



Gymnosporia swazica (Celastraceae), a new species from southern Africa

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Abstract

Gymnosporia swazica, a new restricted-range southern African species, is described and illustrated here. Known from only a few localities in Swaziland and bordering parts of South Africa (Mpumalanga and northeastern KwaZulu-Natal), *G. swazica* grows as an understorey shrub or small tree in forest, often among granite boulders. Diagnostic characters for *G. swazica* include chartaceous leaves, usually shorter than 25 mm, 3-valved capsules usually 6–7 mm long, which are smooth, green turning yellow, and a white aril partially covering the brownish seed. Its closest relative appears to be *G. buxifolia* (capsules rugose, mottled white-and-brown), one of the most widespread members of the genus in southern Africa, but it can also be confused with *G. maranguensis* (capsules red, 2-valved) and *G. harveyana* (capsules pink to red, 3-valved; aril orange, completely covering the seed).

Introduction

Gymnosporia (Wight & Arnott 1834: 159) Hooker (1862: 359, 365) is an Old World genus, occurring in Africa, nearby Atlantic Ocean Islands, southern Spain, Madagascar and other Indian Ocean Islands, SE Asia, Malesia, Australia and on the Polynesian, Micronesian and Melanesian Islands. It comprises over one hundred species (Jordaan & Van Wyk 2006). Hitherto 26 named species of *Gymnosporia* were recognized in the *Flora of southern Africa* region, the latter comprising South Africa, Namibia, Botswana, Swaziland and Lesotho (Archer & Jordaan 2003, Jordaan 2008).

The new species of *Gymnosporia* described in the present contribution has come to light since Jordaan's taxonomic revision (1995) of the spiny members of subfamily Celastroideae (Celastraceae) in southern Africa, and the reinstatement of the genus name *Gymnosporia* for the group (Jordaan & Van Wyk 1999). It was brought to our attention by Linda Loffler of Swaziland and Johan Hurter and Ernst Schmidt of Mpumalanga, South Africa. One of us (MJ) has subsequently studied the species in the field during which the type material was collected. The new species belongs to *Gymnosporia* section *Buxifoliae* Jordaan (Jordaan & Van Wyk 2006: 519).

Taxonomy

Gymnosporia swazica Jordaan, sp. nov. (Fig. 1)

Closely related to *Gymnosporia buxifolia* (Linnaeus 1753: 197) Szyszylowicz (1888: 34), but differs in having glabrous, smooth, yellow capsules. It differs from *G. maranguensis* (Loesener 1894: 231) Loesener (1908: 303) by having 3- (vs. 2-) valved capsules; and from *G. harveyana* Loesener (1896: 430), by having a white (vs. orange) aril partially (vs. completely) covering the seed.

Type.—SOUTH AFRICA. Mpumalanga: Nelspruit District, Crocodile River Gorge, along road from Nelspruit to Kaapmuiden, 11 July 2000, Jordaan 3712 (holotype PRE0863219-0!, isotypes K!, NH!).

Gymnosporia sp. D in Schmidt *et al.* (2002: 348).

Gymnosporia graniticola (*ined.*) in Loffler & Loffler (2005: 54).

Distribution:—Although *G. swazica* is mainly associated with the Lebombo Mountains in Swaziland, hence the specific epithet, it is also known from scattered localities in South Africa's Mpumalanga Province (Crocodile River Valley region, east of Nelspruit) and far northeastern part of KwaZulu-Natal (Fig. 2).

Ecology:—The new species grows in small forest enclaves within a fire-maintained savanna matrix known as SVI 3 Granite Lowveld (Mucina & Rutherford 2006). Van Rooyen & Bredenkamp (1996) recognized this vegetation type as Mixed Lowveld Bushveld (elevation 450–600 m), generally a frost-free region with low rainfall (400–800 mm per year) and temperatures between –4°C and 45°C, with an average per annum of 22°C. The substrate is characterized by sandy soils in the uplands and clayey soils with a high sodium content in bottomlands. The geology is granite and gneiss with numerous dolerite intrusions and areas covered by gabbro (Van Rooyen & Bredenkamp 1996). Acocks (1988) considered the climax of this area to be forest. *G. swazica* grows in forest in shade, on hillsides, in soils derived from granite, often among boulders, close to streams. It is often associated with *Diospyros natalensis* (Harvey 1863: 7) Brenan (1954: 500) subsp. *nummularia* (Brenan 1948: 111) Jordaan (2009: 102).

Additional specimens examined (paratypes):—SOUTH AFRICA. Mpumalanga: ± 25 km from Nelspruit to Kaapmuiden, Crocodile's Poort Mountains, *Jordaan 3845* (PRE); KwaZulu-Natal: Lebombo Mountains, Sikulukulu stream, *Ward 1507* (NH); Lebombo Mountains, road between Ingwavuma and Josini, *P. van Wyk BSA694* (PRE, PRU). SWAZILAND. Stegi District, 14 miles S of Stegi, *Compton 30062* (PRE); Blue Jay Ranch, Lebombo Mountains S of Umbuluzi Gorge, 3 miles NNE of Mhlumeni border post, *Culverwell 1107* (PRE); Lebombo Mountains, *Kemp 706* (PRE); 4 km NE of Tikuba store on road from Siteki to Mambane, *Prior 376* (PRE).

Acknowledgements

We thank Johan Hurter, Ernst Schmidt and Linda Loffler for bringing the new species to our attention, Hester Steyn for preparing the distribution map, Lesley Deysel for the illustration, and the University of Pretoria for financial support. The curators of the KwaZulu-Natal Herbarium (NH), Durban, and National Herbarium (PRE), Pretoria, are thanked for the loan of specimens.

References

- Acocks, J.P.H. (1988) Veld types of South Africa, 3rd eds (a nomenclatural update with added illustrations of the 1st eds of 1953). *Memoirs of the Botanical Survey of South Africa* No. 57. Botanical Research Institute, Pretoria, pp. 1–146.
- Archer, R.H. & Jordaan, M. (2003) Celastraceae. In: Germishuizen, G. & Meyer, N.L. (eds.), *Plants of southern Africa: an annotated checklist. Strelitzia* 14. National Botanical Institute, Pretoria, pp. 354–361.
- Brenan, J.P.M. (1948) A new species of *Diospyros* L. *Kew Bulletin* 1948: 111, 112.
<http://dx.doi.org/10.2307/4118933>
- Brenan, J.P.M. & Collaborators (1954) Plants collected by the Vernay Nyasaland expedition of 1946. *Memoirs of the New York Botanical Gardens* 8, 5: 409–510.
- Harvey, W.H. (1863) *Maba natalensis*. *Thesaurus capensis* 2. Hodges & Smith, Dublin, 7 pp.
- Hooker, J.D. (1862) Celastrineae. In: Bentham, G. & Hooker, J.D. (Eds.) *Genera plantarum*, vol. 1. Reeve, London, pp. 357–371.
<http://dx.doi.org/10.5962/bhl.title.747>
- Jordaan, M. (1995) *A taxonomic revision of the spiny members of subfamily Celastroideae (Celastraceae) in southern Africa*. M.Sc. thesis, University of Pretoria, Pretoria.
- Jordaan, M. (2008) Celastraceae. A new species of *Gymnosporia* from South Africa and Swaziland. *Bothalia* 38: 150–153.
- Jordaan, M. (2009) Ebenaceae. Typification and a new status in *Diospyros*. *Bothalia* 39: 101–104.
- Jordaan, M. & Van Wyk, A.E. (1999) Systematic studies in subfamily Celastroideae (Celastraceae) in southern Africa: reinstatement of the genus *Gymnosporia*. *South African Journal of Botany* 65: 177–181.
- Jordaan, M. & Van Wyk, A.E. (2006) Sectional classification of *Gymnosporia* (Celastraceae), with notes on the nomenclatural and taxonomic history of the genus. *Taxon* 55: 515–525.
<http://dx.doi.org/10.2307/25065602>
- Linnaeus, C. (1753) *Species Plantarum* 1(1). Laurentius Salvius, Stockholm, 1200 pp.
- Loesener, L.E.T. (1894) Beiträge zur Flora von Afrika 8. Celastraceae africanæ 2. *Botanische Jahrbücher* 19: 231–233.
- Loesener, L.E.T. (1896) Celastraceae africanæ 3. *Bulletin l'Herbier Boissier* 4: 429, 430.

- Loesener, L.E.T. (1908) Celastraceae africanae 4. *Botanische Jahrbücher* 41: 298–312.
- Loffler, L. & Loffler, P. (2005) Swaziland Tree Atlas, including selected shrubs and climbers. *Southern African Botanical Diversity Network Report* No. 35. Southern African Botanical Diversity Network (SABONET), Pretoria, pp. 1–196.
- Mucina, L. & Rutherford, M.C. (Eds.) (2006) *The vegetation of South Africa, Lesotho and Swaziland*. South African National Biodiversity Institute, Pretoria, pp. 1–807.
- Schmidt, E. (2002) Celastraceae. In: Schmidt, E., Lötter, M. & McClelland, W. (Eds.) *Trees and Shrubs of Mpumalanga & Kruger National Park*. Jacana Publishers, Johannesburg, pp. 332–362.
- Szyszyłowicz, I.R. Von (1888) *Polypetalae disciflorae Rehmannianae*. Universitatis Jagellonicae, 75 pp.
- Van Rooyen, N. & Bredenkamp, G. (1996) Mixed Lowveld Bushveld. In: Low, A.B. & Rebelo, A.G. (Eds.) *Vegetation of South Africa, Lesotho and Swaziland*. A companion to the vegetation map of South Africa, Lesotho and Swaziland. Department of Environmental Affairs and Tourism, Pretoria, 27 pp.
- Wight, R. & Arnott, G.A.W. (1834) Celastrineae. *Prodromus florum Peninsulae Indiae orientalis*, vol. 1. Parbury & Allen, London, pp. 155–161.
- <http://dx.doi.org/10.5962/bhl.title.252>