Disa staerkeriana (Orchidaceae): a new species from Mpumalanga, South Africa

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Abstract

A new orchid species, Disa staerkeriana is described from the Hartebeesvlakte in the Mpumalanga Province of South Africa. It is a member of Disa section Stenocarpa and is affiliated to D. amoena and D. montana. An updated artificial key to Disa section Stenocarpa is provided.

Introduction

The orchid genus Disa Bergius (1767: 348) (Disinae, Orchideae, Orchidoideae) currently consists of 184 species (Govaerts 2014). It is largely endemic to continental Africa but extends to Madagascar (five species), Réunion (one species) and the Arabian Peninsula (one species). In South Africa, 143 species occur of which 128 are endemic to the country and 88 are endemic to the Cape Floristic Region, its centre of diversity (Galley et al. 2007). Following a molecular phylogenetic analysis (Bytebier et al. 2007a), the segregate genus Schizodium Lindley (1838: 358) was included in Disa and the genus was subdivided into 18 sections (Bytebier et al. 2008).

After the publication of the authoritative “Orchids of Southern Africa” (Linder & Kurzweil 1999), six new Disa species have been described from South Africa. Three of these, Disa albomagentea E.G.H.Oliv. & Liltved in Oliver et al. (2011: 313), Disa linderiana Bytebier & E.G.H.Oliv. in Bytebier et al. (2007b: 558) and Disa remotula H.P.Linder in Linder & Hitchcock (2006: 627) belong to section Disella and are endemic to the fynbos biome of the Cape Floristic Region. The other three, Disa vigilans McMurtry & T.J.Edwards in McMurtry et al. (2006: 551), Disa klugei McMurtry in McMurtry et al. (2008: 465) and Disa roseovittata McMurtry & G.McDonald in McMurtry et al. (2008: 466) are endemic to the grassland biome of Mpumalanga Province. Another new species is here described from these high altitude grasslands, which are very species-rich but under considerable threat.

Taxonomy

Disa staerkeriana McMurtry & Bytebier, sp. nov. (Figs. 1–4)

Type:—SOUTH AFRICA. Mpumalanga: Lydenburg, west of Sabie, Hartebeesvlakte, 2200 m, 25°05’S, 30°39’E (2530BA), 25 January 2014, McMurtry 15222 (holotype: NU!; isotypes: BOL!, BNRH!, HSMC!, WAG!).

Diagnosis—similar to Disa amoena from which it can be distinguished by the shorter spur and the smaller flowers; and to Disa montana from which it can be distinguished by smaller and differently shaped petals, and by the much shorter inflorescence with fewer flowers (Table 1).

Erect terrestrial herb 250–350 mm tall. Leaves 6–8, slightly spreading at 5–15° from axis, rigid, conduplicate, linear-lanceolate, (56–) 80–90 (–105) mm long × 1.5–2.8 mm wide, 3–5 mm wide when flattened, with three main veins, veins and margins translucent, light straw-coloured. Inflorescence compact, subsecund, 55–75 mm long × 30–35 mm wide, 5–13-flowered. Bracts 16–28 mm long × 4.5–5 mm wide, acute to acuminate, pale maroon-pink, scarious at anthesis. Ovary green, tinged reddish, obliquely patent, ± 15 mm long. Flowers white often suffused pale pink, lightly...
and randomly speckled violet, sweet-soapy scented; 10 mm wide, 5–8 mm tall. Median sepal white flushed pale pink along main vein, finely speckled violet, oblong, shallowly canalicate, rounded, 10–13 (–15) mm long × 9–11 mm wide, lateral lobes recurved. Spur white, suffused pink dorsally, 8–10 mm long × 1 mm wide medi ally, patent, gently decurved to ± straight, narrowly funnel shaped, nectariferous. Lateral sepals white, flushed pale pink, randomly speckled violet, porrect, ± parallel, oblong, 11–14 mm long × 6–8 mm wide, subacute, apiculate, apiculus (0.5–) 1–2 mm long. Petals white, translucent, variously marked violet apically (rarely pure white), erect next to the rostellum, narrowly oblong, subfalcate, variably trilobed distally, 4–6 mm long × ± 2 mm wide, anticous basal lobe ± 1 mm in diameter. Lip white, randomly speckled violet, rarely unspotted, lorate to very narrowly spatulate, 10–11 mm long × 2–3 mm wide, apex acute to obtuse, slightly decurved, margins ± revolute. Anther purple-brown, horizontal ± 1.5 mm long. Stigma white, equally tripulvinate, 1.5 mm in diameter. Rostellum lateral lobes square, central lobe vestigial.

### Table 1. Comparison of the morphological characters of Disa staerkeriana with its two allied species, D. amoena and D. montana.

<table>
<thead>
<tr>
<th>Character</th>
<th>D. staerkeriana</th>
<th>D. amoena</th>
<th>D. montana</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant height (mm)</td>
<td>250–350</td>
<td>280–490</td>
<td>300–600</td>
</tr>
<tr>
<td>Leaf length (mm)</td>
<td>mostly 80–90</td>
<td>100–300</td>
<td>80–170</td>
</tr>
<tr>
<td>Inflorescence length (mm)</td>
<td>55–75</td>
<td>60–120</td>
<td>150–220</td>
</tr>
<tr>
<td>Number of flowers</td>
<td>5–13</td>
<td>4–8</td>
<td>15–22</td>
</tr>
<tr>
<td>Flower colour</td>
<td>Uniform; white to pale pink with lilac speckles</td>
<td>Variable; from light pink to dark, magenta pink, with or without lilac speckles</td>
<td>Variable; from pale pink with almost no speckles to cream with maroon speckles</td>
</tr>
<tr>
<td>Dorsal sepal length (mm)</td>
<td>10–15</td>
<td>15–25</td>
<td>10–18</td>
</tr>
<tr>
<td>Lateral sepal length</td>
<td>11–14</td>
<td>13–20</td>
<td>12–17</td>
</tr>
<tr>
<td>Petal length (mm)</td>
<td>4–6</td>
<td>7</td>
<td>6–9</td>
</tr>
<tr>
<td>Petal shape</td>
<td>Narrowly oblong, subfalcate</td>
<td>Narrowly oblong, subfalcate</td>
<td>Narrowly oblanceolate</td>
</tr>
<tr>
<td>Petal apex</td>
<td>Shortly trilobed</td>
<td>Trilobed</td>
<td>Acute</td>
</tr>
<tr>
<td>Spur length (mm)</td>
<td>8–10</td>
<td>25–45</td>
<td>8–13</td>
</tr>
<tr>
<td>Spur shape</td>
<td>Patent, straight to very gently decurved</td>
<td>Patent, decurved at length</td>
<td>Patent, straight to gently decurved at length</td>
</tr>
<tr>
<td>Lip length (mm)</td>
<td>11–12</td>
<td>15–20</td>
<td>10–15</td>
</tr>
<tr>
<td>Lip shape</td>
<td>Lorate to narrowly spatulate; widest near the apex</td>
<td>Lorate</td>
<td>Narrowly oblong to elliptic; widest in the middle</td>
</tr>
</tbody>
</table>

**Affinities and diagnostic characters:**—Disa staerkeriana is a member of section Stenocarpa Lindley (1838: 347, 352) sensu Bytebier et al. (2008) on the basis of its rigid, cauline leaves, erect petals free from the rostellum and square lateral rostellum lobes.

Disa staerkeriana is most likely closely related to the sympatric D. amoena Linder (1981: 236) but is distinguishable by its spur length, flower size and flower shape. The spur in D. amoena ranges between 25–45 mm and is amongst the longest in the section Stenocarpa, whereas that of D. staerkeriana is only 8–10 mm long (Figure 3B). The flowers of D. staerkeriana are also smaller compared to those of D. amoena; dorsal sepal ranges from 10–15 vs. 15–25 mm, lateral sepals 11–14 vs. 13–20 mm, petals 4–6 vs. 7 mm and lip length 11–12 vs. 15–20 mm. With regard to shape, the flowers of D. staerkeriana are rather cupped in comparison to the much more open D. amoena flowers (Figure 3). Lastly, flower colour is uniform within the population of D. staerkeriana, whereas it is variable within and between populations of D. amoena.

Disa staerkeriana is also somewhat similar to D. montana Sonder (1846: 90) but differs in several aspects (Table 1). In particular the petals are very different (Figure 4). They are smaller (4–6 mm vs. 6–9 mm), have a different shape (narrowly oblong and vs. narrowly oblanceolate) and a differently shaped apex (trilobed vs. acute). Disa staerkeriana is in general also a much smaller plant. The inflorescence is considerably shorter (55–75 vs. 150–220 mm) and the number of flowers per inflorescence is considerably less (5–13 vs. 15–22). D. montana has only been recorded from the southern Drakensberg (Eastern Cape and KwaZulu-Natal Provinces), which is about 600 km to the southwest in a straight line, from the only currently known locality of D. staerkeriana. Furthermore, D. montana flowers from late November until the middle of December, whereas D. staerkeriana flowers in late January.

**Flowering Time:**—late January.

**Etymology:**—Named for Herbert and Helga Staerker of Vienna, Austria who have spent the last nine years photographing South African orchids and discovered this species in January 2013.
Distribution and altitudinal range:—Currently known from a single population in which 30 individuals were counted, covering an area of ± 500 × 700 m in size between 2160–2231 m elevation.


Specimens examined:—SOUTH AFRICA. Mpumalanga: Lydenburg, west of Sabie, Hartebeesvlakte (2530BA), 25 January 2013, *Staerker s.n.* (NU!), *Staerker sub McMurtry 14795*. (HSMC!).

Conservation:—The number of narrow endemic *Disa* species in the Mauchsberg-Hartebeesvlakte area has been further increased by the addition of *D. staerkeriana*. The area is an important refuge for a surprising number of range restricted orchid species. *Schizochilus lilacinus* Schelpe ex Linder (1980: 426), *Disa alticola* Linder (1981: 252), *D. clavicornis*, *D. klugei*, *D. vigilans* and now *D. staerkeriana* are all endemic to this area. The Hartebeesvlakte covers an area of 1970 hectares and is an important mountain catchment area, presently protected by the Department of Agriculture, Forestry and Fisheries (M. Lotter, pers. com.).
Key to Disa sect. Stenocarpa

Linder & Kurzweil (1999) presented an artificial key to Disa sect Stenocarpa. Since then, the circumscription of this section has changed (Bytebier et al. 2008) and two new species have been described, Disa vigilans and this new taxon. Thus, we present an updated key to this section below.

1a. Leaves radical, hystanthous ............................................................................................................................................... 2
1b. Leaves cauline, green at anthesis ................................................................................................................................ 5
2a. Galea as deep as long; flowers red or orange, spur as long as or longer than the median sepal ........................................................................ 3
2b. Galea longer than deep, laterally flattened; flowers white, pink or blue ............................................................................ 4
3a. Spur longer than 20 mm, ascending .......................................................................................................................... D. porrecta
3b. Spur shorter than 20 mm, horizontal ........................................................................................................................ D. ferruginea
4a. Spur longer than the lateral sepals; flowers mauve ................................................................................................... D. arida
4b. Spur longer than the lateral sepals; flowers white to pink .......................................................................................... D. gladioliflora
5a. Spur 25–45 mm long ...................................................................................................................................................... 6
5b. Spur less than 25 mm long ........................................................................................................................................ 7
6a. Sepals more than 13 mm long; from Mpumalanga ........................................................................................................... D. amoena
6b. Sepals less than 13 mm long; from KwaZulu-Natal, Lesotho or Eastern Cape ................................................................. D. nivea
7a. Leaves soft; plants usually flexuose; ................................................................................................................................ 8
7b. Leaves rigid; plants rarely flexuose (except D. oreophila) .......................................................................................... 9
8a. Sepals less than 10 mm long ........................................................................................................................................ 9
8b. Sepals more than 10 mm long ................................................................................................................................... D. saxicola
9a. Inflorescence capitate or subcapitate ........................................................................................................................ D. cephalotes
9b. Inflorescence a lax or dense spike ............................................................................................................................ D. stricta
10a. Spur 2.5–5 mm long; flowers blue or pale mauve with darker veins ................................................................. 11
10b. Spur 5–20 mm long; flowers pink or white ................................................................................................................ 12
11a. Sepals 7–13 mm long; flowers pale mauve ........................................................................................................ D. dracomontana
11b. Sepals 4–5 mm long; flowers blue .......................................................................................................................... D. oreophila
12a. Sepals less than 10 mm long; plants flexuose ........................................................................................................ D. oreophila
12b. Sepals more than 10 mm long; plants not flexuose ............................................................................................... 13
13a. Median sepal 10–18 mm long ................................................................................................................................. 14
13b. Median sepal 20–30 mm long .................................................................................................................................. D. pulchra
14a. Leaves more than 6 mm wide; ovaries more than 20 mm long ............................................................................. D. montana
14b. Leaves less than 5 mm wide; ovaries less than 18 mm long ................................................................................... 15
15a. Median sepal less than 7 mm wide .......................................................................................................................... D. vigilans
15b. Median sepal more than 9 mm wide ...................................................................................................................... D. staerkeriana

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FIGURE 3. Close-up comparison of single flowers of the speckled light pink form of *Disa amoena* (left) and *D. staerkeriana* (right). A. Front view. B. Side view.
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FIGURE 4. Close-up comparison of the petal of Disa montana (left), Disa staerkeriana (middle) and Disa amoena (right).

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