 1.0 mm in length which are often curved and sometimes forked, and bearing on the rounded top protruding cells.

Affinities: *Massonia wittebergensis* was offered for sale in a recent seed catalogue as *Massonia* sp. In the internet photos are available calling the species *M. echinata*, and in fact the very small leaves with stiff bristles (of very different shape, however, in both taxa) are in favour of this identification. The very short flower tube of *M. wittebergensis*, however, with 4–6 mm versus 9–11 mm in *M. echinata*, and above all the much shorter filaments with a filament tube of 0.2–0.3 mm and free parts of 1.5–

1.8 mm in *M. wittebergensis* versus a filament tube of 0.5–1.5 mm and free parts of 7–10 mm in *M. echinata*, exclude this identification.

As already suggested by BAKER (1871) in his protologue of *M. tenella*, by quoting “Masson! Drège 3509!” as specimens, *Massonia wittebergensis* is the closest ally of *M. tenella*. Both species agree very well in the very short floral tube of 4–6 mm, and are close to one another in the exceptionally short filaments with 1.7–2.0 mm in *M. wittebergensis* versus 2.0–4.2 mm in *M. tenella*, without similar short filaments in any other *Massonia*, except for *M. jasminiflora* BURCH. ex BAKER with filaments 2.9–4.5(–5.3) mm. We have no precise knowledge about the floral shape of *M. tenella*, but as to the rotate, white flowers *M. wittebergensis* and *M. jasminiflora* are good matches; the long perigone tube of *M. jasminiflora* with 8–18 (and even – 20 fide JESSOP) mm in length, however, and the larger leaves of *M. jasminiflora* displaying never bristles or hairs on the upper side, exclude a closer relationship.

Height: 0.012 m.

Flowering time: I (Drège, McMaster).

Altitude: 7000–8000' for Drège's collection (type), which agrees fully with McMaster's altitude 2300 m s.m. of his Wittebergen collection. For his Tiffindell collection McMaster gives 3000 m s.m., and for Naudesneck 2500 m s.m.

Distribution and endemism: *Massonia wittebergensis* is confined to the southern ranges of the Drakensberg Mountains in the southern half of the degree square 3027 (Lady Grey) and one adjacent quarter degree square = 3028CA (Matatiele) in the Eastern Cape.

SOUTH AFRICA [Za3]: Eastern Cape. —3027CA (Lady Grey): Type as above; —CB: (quarter degree square identified according to the GPS data sent by McMaster) Wittebergen locality of *Massonia* sp., 2300 m s.m., photograph in situ by McMaster; —DB: (quarter degree square identified according to the GPS data sent by McMaster) above Tiffindell, on the way up to the summit of Ben MacDhui, 3000 m s.m., photograph in situ by McMaster, seeds collected by McMaster with permit and cultivated by Gottfried Milkuhn in Dresden since 2008, one seedling cult. sub BTU 8911 (comm. Milkuhn, leaf blade of seedling in B!).

—3028CA (Matatiele; quarter degree square identified according to the GPS data sent by Cameron McMaster): Naudesnek [orthography according to LEISTNER & MORRIS 1976], 2500 m s.m., in situ photograph by McMaster seen by the authors, seeds

collected by McMaster with permit and offered for sale in June 2010 and already ordered by Gottfried Milkuhn, Dresden.

3. *Massonia sempervirens* U.MÜLL.-DOBLIES, G.MILKUHN & D.MÜLL.-DOBLIES sp. nova

Type: South Africa, Western Cape. — 3322AA* (Oudtshoorn): Prince Albert, collecting date and collector unknown, received in 2007 as two years old seedling from the Dutch succulent grower C. & I. Grootsholten, and cultivated in Dresden to the first flowers in February 2010 (B: one leaf, one infrutescence and one withered inflorescence taken on May 30th 2010 as holo. and photographs of flowering plant on February 1st and February 18th 2010).

* Note on the quarter degree square: As the locality given with Prince Albert is very unprecise, the locality may be situated in the neighbouring quarter degree square 3321BB (Ladismith):

Massonia sempervirens filamentorum tubi absentia vel statu perreducto et paginae superioris foliorum indumento denso pilis mollibus tenuibusque compositis valde affinis *Massonia hirsutae*, sed differt perigonii segmentorum basis sigmoidee curvatae absentia, bracteis glabris, filamentis solum 5 mm longis [haud filamenta libera (5,5–)7–10 mm longa]. Praeterea *Massonia sempervirens* est incola Capitis Occidentalis, cum *Massonia hirsuta* inhabitat Capitem Orientalem. Demum *M. sempervirens* est adhuc (solum apud plantis cultis?) species unica inter Massoniis, quae foliis sempervirentibus excellet.

Bulb slightly depress, 25–30 mm in diam., with a thin brown coat. Leaves spreading (to ascending, only in cultivation?), fleshy, rather firm, ovate, 120–140 mm long and 45–50 mm broad, glabrous below, margin densely fimbriolate, upper side covered with erect, very fine, soft hairs, 0.3 to exceptionally 0.7 mm long. Inflorescence about 50 mm high. Lowest bract 35 mm long and 13 mm broad, second bract 32 mm long and 11 mm broad, glabrous. Lower pedicels about 17–18 mm long. Flower rotate, white with a light pink flush, especially in the closed buds. Perigone tube 10 mm long, segments 8.0 mm long and 3.3 mm broad at the base, without a sigmoid curve. Filament tube 5.0 mm long, white with a purple flush in the upper third, at the base 1.0–1.2 mm broad, without a basal tube. Style very stout, conical, distinctly remaining under the tip of the filaments, cream-white

with a purple-flushed tip. Anthers about 1.5 mm long, dark purple. Capsule globose, 6 × 6 mm, pedicel of the capsule 23 mm long. Seeds 1.5–2.0 long and 1.5 mm in diam.

Diagnostic characters: *Massonia sempervirens* is a close ally of *M. hirsuta* LINK & OTTO 1828, but differs by the absence of a sigmoid curve in the perigone segments, by glabrous [not ciliate, in addition the upper bract surface of *M. hirsuta* is often (perhaps always?) hairy] bracts, by filaments only 5.0 mm [not (5.5–)7–10 mm long in addition to the filament tube], by the distribution in the Western Cape (and perhaps there is a second locality in the Free State), but not in the Eastern Cape. Perhaps (or an artifact of cultivation?), *M. sempervirens* is the only *Massonia* species with evergreen leaves (at least in the last three years of cultivation).

Affinities: *Massonia sempervirens* is a very close ally of *M. hirsuta* (and its five synonyms). Both species share an upper side of the leaf evenly covered with very fine, soft erect hairs without a pustulate base, 0.3 to exceptionally 0.7 mm long in our cultivated plant of *M. sempervirens*, and 0.1–1.0 mm long in cultivated plants of *M. hirsuta* and 0.6–1.5 mm in wild plants and a densely fimbriolate leaf margin. Furthermore the filament tube in both species is nearly absent: Whereas in *M. sempervirens* there is no sign of a filament tube, the filament tube of *M. hirsuta* is only up to 0.5 (exceptionally to 1.5) mm high and so inconspicuous, that there is no filament tube depicted in the iconotype of *M. hirsuta* (as already pointed out by KUNTH 1843: 296), and no filament tube is mentioned in the synonymys of *M. hirsuta* e.g. by W. F. BARKER in her protologue of *M. bolusiae*, nor by FOURCADE in his protologue of *M. modesta*, and VON POELLNITZ even emphasizes in his protologue of *M. inexpectata* that the filaments are not united at their base.

As to the differences, however, there is no sign of a sigmoid curve in the perigone segments of *M. sempervirens*, whereas in *M. hirsuta* the sigmoid curve is very characteristic. The bracts of *M. sempervirens* are glabrous, whereas the bracts of *M. hirsuta* are ciliate with cilia 0.1–0.7 mm long in wild and cultivated plants and in several (all?) collections also the upper bract side is hairy. The filaments of

M. sempervirens are 5.0 mm long, whereas the free filaments in cultivated plants of *M. hirsuta* are (5.5–)7–10 mm long. Finally *M. hirsuta* is distributed in the Eastern Cape, whereas the only locality known of *M. sempervirens* is situated in the Western Cape (and perhaps there is a second locality in the Free State).

History of discovery: *Massonia sempervirens* was offered for sale in a recent internet photo gallery as *Whiteheadia jasminiflora*. When it flowered for the first time after five years of evergreen growth in Dresden (Germany) on February 1st 2010 it was evident, that it is a *Massonia*, and the successful “gardener” approached some monocot specialists for identification help and advice.

Height: 0.05 m.

Flowering time: II on the northern hemisphere.

Altitude: unknown.

Distribution and endemism: only known as local endemic of Prince Albert (the second locality Winburg in the Free State possibly occurred by a mix up in the seed trade).

SOUTH AFRICA [Za1]: Western Cape. — 3322AA (Oudtshoorn) or 3321BB (Ladismith): Prince Albert, type as above.

[ZaO]: Free State. — 2827CA (Senekal): Winburg, [locality information sent in an e-mail on June 16th 2010 by the bulb-grower G. Summerfield, who sold the seeds in 2008].

Concluding remarks

In the last checklist of Plants of Southern Africa (4th approach to the List of Species of Southern African Plants) MANNING & GOLDBLATT (2003) only recognize six *Massonia* species, whereas we had 12 *Massonia* species in our Massonieae paper of 1997, leaving nine species after MANNING & VAN DER MERWE'S (2002a, b) removal of three species to the genus *Daubinya*. There are three species resuscitated from synonymy in U. & D. MÜLLER-DOBLIES (1997), which are not recognized by MANNING & GOLDBLATT (2003): *M. hirsuta* LINK & OTTO (1828), *M. setulosa* BAKER (1871), and *M. tenella* BAKER (1871), and which are – mirabile dictu – even not quoted as synonymys by MANNING & GOLDBLATT (2003). According to the present paper the latter species *M. tenella* even comprises the two specimens quoted in

the protologue (“*MASSON! DRÈGE 3509!*”) two species, *M. tenella* and the here described *Massonia wittebergensis*.

A more detailed description with figures will be given in a later paper, when fresh flowers of *Massonia sempervirens* are again available and the three year old seedlings of *Massonia wittebergensis* are in flower.

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Addresses of the author:

Dr. Ute Müller-Doblies, Freien Universität Berlin, Institut für Biologie, Systematische Botanik und Pflanzengeographie, Altensteinstraße 6, D-14195 Berlin, Germany.

Professor Dr. Dietrich Müller-Doblies, Technische Universität Berlin, Herbar BTU, Sekr. 1–1, Franklinstraße 28/29, D-10587 Berlin, Germany.

corresponding author

Professor Dr. Dietrich Müller-Doblies, Paulsenstraße 47a, 12163 Berlin

Tel: 0049 +30 8242452 [no Fax available]

mobile phone: 0163-8242452

e-mail: d.mueller-doblies@gmx.de

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