NOTES ON ARABIAN POLYGALA L. (POLYGALACEAE)

by

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Resumen


Palabras clave: Polygalaceae, Polygala, corología, nomenclatura, taxonomía, Península Arábiga.

Abstract


\textit{P. steudneri} Chodat is a novelty from the Arabian Peninsula. \textit{P. dhoferica} Baker, a very close species to \textit{P. mossii} Exell and \textit{P. rupicola} Hochst. & Steudel ex Richard, is recognized. \textit{P. schwartziana} Paiva is a new name for \textit{P. subaphylla} Schwartz, non H. Perrier. A new combination is proposed: \textit{P. senensis} Klotzsch var. \textit{calcicola} (Chodat) Paiva.

Key words: Polygalaceae, Polygala, chorology, nomenclature, taxonomy, Arabian Peninsula.

After having studied a small collection of \textit{Polygala} L. from the Arabian Peninsula which belongs to the Edinburgh Royal Botanic Garden, some novelties were found. Most of the plants were collected by J. S. Collenette, J. J. Lavranos, A. G. Miller, R. Whitecombe & D. Wood.

Most of the taxa were known from the Arabian Peninsula such as: \textit{P. abyssinica} R. Br. ex Fresen., \textit{P. erioptera} DC. subsp. \textit{erioptera}, \textit{P. irregularis} Boiss., \textit{P. mascatensis} Boiss., \textit{P. senensis} Klotzsch var. \textit{senensis}, \textit{P. thurmanniana} Chodat and \textit{P. tinctoria} Vahl. But some novelties were found such as: one species not yet known in that area (\textit{P. steudneri} Chodat); the recognition of \textit{P. dhoferica} Baker; a new name (\textit{P. schwartziana} Paiva); and a new nomenclatural combination [\textit{P. senensis} Klotzsch var. \textit{calcicola} (Chodat) Paiva].

1. A species previously unrecorded in the Arabian Peninsula

*P. steudneri* Chodat occurs in the East African mountains (Uganda, Tanzania, Kenya and Ethiopia) in alpine areas over 2000 m high. So, it was not a surprise to find this species of *Polygala* at a very high altitude (3600 m) on a mountain in Yemen.

The species was collected in Yemen, amongst volcanic gravel. Sometimes, it also grows amongst exposed lava rocks in the African mountains.

The Arabian specimen we have studied has thick leaves, whilst the African ones do not have that type of leaves. Perhaps that is because of the type of soil (volcanic gravel) and the exceptionally high altitude of the place (3600 m).


_Typus._ ETHIOPIA: Bachit M., 4000 m, Steudner, s.n. (B; holotypus).


_Syntypus._ ETHIOPIA: Mangasciá Mt., near Addis Ababa, 2800 m, Negri 401 (FI); Gubba, Uaciaccrá Mt., 2900 m, 19-V-1909, Negri, 424 (FI).

Perennial herb up to 18 cm tall, procumbent, much branched from a woody rootstock, with slender crisped-pubescent stems. Leaves petiolate (petiole 0.5-0.75 mm long, slightly winged and crisped-pubescent), 7-12 × 1.5-3.5 mm, elliptic, rounded or obtuse and mucronate at the apex, slightly cuneate towards the base, crisped-pubescent on the margins and main veined on both sides. Flowers mauve or pink in terminal and exceptional lateral racemes, 2-4 cm long, with a crisped-pubescent rachis and caducous, lanceolate and glabrous bracts and bracteoles (up to 1 mm long). Pedicels 1.5-1.75 mm long, glabrous. Posterior sepal 2.75-3 mm long, glabrous; wing-sepals 5-5.5 × 3-3.5 mm elliptic, with a conspicuous stripe, glabrous; anterior sepals 2.5-2.75 mm long, free, glabrous. Upper petals 3-3.5 × 1.5 mm; carina 5 × 2-5 mm, crest 2.5 mm long. Stamens 8. Capsule 3-4 × 2.5 mm, ellipsoid, glabrous, very narrowly winged. Seeds 2.5 × 1 mm cylindrical, with short, silky hairs; caruncular appendages 1.5 mm long, up to the middle length of the seed.

YEMEN: Track joining Sana’a-Hodeida road to summit of Jebel an Nabi Shu’ayb, 3600 m, 2-II-1979, Wood, 11010 (E).

Alpine, over 2000 m high, grassland, rocky grassy places, exposed lava rocks and volcanic gravel.

2. The recognition of *Polygala dhofarica* Baker

Some authors (CHODAT, 1896; CUFODONTIS, 1956) considered *P. dhofarica*

¹ Chodat indicates, before his description of that species, a drawing as “Tab. nostra XXX, fig. 7”. But figure 7 is missing from that “Tabula”. Certainly it was an involuntary omission.
Baker (endemic to Oman) as a synonym of *P. rupicola* Hochst. & Steudel ex Richard (endemic to Ethiopia). The two species are very close and are also related to *P. mossii* Exell (endemic to Namibia). The three species belong to the *P. abyssinica* complex, which is scattered from NE to SE and SW Africa and the Arabian Peninsula to SW Asia.

It is understandable that the monographer of the genus (R. Chodat) has considered *P. dhofarica* Baker as a synonym of *P. rupicola* Hochst. & Steudel ex Richard, because he only knew the type material of the former (BENT, 186; K) and the Ethiopian material collected by Schimper of the latter.

These three species are perennial herbs or suffruticose, but they can be distinguished as shown in the following table and illustrated in the plate.

**Table 1**

<table>
<thead>
<tr>
<th></th>
<th><em>P. mossii</em></th>
<th><em>P. rupicola</em></th>
<th><em>P. dhofarica</em></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stem pubescency</td>
<td>glabrous or puberulous</td>
<td>patent-pubescent,</td>
<td>crisped-pubescent</td>
</tr>
<tr>
<td></td>
<td></td>
<td>rarely glabrescent</td>
<td></td>
</tr>
<tr>
<td>Peciole pubescency</td>
<td>puberulous</td>
<td>patent-pubescent</td>
<td>crisped-pubescent</td>
</tr>
<tr>
<td>Rachis of the inflorescence</td>
<td>puberulous or glabrous</td>
<td>patent-pubescent</td>
<td>crisped-pubescent</td>
</tr>
<tr>
<td>Bracts</td>
<td>0.75 mm long; puberulous or glabrous</td>
<td>2-2.5 mm long; patent-pubescent</td>
<td>1.25-1.5 mm long; glabrous</td>
</tr>
<tr>
<td>Bracteoles</td>
<td>0.5 mm long; puberulous or glabrous</td>
<td>1.5 mm long;</td>
<td>0.75-1 mm long;</td>
</tr>
<tr>
<td>Pedicels</td>
<td>1 mm long; puberulous or glabrous</td>
<td>1.5-2 mm long;</td>
<td>1.25-1.5 mm long;</td>
</tr>
<tr>
<td>Margin of the capsule</td>
<td>narrowly winged, wing 0.5 mm broad</td>
<td>narrowly winged,</td>
<td>widely winged,</td>
</tr>
<tr>
<td></td>
<td></td>
<td>wing 0.5 mm broad (near the apex)</td>
<td>wing 1.5-2 mm broad (near the apex)</td>
</tr>
</tbody>
</table>


**Typus.** Oman: Hadramant, Dhofar Mountains, 300 ft; J. T. Bent, 186 (K; holotypus).

Perennial herb with woody base, up to 25 cm tall, with crisped-pubescent or glabrescent stems from a much divided root-stock. Leaves petiolate (petiole 0.5-1 mm long, crisped-pubescent), 5-15 × 2-4 mm, oblong elliptic to lanceolate, mucronate at the apex, narrowed towards the base, shortly and sparingly crisped-pubescent. Flowers reddish-purple, pedicels 1.25-1.5 mm long, glabrous; in dense terminal or rarely pseudolateral racemes, up to 7 cm long, with glabrous, rarely crisped-pubescent, rachis; bracts 1.25-1.5 mm long, elliptic-lanceolate, glabrous, bracteoles 0.75-1 mm long, elliptic-lanceolate, glabrous, caducous. Posterior sepals 3 mm long, elliptic, glabrous; wing sepals 7-7.5 × 4-4.5 mm, elliptic, gla-
Fig. 1.—A: Polygala dhofarica. A₁, habit (×1); A₂, calyx and capsule (×11). A₃, capsule (×7.5); A₄, seed (×15). Miller 2657. B: Polygala rupicola. B₁, calyx (×11); B₂, capsule (×7.5). Hugos 208.
brous; anterior sepals 2-2.25 mm long, free, glabrous. Upper petals 3-4 × 2-3 mm, spathulate, emarginate to lobate at the apex; carina 6.5-7 × 3-3.5 mm, crest 2.25-2.5 mm long. Stamens 8. Capsule 5-5.5 × 5-6 mm, obovoid, with margin widely winged, wing 1.5-2 mm broad, glabrous. Seed 3.5-3.75 × 1-5 mm, ellipsoid, with dense, white, silky hairs; caruncle 1.25 mm long, caruncular appendages 0.25-0.5 mm long.


OMAN: Jebel Qamar, 9 km N Dhalqut, 1100 m, 10-X-1979, Miller, 2657 (E); Jebel Khawr, Summit Ridge, 2900 m, 22-X-1979, Miller & Whitecombe, 2789 (E). Woodlands or open stony hills.

3. A new name for Polygala subaphylla Schwartz


We rename it *Polygala schwartziana* Paiva, after the author of the rejected name (Oskan Schwartz).

**Polygala schwartziana** Paiva, nom. nov.


**Typus.** DEM. REP. OF YEMEN (S. YEMEN): Hadramaut, coastal region, Wissmann 660 (HBG; holotypus).³

Erect grazed shrublet c. 1 m tall, with virgate subaphyllous glabrous or glabrescent stem. Leaves mainly on young branches, 10-20 × 1-2 mm, linear to linear-lanceolate, acute and submucronate at the apex, cuneate towards the base, glabrous. Flowers deep magenta, pedicels 2-2.5 mm long, glabrous, in elongated, terminal racemes, 3-10 cm long, with glabrous rachis and caducous bracts, 1.5-2 mm long and bracteoles 1-1.5 mm long. Posterior sepal 3-3.5 mm long; wing sepals 7.5-9 × 4-5 mm, elliptic to slightly obovate, glabrous; anterior sepals 2-3 mm long, free. Upper petals 4.5-5 × 1.5-1.5 mm, oblong-elliptic, carina 5.5-6.5 × 2.5-3 mm, crest 1.5-2 mm long. Stamens 8. Capsule 7-8.5 × 4-4.5 mm, obliquely applanate obovate-elliptic, emarginate at the apex, winged (wing 0.75-1 mm broad), glabrous. Seeds 6-6.5 × 2-2.5 mm, ellipsoid to oblong ovoid, with white silky hairs;

² In this specimen the capsule is rather narrowly winged.

³ I have asked the Hamburg Herbarium (HBG) for a photograph of that specimen and I got the following answer: “Since a number of plant families have been translocated during the war into what now is the German Democratic Republic, and since they have not been returned to us yet, the specimen you are interested in is not traceable in our herbarium.”
Fig. 2.—*Polygala schwartziana*. a, inflorescence (×1.3); b, leaf (×5); c, calyx (×7); d, corolla (×7); e, upper petals and staminal tube (×7); f, stamens (×20); g, anther (×20); h, calyx and pistil (×4.7); i, stigma (×20); j, seed (lateral view) (×7); k, seed (side view) (×7). *Collenette* 3103.
caruncle 1-1.5 mm long, unequally branched; canuncular appendages short, 1 mm long.

*P. schwartziana* Paiva is close to *P. abyssinica* R. Br. ex Fresen. but the former is a shrublet up to 100 cm tall, has stems without leaves (only young branches leafy), larger capsules (7.5-8.5 × 4-4.5 mm), with winged margin (wing 0.75-1 mm broad) and seeds (6.5-6.5 × 2-2.5 mm); whilst the latter is a perennial herb up to 30-50 cm tall and has leafy stems, smaller capsules (5.5 × 3.5-3.5 mm), with very narrowly winged margin (wing 0.25-0.5 mm broad) and smaller seeds (4.5 × 1.5 mm).


**YEMEN:** Marib road, 15 km NE of San'a, 2500 m, 12-IX-1977, *Lavranos*, 15789 (E); Wasit, 20 km N of Sadah, 1800 m, 22-III-1981, *Miller*, 3171 (E).


Sandstone hills, grassy slopes, at over 1000 m altitude.


*Polygala senensis* Klotzsch is one of the extremely variable species of *Polygala* from East Africa.

It is a perennial herb or shrublet, occasionally annual, up to 60 cm high, often with annual shoots produced from a woody rhizome. *P. calcicola* Chodat is an extreme variation, and it is a prickly shrublet with smaller leaves (8-10 × 2-3 mm) and flowers (wings 6.5-8 × 6-7 mm), whilst *P. senensis* Klotzsch has larger leaves (10-30 × 5-10 mm) and flowers (wings 8-10 × 7-8 mm).

But sometimes it is not easy to identify these species, mainly in Somalia, where there are many transition forms between the two species, as, for instance the specimen Hildebrandt 1364 which is prickly and 1365 which is unprickly, although they were collected in the same locality. We prefer to consider *P. calcicola* Chodat as a variety of *P. senensis* Klotzsch.

**P. senensis** Klotzsch in Peters, Reise Mossamb. Bot. 1: 113 (1861)
var. **calcicola** (Chodat) Paiva *comb. et stat. nov.*


**Typus. SOMALI REPUBLIC:** Meid, IV. 1875, *Hildebrandt*, 1364 (P, holotypus; BM, isotypus).

Prickly shrublet about 50 cm high; stems slender, densely crisped-pubescent. Leaves 8-10 × 2-3 mm, narrowly oblongate to oblong-lanceolate, densely crisped-pubescent. Flowers yellowish, pedicels up to 5 mm long, crisped-pubescent, in lateral 3-10 flowered racemes, 1.5-2.5 cm long, with crisped (or
pubescent rachis, persistent, ovate-acuminate bracts and bracteoles about 1 mm long. Posterior sepal 4 x 2.5 mm, keel-shaped, pubescent; wing sepals 6.5-8 x 6-7 mm, yellow, ovate-suborbicular, pubescent; anterior sepals 3 x 2.5 mm, free, keel-shaped, pubescent. Upper petals 5.5 x 2.5 mm, obliquely oblanceolate; carina 5.5 x 2.5 mm, with crest 3 mm long. Stamens 8. Capsule 6-7 x 5 mm, ellipsoid, pubescent, emarginate at the apex, margin very narrowly winged. Seeds 4 x 2 mm, densely sericeous; caruncular appendages broad, humped at the apex, and extending almost to the base of the seed.


**DEM. REP. YEMEN:** Aden, 25 km N of Said, 1500 m, 16-IV-1953, *Griersau*, 254 (E).

**OMÁN:** Jebel Akhdar, 24-X-1979, *Miller & Whitecombe*, 2810b (E).

Alkaline steppes at 1500-2000 m altitude.

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