South African Journal of Botany 115 (2018) 194–198

Contents lists available at ScienceDirect

South African Journal of Botany

journal homepage: www.elsevier.com/locate/sajb

Viscum songimveloensis, a new species of mistletoe from South Africa

D. Oosthuizen [a,b], K. Balkwill [b,*]

[a] Barberton Mountainlands Herbarium, 11 Savanna Street, Nelspruit, Mpumalanga, South Africa
[b] C.E. Moss Herbarium, School of Animal, Plant and Environmental Sciences, University of the Witwatersrand, Johannesburg, Gauteng, South Africa

ARTICLE INFO

Article history:
Received 31 July 2017
Received in revised form 21 January 2018
Accepted 3 February 2018
Available online xxxx

Edited by AR Magee

Keywords:
Endemic
Mpumalanga
Trichocladus grandiflorus
Santalaceae
Vulnerable

ABSTRACT

A species of *Viscum* (Santalaceae) was collected in eastern Mpumalanga that did not match *V. combreticola*, *V. anceps* or *V. shirense*. We consider the differences to be sufficient to recognise a new species, *Viscum songimveloensis* D. Oosthuizen & K. Balkwill. This species has so far only been found on one host, *Trichocladus grandiflorus*, and in a very restricted geographical range. Consequently a provisional threat status of Vulnerable D2 is proposed. This new discovery brings the total number of *Viscum* species in the Flora of southern Africa region to twenty and in Mpumalanga to ten. An updated key to the species of *Viscum* in Mpumalanga is provided.

1. Introduction

Viscum L. comprises about 100 species and occurs mainly in the African and Asian tropics as well as temperate zones of Africa, Asia, Australia and Europe (Polhill and Wiens, 1998). The family Viscaceae was described in 1802 (Batsch, 1802), but in the southern African context was treated as part of the Loranthaceae (Phillips, 1926, 1951; Dyer, 1975), a younger name (Jussieu, 1808) that has been conserved. Wiens and Tölken (1979) treated Viscaceae as a separate family and this was followed by Germishuizen (2000). A consensus tree of the Santalales based on sequences of 18S rRNA supports the distinctiveness of the Viscaceae, but nests the family within the Santalaceae (Nickrent and Duff, 1996), leading to the Viscaceae being subsumed into the Santalaceae (APG, 1998). Wiens and Tölken (1979) recognised 17 species of *Viscum* in the Flora of southern Africa region, but through the elevation of a subspecies and the resurrection of one species Germishuizen (2003) recorded 19 species for the region, with 9 in Mpumalanga Province. Material of a gracile species of *Viscum* (Fig. 1) was first collected on Lufafa Hill in Songimvelo Nature Reserve in December 1992 (*McDonald & Smit 84*, J, PRU; *Reid 1865*, J, PRE), but the material was misidentified as *Viscum anceps* E. Mey. ex Sprague and *Viscum combreticola* Engl., respectively. In December 2015, this taxon was collected and photographed on the farm Sedan in Songimvelo Nature Reserve (*Oosthuizen 1831*, BMLH, BNRH, J, LYD, PRE) and then again in February 2017 (*Balkwill & Oosthuizen 13,962*, B, J, K). During this latter occasion, it was noticed that the habit of the plant was more pendant than that observed in *V. combreticola*, especially in younger individuals of the latter. We considered these differences to warrant further investigation.

2. Materials and methods

Fieldwork was undertaken in Songimvelo Nature Reserve, at the boundary of the farms Twello 373JU and Sedan 375JU. Specimens were consulted at the C.E. Moss Herbarium at the University of the Witwatersrand (J) and the National Herbarium in Pretoria (PRE). Measurements of lengths and widths of stem segments were made from dried herbarium specimens and represent the most mature segments on the specimens selected. Measurements are presented as 68% confidence intervals (i.e. mean plus and minus the standard deviation). Acronyms for herbaria where cited specimens are housed follow Holmgren et al. (1990), except BMLH, which stands for Barberton Mountainlands Herbarium, situated at 11 Savanna Street, Nelspruit, South Africa.

3. Results and discussion

Two leafless species of *Viscum* with flattened stems had been recorded in the Flora of southern Africa region, namely *V. combreticola* and *V. anceps* (Wiens and Tölken, 1979). Besides the markedly pendant habit which distinguishes the Songimvelo Nature Reserve material

* Corresponding author at: C.E. Moss Herbarium, School of Animal, Plant and Environmental Sciences, Private Bag 3, University of the Witwatersrand, Johannesburg, WITS, 2050, South Africa.
E-mail address: Kevin.Balkwill@wits.ac.za (K. Balkwill).

https://doi.org/10.1016/j.sajb.2018.02.004
0254-6299/

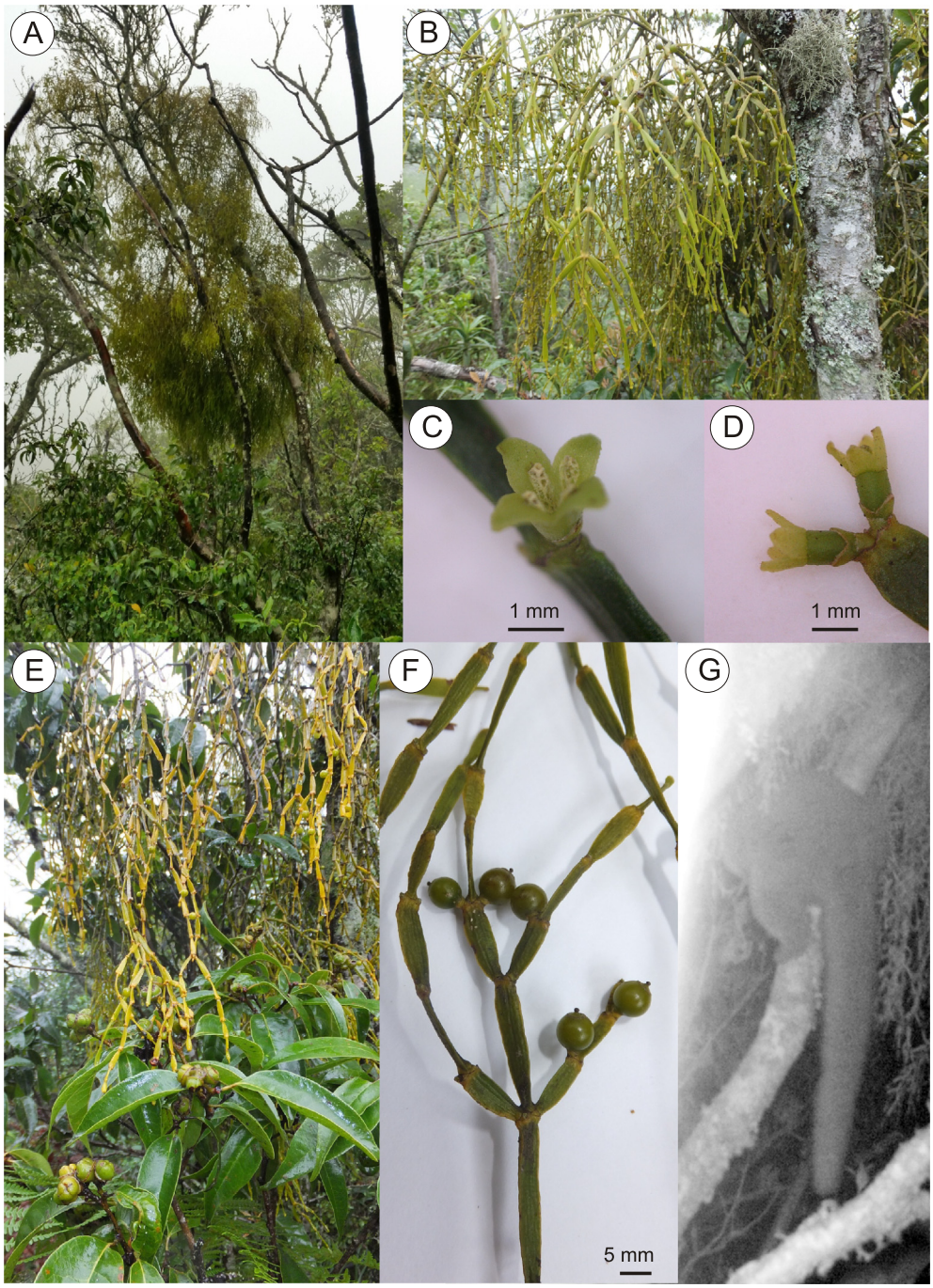

Fig. 1. *Viscum songimveloensis* A, Habit of plant on severely infested host; B, habit of female plant; C, male flower; D, female flowers; E, habit with fruiting twigs of host, *Trichocladus grandiflorus*; F, fruiting branch; G, camera trap image of Thick-tailed Bushbaby visiting fruiting plant.

from *V. combreticola* (Fig. 2), the mature stem segments are shorter (16–31 mm) than in *V. combreticola* (30–63 mm) and the immature berries of *V. combreticola* are markedly warty whereas those of the Songimvelo Nature Reserve material are only occasionally indistinctly warty. Comparison of the material from Songimvelo Nature Reserve with *V. anceps* revealed that the former had stem segments that were mainly broadest distally, whereas those of *V. anceps* were shorter and broadest halfway along their length and the mature berries of the new discovery are smooth and glossy rather than tuberculate. Wiens and Tölken (1979) suggested that *V. anceps* is related to *V. shirense* Sprague, but in comparison to the material from Songimvelo the berries of *V. shirense* are slightly larger and ovoid-ellipsoid rather than rotund-ellipsoid, the bracteal cups of *V. shirense* are sessile rather than pedunculate and the bracteal cups are obscure or deciduous rather than visible and persistent.

On the basis of these differences, we concluded that the material from Songimvelo is an as yet undescribed species. This new discovery brings the total number of species in the genus in the Flora of southern Africa region to twenty and in Mpumalanga to ten.

3.1. Taxonomic treatment

Key to species of *Viscum* in Mpumalanga

1 Plants leafless 2
Plants with well-developed leaves 5