

TWO NEW *OROBANCHE* SPECIES FROM THE ARABIAN PENINSULA

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Two new species of *Orobanche* (*Orobanchaceae*) are described from the Arabian Peninsula: *O. dhofarensis* M.J.Y. Foley *sp. nov.* and *O. hypertomentosa* M.J.Y. Foley *sp. nov.*, whilst *O. abyssinica* Richard is lectotypified.

Keywords. Arabian Peninsula, lectotypification, new taxa, *Orobanchaceae*, *Orobanche*.

INTRODUCTION

Following a detailed examination of preserved specimens of *Orobanche* obtained on loan from most of the major herbaria which contain Arabian Peninsula material (BM, E, K, ON, SQUH, hb. Mandaville) it has become clear that some of these are referable to undescribed taxa. Two of these are formally described here, one from sect. *Orobanche*, the other from sect. *Trionychon*.

A NEWLY DESCRIBED TAXON WITHIN SECT. *OROBANCHE*

Whilst examining a range of colour photographs taken by Mrs I.S. Collenette of Saudi Arabian *Orobanche*, my attention was also drawn to some unidentified specimens from the Dhofar region of Oman. As well as photographs of these plants *in situ*, Collenette was able to provide spirit-preserved material, whilst pressed herbarium specimens from this collection had also been made (*Collenette* 8887 (ON, E)). The plants were growing near the lip of the escarpment west of Ashinaib under *Euphorbia balsamifera* Ait. and were thought to be parasitic upon *Plectranthus* spp. The most striking characters were their delicate habit and very lax inflorescence which bore relatively few, widely spaced flowers. The corollas were white, tubular-campanulate and possessed very pronounced erose-denticulate margins to the lobes of the corolla. The stigma lobes were pale pink.

Whilst they had certain affinities to *O. minor*, it was apparent from the characters given above that they were not that taxon. There was, however, the possibility that they might correspond to *O. abyssinica* Richard, a member of the *O. minor* group originally described from north-east Africa (Richard, 1851) 'in diversis Abyssiniae partibus'. Examination of specimens of *O. abyssinica* that are preserved in Richard's herbarium (leg. Quartin-Dillon & Petit (P)) did reveal some similarities. However, they differed from the Dhofar plants in their more robust habit, their denser, less remotely flowered inflorescences of longer, more tubular corollas and in their longer

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and less broad-based calyces. The filaments were also much more pilose but only at their base and were inserted higher above the base of the corolla tube. Although denticulate-margined corolla lobes are indicated in Richard's protologue (Richard, 1851), when his specimens were examined this character was much less pronounced than in the Dhofar plants. Richard also described his plants as parasitic upon a different host to the latter, i.e. *Guizotia oleifera* DC. (The left-hand (full) specimen 'Choa, Abyssinie, legerunt Quartin Dillon et Petit' (P) is here designated as the **lectotype** of *O. abyssinica* Richard.)

Collenette's plants, having erose-denticulate margined corolla lobes, might also be thought to be close to *O. crenata* Forskål. However, the latter is distinct in morphology and habit, being much more robust and having quite dense-flowered inflorescences. In comparison to *O. dhofarense*, the corollas are also considerably larger, the lobes of the lower lip \pm patent, the filaments glandular-pilose in the upper part and the stigma lobes darker in colour.

The Dhofar plants are therefore a previously unidentified taxon and are now formally described.

Orobanche dhofarenis M.J.Y. Foley, **sp. nov.**: sect. *Orobanche*. **Fig. 1.**

Planta (10–)15–25(–35)cm alta, parce glanduloso-pilosa. Caulis subtilis, exilis, simplex, non ramosus. Inflorescentia manifeste laxiflora; flores distantes. Bractae lanceolatae, acuminatae. Calyces antice et postice fissi; bidentatae, dentes lanceolati. Corolla alba, tubuloso-campanulata, 12–14mm longa, 4–5mm lata, saepe cremeo-, roseo- vel violacea tincta, lobis conspicue eroso-denticulatis, linea dorsalis leviter curvata. Stamina 2.5–3mm e basi corollae insertae; filamenta inferne pilosa, supra glabra. Stigma vix bilobum, roseum vel album.

Type: Oman, Dhofar, near lip of scarp west of Ashinhaib, 22 ix 1993, *I.S. Collenette* 8887 (holo. ON (central specimen); iso. E; a colour photograph accompanies the holotype. A spirit-preserved fragment is in LANC).

Stem simple, unbranched; slender, delicate, moderately glandular-pilose plants, (10–)15–25(–35)cm tall. *Inflorescence* very lax and remote-flowered. *Bracts* lanceolate. *Calyx segments* relatively broad-based, usually bidentate with lanceolate teeth. *Corollas* tubular-campanulate, c.12–14mm long and 4–5mm wide, white, often tinged with cream, pink or violet, with prominent erose-denticulate margins to the lobes, dorsal line slightly curved. *Filaments* eglandular, pilose at the base and to about $\frac{1}{3}$ height, glabrous above, inserted 2.5–3mm above the corolla base. *Stigma* lobes just separate, pale coloured, often pink or white.

Distribution and ecology. Woodland edges, wooded escarpment slopes dominated by *Anogeissus dhofarica* A.J. Scott, sometimes in proximity to wet localities; also light scrub and on and amongst boulders, 200–1000m, flowering September to October. Host not definitely identified but *Plectranthus* spp. strongly suspected; also possibly *Impatiens balsamifera* Royle as well as other taxa.



FIG. 1. *Orobanche dhofarensis*. Photo: I. S. Collenette.

Additional specimens examined. OMAN (DHOFAR). Khadrafi, Sarfait area, 2200ft [c.670m], 27 ix 1976, *Mandaville* 6970 (BM); Khadrafi, 29 ix 1977, *Radcliffe-Smith* 5289 (K); Jebal Qara, Wadi Darbat, c.38km W of Salalah, 200m, 8 x 1979, *Miller* 2604 (K); Jebal Qara, Wadi Ayn Arzat, 200m, 23 ix 1979, *Miller* 2163 (E), as *O. minor* (Ghazanfar, 1992); Jebal Qara, Salalah to Thamrait road, 10 ix 1985, *Miller* 7568 (ON), as *O. minor* (Ghazanfar, 1992); Jebal Qara, Salalah to Thamrait road, 22 ix 1985, *Miller* 7745 (E), as *O. minor* (Ghazanfar, 1992); Jebel Qamar, below Sarfait, 1000m, 11 ix 1989, *Miller & Nyberg* 9306 (E); near Umbaraaf, 1 x 1992, *Collenette* 8368 (ON).

O. dhofarensis is readily separated from related taxa by its delicate habit and very lax, remote-flowered inflorescence with conspicuous erose-denticulate margined corolla lobes. Whilst the corollas are basically white in colour, the plant can also occur in a range of pale forms due to veining or flushing with pink, lilac or violet, and the colour of the stigma lobes can vary similarly. Such colour variation may be due to

the influence of differing hosts or to varying ecological conditions. At present *O. dhofarensis* is only certainly recorded from Dhofar (Oman). It flowers in September and October and is frequent in the higher wet woodland areas along the upper edges of the main escarpment where it appears to be parasitic upon *Impatiens balsamifera* (Collenette, pers. comm.). In the same general area it also grows somewhat further inland in the rather drier, less wooded areas bordering the true desert; here it is apparently restricted to *Plectranthus* spp. as host. Two collections in E from Jabal Shada in south-west Saudi Arabia (Collenette 6955 and 7316) may be this or a closely related taxon. These specimens, however, are much more densely glandular-pilose than the Dhofar plants and flower in February rather than in the autumn. They also occur at a higher altitude on relatively well-vegetated granite slopes and are apparently parasitic upon *Barleria bispinosa* Vahl. Further investigations are required to ascertain their true status.

Up to the present, *O. dhofarensis* has been recorded only from the area indicated above and is possibly endemic. However, inadequate specimens suggest that it may also occur on Socotra and perhaps elsewhere within this general geographical area.

A NEWLY DESCRIBED TAXON WITHIN SECT. *TRIONYCHON*

A small, uniform series of specimens of exceptionally arachnoid-tomentose plants of sect. *Trionychon* collected from central and eastern Saudi Arabia and Bahrain have been previously erroneously determined. They are clearly allied to members of the critical *O. caesia* group, the individual taxa of which are jointly characterized by their unbranched habit and the presence of an appreciable degree of indumentum on stem, bracts, bracteoles and calyces. Except for the basically yellow-flowered *O. nowackiana* Markgraf (= *O. rechingeri* Gilli) known only from serpentine substrata in the Balkans and Turkey and parasitic upon hyperaccumulators of nickel, all are blue-flowered with distinctive white bosses in the throat of the corolla.

After an examination of specimens (including type material) of a wide range of taxa within the *O. caesia* group, it appears that the closest relatives to these very tomentose Arabian Peninsula plants are *O. caesia* Rchb. itself, *O. eriophora* Bornm. & Gauba and *O. caucasica* Beck. From each of these, the Arabian Peninsula plant differs in its much more robust habit, its extremely arachnoid-tomentose stem, calyces and bracteoles, in the distinctive patent attitude of the corollas and in their more tubular, deflexed shape. It is also especially noticeable that *O. caucasica* possesses a much lower degree of indumentum and that its more intensely coloured corollas exhibit a distinctive suberect attitude and, as with *O. caesia*, it is a much more densely flowered plant.

These Saudi Arabian plants are a separate taxon and are now formally described.

***Orobanche hypertomentosa* M.J.Y. Foley, sp. nov.:** sect. *Trionychon* Wallr. Fig. 2. Caulis simplex, non ramosus. Planta ad 25cm alta, plus minusve robusta, omnino valde arachnoideo-tomentosa, pilosa glanduloso et eglanduloso. Inflorescentia non

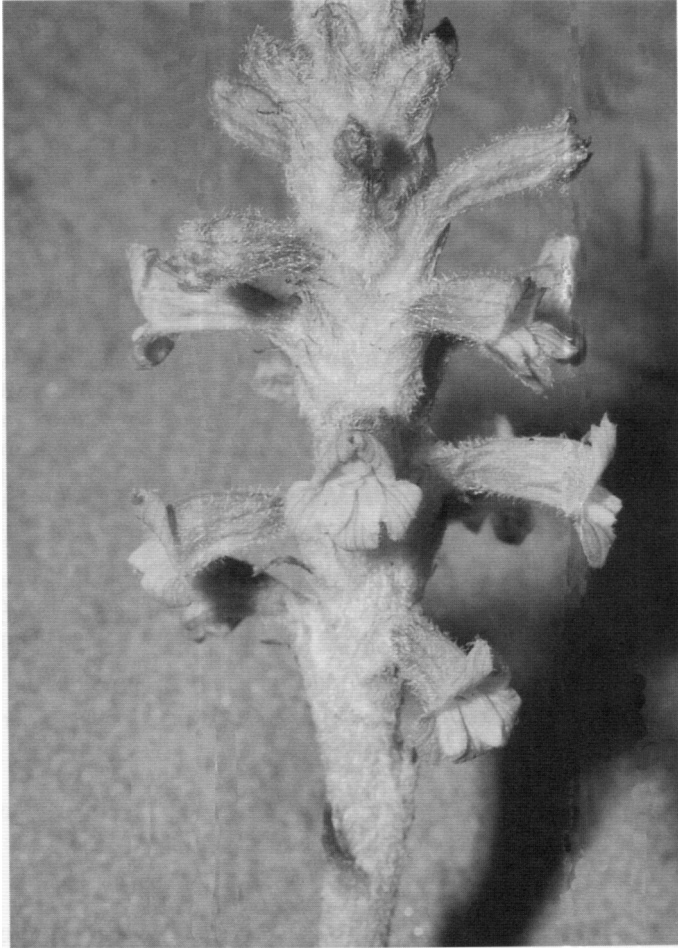


FIG. 2. *Orobanche hypertomentosa*. Photo: I. S. Collenette.

densiflora. Bracteae lanceolatae; bracteolae lineari-lanceolatae. Calyces campanulati; bidentatae, dentes lanceolati. Corolla patens, 20–25mm longa, caeruleo-lavandulacea; limbus in labium superus et inferum distincte partitus; tubus basi angustus faucem versus ampliatus; deflexus, faux plicis duabus prominentibus albidis provisus. Stamina c. 7–8mm e basi corollae inserta; filamenta per totam longitudinem glabra; antherae pilis longis paucis provisae. Stigma alba.

Type: Saudi Arabia, south-west of Zabirah, 200km north of Buraydah, red sand dunes, 22 iv 1981, I.S. Collenette 2506 (holo. E, iso. K).

Stem simple, unbranched; relatively robust plants of modest stature to 25cm tall, exceedingly arachnoid-tomentose with glandular and eglandular hairs on stems, calyces and bracteoles, rather less so on the bracts. *Inflorescence* not very dense flowered, tapering. *Bracts* lanceolate; bracteoles linear-lanceolate. *Calyces* ± campanulate with

segments usually bifid which bear lanceolate teeth. *Corollas*, ± patent, initially narrowly tubular and restricted in width proximally, then deflexed, spreading distally, 20–25mm long, pale blue-lavender with prominent white bosses in throat and bearing moderately arachnoid, white, glandular hairs; lips of corollas prominent. *Filaments* glabrous throughout their length, inserted 7–8mm above the corolla base. *Anthems* with scattered, long white hairs. *Stigma* lobes white. Apparently sweetly scented.

Distribution and ecology. 'Red' sand dunes in desert localities and also occurring in coastal stabilized dunes; 0–550m, flowering March to April. Possibly parasitic upon *Calligonum comosum* L'Hérit. Recorded also as an agricultural casual.

Additional specimens examined. BAHRAIN. Sandy desert, SW of J. Dubhan, 21 iii 1950, Good 243 (BM). SAUDI ARABIA. 2km S of Al Hufuf, 5 iii 1970, Mandaville 2739 (BM); eastern Province, As Summam, 65km ESE of Umm 'Ushar, 26 iii 1981, Hillcoat 335 (BM); Eastern Province, Ras Al-Ghar, 22 iv 1982, Mandaville 7711 (E), as *O. aegyptiaca* (Mandaville, 1990).

Illustration: see Collenette (1985: 383, top left photograph as *O. caucasica*).

O. hypertomentosa is readily separated from related taxa by the presence of a highly arachnoid-tomentose glandular/eglandular indumentum on the stems, bracteoles and calyces, in combination with characters which include a fairly lax, tapering inflorescence and a distinctively shaped corolla which is narrow and restricted proximally but which then markedly expands distally and possesses prominent upper and lower lips. Present records suggest that *O. hypertomentosa* is endemic to Saudi Arabia and Bahrain.

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