

## STUDIES IN THE FLORA OF ARABIA: II Some new and interesting species of Labiatae

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ABSTRACT: Six new species of Labiatae are described from Saudi Arabia, Yemen and Oman: *Leucas dhofarensis* Hedge & O. Sebald, *Nepeta deflersiana* [Schweinf. ex] Hedge, *Nepeta sheilae* Hedge & King, *Nepeta woodiana* Hedge, *Salvia hillcoatiae* Hedge and *Stachys yemenensis* Hedge. New records for *Salvia mirzayanii* Rech. fil. & Esfand. (previously endemic to S Iran) and *Plectranthus rugosus* Benth. (nearest station in Pakistan) are given; the taxonomic position of *Salvia areysiana* Deflers is discussed.

The Labiatae is a moderately well represented family in the Arabian peninsula. It has about 24 genera and c. 100 species, but there are many groups of taxonomic uncertainty requiring further investigation and these totals will certainly change as our knowledge of the family improves. In some genera, such as *Teucrium* and *Thymus*, the problems are of a relatively localized nature; in others, such as *Ocimum* and *Plectranthus* s.l., they are more cosmopolitan. This paper deals with a few well-marked new species and some interesting distributional records, but it is hoped that subsequent ones will consider some of the more complex groups.

I am grateful to Rose King and Jenny Ryrie for the illustrations and to Dr Oskar Sebald, Stuttgart, for his co-operation in the description and discussion of the new *Leucas*.

***Leucas dhofarensis* Hedge & O. Sebald, sp. nov.** Fig. 1.

*L. somalensis* Vatke affinis sed foliis ovatis maioribus valide petiolatis, foliis floralibus verticillastros multo superantibus, cymis multiflorioribus, limbo calycis multo explanato dentibus tribus anterioribus labium manifestum simile generis *Otostegia* formantibus.

Planta suffrutescens usque 1 m alta; rami annui obtuse quadranguli, saepe pilis brevibus retroflexis obtecti, raro pilis longis patentibus, glandulis sessilibus numerosis; internodia longitudine folia aequantia vel breviora foliis, raro longiora. *Folia* herbacea, petiolata, ovata, obtusa, valide serrato-crenata, basim angustata, 2-8 cm longa et 1.2-2.5-plo longiora quam latiora; lamina infra incana vel viridis pubescens, glandulis sessilibus numerosis; lamina supra non rugosa, viridis, pubescens, eglandulosa vel glandulis sessilibus sparsis; petiolus usque 2 cm longus. *Inflorescentia* usque 20 cm longa (? vel longior); verticillastri  $\pm$  remoti 3-9, 2-3  $\times$  1-1.5 cm longi, saepe floribus 20-50; folia floralia (bracteae) saepe 2-4-plo longiora quam cymae; pedicelli brevissimi calycibus maturis facilliter caducis; bracteolae angustissime lineares apice subulatae, 5-10 mm longae. *Calyx* subcampanulatus, postice 7-10 mm longus, antice 9-13 mm longus, aequabile decemcostatus; pars basilaris c. 1 mm longe constricta; limbus  $\pm$  infundibuliforme expansus dentibus tribus anterioribus labium explanatum 2.5-4 mm longum formantibus; dentes calycis 8-10, dens posterior lanceolato-deltoides breve cuspidatus, 2-3 mm longus, dentes laterales 0.5-2 mm longi, deltoidei breve cuspidati, basi asymmetrica; tubus extra pubescens glandulisque sessilibus, intra pilis brevissimis erectis, pilis longioribus in zona transitionis ad partem superiorem calycis venis transversalibus. *Corolla* alba, 11-14 mm longa;

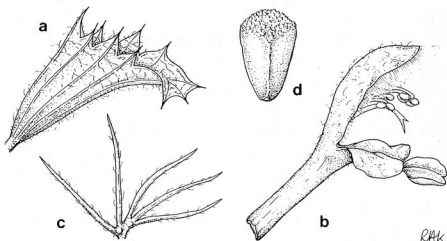


FIG. 1. *Leucas dhofarensis* Hedge & O. Sebald: a, calyx; b, corolla; c, bracteoles, showing pedicel scars; d, nutlet. All  $\times 4.5$ , except for nutlet  $\times 10$ .

tubus cylindricus, 5–7 mm longus, intra annulatus, extra parte superiore pilis sparsis retroflexis; labium superum 6–8 mm longum, infirme arcuato-ascendens, oblongum, concavum, apice emarginatum, extra dense hirsutum, margine 1–2 mm longe et dense barbatum; labium inferum 6–8 mm longum et latum, trilobatum, ad basim labii moderate deflexum, ad basim lobi medii denuo infirme deflexum, pars centralis intra duabis lineis breve pubescentibus, extra pilis retroflexis sparsis. *Stamina* aequae illa specierum plurimarum africanarum generis. *Stylus* inaequaliter bifidus; ovarium cum disco breve sed manifeste (0.3–0.5 mm) stipitatum. *Nuculae* brunneae, 2–2.3  $\times$  1.3–1.6 mm, trigono-oblongae, truncatae, pericarpio tuberculato glandulisque sessilibus; pericarpium laterale laeve et glabrum. *Fl.* 9–10.

SULTANATE OF OMAN. Dhofar Province: Jabal Qara, rocky sheltered places in subdesert zone, 3 x 1943, *Vesey-Fitzgerald* 12428/3 (holo. BM; iso. STU); 40 km N of Salalah on the Thumrait (Midway) road, near the Aqabat al Hatab at 17°17'N, 54°05'E, 720 m, on rocky slope beneath *Commiphora*, *Radcliffe-Smith* 5177 (K, STU); Jabal Qara, c. 15 km SE of Jibjat, dry rocky wadi with *Anogeissus* and *Commiphora* sp., 900 m, *Miller* 2366 (E, STU); Jabal Qamar, Sha'ab Az'ibi, c. 65 km W of Salalah, rocky grazed slopes with *Commiphora* and *Euphorbia*, c. 1000 m, *Miller* 2631 (E, STU); coastal plain, wadi 14 km E of Taqah, rocky slopes, c. 30 m, *Miller* 2440 (E); Teetam, bee plant, c. 400 m, *Berkeley* 69 (E); Jabal Qamar, c. 9 km N of Dhalqut, open stony hills, c. 1100 m, *Miller* 2653 (E, STU).

Our new species is closest to the Somali endemic *L. somalensis* Vatke, but can be distinguished by the clearly petiolate leaves, the leaf-like floral leaves (bracts) clearly exceeding the verticillasters, and the longer, much flattened lower calyx lip (reminiscent of *Otostegia*).

It has an interesting mixture of some of the characters used to define several of the sections in the Afro-Arabian area where there is considerable variation in facies and floral structure. For example, the many-flowered verticillasters with long bracteoles and the form of the calyx lower lip in the new species are typical features of sect. *Hemistoma* [e.g. *L. urticifolia* (Vahl) R. Br.]. Characters not

found in this section, but which are typical of both sects *Lasiocorys* [e.g. *L. alba* (Forssk.) O. Sebalde] and *Physoleucas* (e.g. *L. inflata* Benth.) are: ovary and disc with a short stipe; calyx base with a clear constriction; lower corolla lip only slightly deflexed and the upper  $\pm$  ascending; calyx scarcely expanding after anthesis, distinctly 10-ribbed throughout its length; and nutlets tuberculate at their apices. A further feature that *L. dhofarensis* shares with sect. *Physoleucas* is that the calyces readily separate from the pedicels at fruiting time. It also has the truncate nutlets of sect. *Lasiocorys*.

One interpretation of this curious mixing of characters, though not the only one, is that *L. dhofarensis* is a relatively old relict species. It is now known from seven gatherings, all in Dhofar. They show little variation and the only rather anomalous specimen is Miller 2653 which is somewhat shrubbier in habit and has smaller, broadly ovate leaves.

There are two major centres for the genus, one African, the other Asiatic. In the former, the area of greatest diversity is between east and northeast tropical Africa; in the latter it is peninsular India. There are about 50 species in the African zone and probably about the same number in the Asiatic one. With very few exceptions the species in each area are systematically clearly distinct from each other; very few are in both zones. It is tempting to propose that the ancestral roots of the genus were located between these two centres in an area where they are now extinct. Certainly the affinities of *L. dhofarensis* are with the Afro-Arabian species and there is no obvious link with the Asiatic ones.

*L. dhofarensis* was first recognized by Sebalde in his revision of the Afro-Arabian species as *L. spec. B* (in *Stuttgart. Beitr. Naturk. ser. A* 341: 1–200, 1980 — cf. p. 104). At that time only one specimen was available for study. It was then linked with *L. somalensis* and another taxon in the same alliance which was designated *L. spec. A*. Although these three taxa may together merit the creation of an independent section, it is premature to do so until more material of *L. somalensis* (currently only known from two specimens) is at hand, together with adequate gatherings of the *spec. A* — known only from two fragments (BM) collected in 1939 by von Wissmann in South Yemen (Hadramawt).

With the description of our novelty, the number of *Leucas* species now known from the Arabian peninsula (including Socotra) is eleven, most of which are in the area nearest Africa. It is thus after *Salvia* and probably *Plectranthus s.l.*, the third largest genus of Labiatae in the region.

***Nepeta deflersiana* [Schweinf. ex] Hedge, sp. nov.**

Affinis *N. azureae* [R. Br. ex] Benth. sed laminis foliorum minoribus (c. 15–20  $\times$  12–15 mm), foliis inferioribus saltem distincte petiolatis, dentibus calycem anguste triangularibus bene differt.

YEMEN ARAB REPUBLIC. Jabal Shibam, Menacha, 2600–2800 m, *Deflers* 311 (holo. P — n.v.); foot of Jabal Shibam, 2900 m, *Lavranos* 11358 (E); Yarin to Irian, c. 2000 m, *J. R. I. Wood* 1338 (E); S side Wadi Dhahr, 2350 m, *Lavranos & Newton*, *L.* 13029 (E); summit of J. Nabi Schwaib, 3620 m, *Miller* 167 (E). [There are numerous other gatherings from Yemen.]

SAUDI ARABIA. Jabal Sudah, NW Abha, 2750 m, *Collenette* 2057 (E,K); Aqabat al-Samma, on way to Wadi al-Ouse, 2200 m, *Nasher*, *IH* 153 (E).

*N. deflersiana* Schweinf. was apparently first published, as a *nomen*, in Schweinfurth's *Arabische Pflanzennamen aus der Flora von Aegypten, Algerien*

und Jemen (p. 168, 1912). It is both in Blatter's *Flora Arabica* (p. 377, 1919–36) and Schwartz's *Flora des tropischen Arabien* (p. 222, 1939) without description or validation; the name also appears on many herbarium specimens. Because the species appears to be quite distinct, it is formally described here, diagnostically, as new.

Possibly the first mention of this taxon is by Bentham in DC., *Prodromus* (12: 384, 1848) who cited a Botta gathering from 'Arabia Felix' as *N. azurea* [R. Br. ex] Benth. Although the specimen has not been seen, it presumably is *N. deflersiana* because only one *Nepeta* is known from the area of Yemen where Botta collected. In 1939 Schwartz (*Fl. trop. Arab.* 221) named the Yemen plant *N. mussini* Henk., citing *N. deflersiana* Schweinf. and *N. azurea* as synonyms. Despite the similarities that the Yemen plant has with these species — *N. azurea* mainly from Somalia and Ethiopia, *N. mussini* (as *N. racemosa* Lam.) from E Turkey, Transcaucasus and Iran, — it is clearly different from *N. racemosa* (though similar in overall facies) and apparently different from the E African species. A further plant collected by Botta in 1836 may also belong here, although I have not seen the specimen. It was cited by Bentham, together with two gatherings from Afghanistan, in the original description of the unrelated *N. rugosa* Benth. (DC., *Prodromus* 12: 385, 1848). This species is now known from a large number of gatherings in Afghanistan; its presence in SW Arabia would be surprising. There are a few *Nepeta* species in the montane/alpine regions of E Africa and it is to them that *N. deflersiana* is most clearly allied. Although relatively little material of them was available for comparison, *N. azurea* appears to be closest ally of *N. deflersiana*.

According to J. R. I. Wood, *N. deflersiana* grows on nearly all the higher mountains of N Yemen. It varies markedly in the density of indumentum on leaves, stems and calyces. The shape and dimensions of calyx tube and teeth are, however, relatively constant.

***Nepeta sheilae* Hedge & King, sp. nov.**

Differt *N. italicae* L. habitu graciliore, caulibus tenuibus ascendentibus, verticillastris valde separatis, bracteis et calycibus acuminato-subulatis, tubis calycum rectis, corollis valde curvatis.

Bases caulium floriferorum desunt sed planta verosimiliter perennis, valde aromatica. *Caules floriferi* tenues, ad basi c. 1.5 mm diametro, ascendentes, c. 25 cm longi, internodiis superioribus c. 5 cm longis, obtuse quadranguli, simplices vel inferne pauciramosi, omnino pilis eglandulosis numerosis patulis, pilis glandulosis minutissimis et glandulis sessilibus paucis praediti. *Folia* c. 12–24 × 9–20 mm, pallide griseo-viridia, ovata vel triangularia, basi cordata, apice acuta, margine ± regulariter crenata, prope basin latissima, utrinque ± dense villosa pilis glandulosis minutissimis et glandulis sessilibus numerosis; folia inferiora petiolo 8–18 mm longo, superiora sensim breviter (ad 2 mm) petiolata. *Verticillastri* 4–6, multiflores, omnes remoti (infima c. 7 cm distantia), ± globosi, floribus inclusis c. 15–20 mm diametro. *Bractee* numerosae, anguste lineari-lanceolatae, ad 7.5 × 1.5 mm, fascia mediana viridi, anguste scarioso-marginatae, extus glanduloso-villosae intus glabrae, margine ciliolatae, apicem versus sensim attentuato-subulatae. *Calyx* c. 8 mm longus, tubulosus, rectus, nervis tenuibus 15, in dentes 4 mm longos, subaequales lanceolatos acuminato-subulatos fissus, margine ciliolatae, pilis eglandulosis villosis et pilis glandulosis minutissimis et glandulis sessilibus provisus. *Corolla* alba, c. 11 mm, e calyce

exserta, extus eglanduloso-pilosa et pilis glandulosis minutissimis, intus glabra; tubus valde curvatus; labium superius in lobos duos ovatos fissum; labium inferius superiore longius, lobo mediano magno rotundato-reniformi, immaculato vel roseo-maculato, margine lobulato, faucem versus albidobarbato. *Stamina* quam labium superius breviora. *Nuculae* c.  $2.3 \times 1.2$  mm, atro-brunneae, oblongae, verruculosae apicem versus tuberculatae; areola lata, rotundato-biloba. *Fl.* 5.

SAUDI ARABIA. North Hijaz, Jabal Dibbagh, granite massif near Wadi Sawawin, shady crevice on NE slope, white flowers, aromatic, 1670 m, 4 v 1978, *Collenette* 721 (holo. K).

The closest ally of our new species is certainly *N. italica* L., but the Saudi plant can readily be separated by the ascending (not erect) slender stems, the widely distant verticillasters, the longer acuminate-subulate calyx teeth and bracts, and the strongly curved corollas.

*N. italica* has a distribution stretching from central Italy thence, with a major disjunction, to Turkey (where it is a very common and widespread species), Lebanon, Syria and N Iraq. Its southernmost limit is therefore about 5° latitude north of the new species. It is of more than passing interest to note that *N. sheilae* has no links with species on Sinai: Jabal Dibbagh being only about 200 km east of Mt Katherina. The only *Nepeta* on Sinai is *N. septemcrenata* Ehrenb. which is quite unrelated to the new species. It also has no affinities with the other catmints in the Arabian peninsula, *N. deflersiana* and *N. woodiana*.

The flora of the northwest of Saudi Arabia is still inadequately known and clearly much basic collecting remains to be done. Jabal Dibbagh is obviously a most interesting high mountain (c. 2350 m) and several other plants collected there by Mrs Collenette, such as *Ferula* sp., *Lallemantia royleana* (Benth.) Benth., *Phlomis* sp., *Stachys* aff. *aegyptiaca* (see below) and *Tulipa* sp. appear to be either new distributional records or else new taxa. Other species in the sparse vegetation near the *Nepeta* were *Juniperus* sp. and *Myrtus communis*.

Mrs Sheila Collenette has made many interesting collections in Saudi Arabia and it is a pleasure to name this distinct new species after her.

***Nepeta woodiana* Hedge, sp. nov. Fig. 2.**

Affinis *N. deflersianae* [Schweinf. ex] Hedge sed calycibus et corollis maioribus, verticillastris multifloribus, corollis albidis, foliis concoloribus bene differt.

Perennis basi lignescens. *Caules* floriferi numerosi, 40–50 cm alti, erecti vel ascendentes,  $\pm$  dense foliati, simplices vel pauciramiosi, internodiis mediis c. 15–20 mm longis, omnino pilis eglandulosis patulis et pilis glandulosis numerosis brevibus et longis dense obsiti. *Folia media* c.  $30\text{--}35 \times 11\text{--}13$  mm, atroviridia, ovato-oblonga, apice acuta, basi cordata, plerumque prope basin latissima, nervis subtus prominentibus dense reticulatis supra inconspicuis, utrinque pilis brevibus glandulosis dense obiecta subtus glandulis sessilibus numerosis immixtis; folia breviter petiolata vel subsessilia. *Folia superiora* decrescentia. *Verticillastri* 8–10, multiflori (ad. c. 40), infima remoti, superiora approximati, floribus inclusis 25–35 mm diametro. *Bractee* herbaceae, numerosae, dense glandulosae, anguste lineari-lanceolatae,  $\pm \frac{3}{4}$  calycis longitudinis aequantes. *Calyx* c. 6 mm longus, anguste tubulosus, nervis tenuibus 15 viridibus, curvatus, superne ampliatus, ore obliquus, ad tertiam partem in dentes angustos, lanceolatos inaequales fissus, pilis glandulosis

RHK

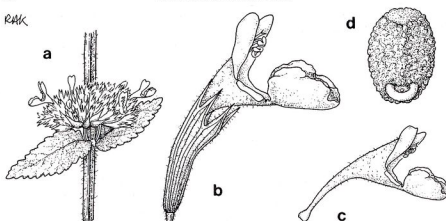


FIG. 2. *Nepeta woodiana* Hedge: a, verticillaster,  $\times 1$ ; b, calyx and corolla,  $\times 6$ ; c, corolla showing narrow tube,  $\times 4$ ; d, nutlet,  $\times 15$ .

numerosis et glandulis sessilibus dense provisos. *Corolla* in vivo albida, c. 11–12 mm longa e calyce exserta, extus glandulosa tubo tenui valde curvato; labium superius c. 3 mm in lobos duos late ovatos fissum; labium inferius superiore longius, deflexum, lobo mediano magno rotundato-reniformi albido-barbulato. *Stamina* quam labium superius breviora. *Nuculae* brunneae, 1.5  $\times$  1 mm, verruculosae; areola lata, rotundato-biloba. *Fl.* 6–9.

YEMEN ARAB REPUBLIC. Jabal Manar, Ibb region, fairly frequent at c. 2900 m, fl. white, much branched, 22 vi 1979, *J. R. I. Wood* 2875 (hpl. E; iso. BM,K); W side of Jabal Manar, c. 2500–2900 m, 27 ix 1976, *J. R. I. Wood* 1314 (E).

Although this new species is related in the diagnosis to the other *Nepeta* from the Yemen, *N. deflersiana*, there is no doubt that it is very distinct from it. Likewise, although relatively little E African material has been available for study, none of the species from there seems to be closely related. The main features that seem to set it apart from all the other *Nepetas* of the area (where, relative to the more northern parts of SW Asia, the genus is very poorly represented) are the white flowers, the overall glandular indumentum, subsessile leaves, numerous-flowered verticillasters and the very prominent middle lobe of the lower corolla lip.

The specific epithet is in honour of John Ironside Wood whose collecting and botanical activities in Yemen have contributed so much to our knowledge of its rich and interesting flora.

***Plectranthus rugosus*** [Wall. ex] Benth. in Wall., *Pl. As. Rar.* 2: 17 (1831).

Syn.: *Isodon rugosus* (Wall.) Codd; *Rabdosia rugosa* (Benth.) Hara.

SULTANATE OF OMAN. (Jabal Akhdar) Masjid Ma'illah, 1900 m, 4 x 1978, *Whitcombe* 390 (E).

Although differences of opinion exist as to its correct generic placing, there is no doubt that *P. rugosus* is a clear-cut species; it is a shrub with markedly discolorous leaves, a dendroid indumentum and a loose inflorescence of pedunculate dichotomous cymes with small white flowers. The main interest of its recent discovery in Oman is that its nearest station lies about 1000 km away in Pakistan (Quetta). The total range of the species is SW China, SE Tibet, Bhutan,

Nepal, N India along the Himalayan ranges to E Afghanistan and Pakistan, thence, with a major disjunction, to Oman. Some other Himalayan links with the woody flora of the upper zones of the Jabal Akhdar massif are provided by species of *Olea* and *Monothea* (*Reptonia*).

*Salvia areysiana* Deflers in Bull. Soc. Bot. France 43: 229 (1896).

P.D.R.Y. (SOUTH YEMEN). Bilad Fodhil, ad fauces australes montis el-Areys, prope Serrya, 27 iv 1893, *Deflers* 1041 (holo. P).

In the original description of this distinctive species, Deflers did not suggest an ally for it, merely indicating that it was in '*Eusphace*' — a large, heterogeneous and largely artificial grouping within *Salvia*. The type specimen has very few flowers and it was only possible to dissect one of them. This re-investigation revealed that it is not quite such an isolated species as previously thought. The relevant characters of stems, calyx, corolla, stamens and nutlets are listed below. *Calyx*: tubular-campanulate, c. 7.5 mm enlarging in fruit to c. 9 mm; indumentum of many long capitate glandular hairs mainly on veins, and many shorter capitate glandular hairs elsewhere; margin of calyx with numerous villous eglandular hairs within.

*Corolla*: c. 16 mm long with a very straight c. 13 mm tube and an incomplete annulus c. 6.5 mm from base.

*Stamens*: lower thecae fertile; staminodes long, fine.

*Nutlets*: c.  $2.8 \times 1.2$  mm, black, matt-textured, oblong-trigonus, mucilaginous on wetting.

The most significant of these features are those of calyx and nutlets. The shape and indumentum of the calyx is quite similar to *S. aegyptiaca* L. and the colour, texture, and shape of the nutlets, unusual in the genus, certainly suggest some affinity with the *S. aegyptiaca*-*S. santolinifolia* Boiss. species-group (sect. *Eremosphace* Bge.). There are no reasons to associate it with *Eusphace*.

More material of *S. areysiana* is certainly required, but the present evidence points towards it, together with the newly described *S. hillcoatiae*, being a new member of the very clear-cut species-group of desertic sub-shrubs which ranges across the deserts of N Africa (and the Canary Is) to Arabia, Iran and Sind.

*Salvia hillcoatiae* Hedge, sp. nov. Fig. 3.

Species haec affinis *S. aegyptiaca* L. et *S. santolinifolia* Boiss. habitu, corollae longitudine sed bene differt: pilis brevissimis dendroideis, foliis crassiusculis, verticillastris regulariter 2-floris.

Fruticulus c. 15 cm alti ramis tenuibus obtuse quadrangulis, erecto-patentibus, floriferis anni praecedentis persistentibus; basi valde lignosus, radicibus ad 2 cm crassis. *Caules* ramosissimi, paucifoliati, indumento e pilis dendroideis brevissimis numerosis et glandulis sessilibus paucis vel numerosis obsiti. *Folia* late ovata vel  $\pm$  elliptica,  $6-8 \times 3-6$  mm, crassiuscula, rugosa, margine integra vel ut videtur crenulata, basi angustata, erecto-patentia, utrinque pilis dendroideis et glandulis sessilibus  $\pm$  dense appresse incano-velutina; nervatura indistincta; petiolus absens vel ad 3 mm. *Inflorescentia* ut videtur pauciflora; verticillastri 2-flori, approximati vel remotiuscula. *Bractaeae* c.  $3 \times 1$  mm, lineares vel ovatae, caducae, pilis longis albidis simplicibus et dendroideis dense provisae; bracteolae evolutae?. *Pedicelli* fructifer c. 2 mm,  $\pm$  erecti. *Calyx* campanulatus, 3.5-5 mm longus; indumentum densiusculum e pilis longis



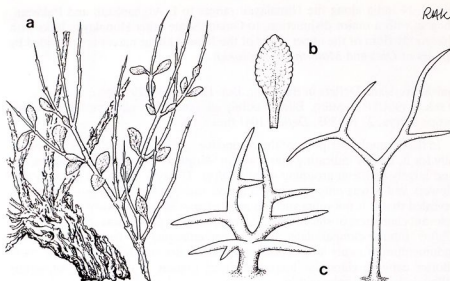


FIG. 3. *Salvia hillcoatiae* Hedge: a, inflorescence shoot and part of woody rootstock,  $\times \frac{2}{3}$ ; b, leaf,  $\times 2$ ; c, dendroid hairs — left-hand from leaf,  $\times 400$ , right-hand from bract,  $\times 150$ .

albidis eglandulosis simplicibus vel ramosis interdum pilis brevioribus capitato-glandulosis et glandulis sessilibus immixtis; labio superiore breviter mucronulato. *Corolla* 5–8 mm, e collectore lavandulacea ('blue'); tubus breviter vel vix exsertus,  $\pm$  rectus superne vix ampliatus, intus c. 5–6 mm a basi subannulatus; labium superius  $\pm$  porrectum manifeste emarginatum, extus  $\pm$  dense pilosum. *Thecae inferiores* fertiles. *Nuculae* ignotae.

SULTANATE OF OMAN. Dhofar, Wadi Shibun, 'Ramaida', 11 ii 1947, *Thesiger s.n.* (holo. BM); Dhofar, Jabal Samhan, desert zone, frequent, flowers blue, 11 x 1943, *D. Vesey-Fitzgerald* 12562 (BM, E).

Although the new species is in the general alliance (sect. *Eremosphace* Bge.) that contains *S. aegyptiaca* L., *S. santolinifolia* Boiss. and several other related taxa, it is clearly distinct from all of them on account of the remarkable overall indumentum of very fine dendroid hairs, the few-leaved stems, the shape and texture of the leaves, and the calyx indumentum. It seems probable that there are further differences in the calyx and corolla, but unfortunately there are very few flowers on the cited specimens and most of them give the impression of being cleistogamous or atypical. Further material, including fruiting calyces, is certainly needed to amplify the description given here.

The specific name is in honour of Miss Dorothy Hillcoat who during many years at the British Museum (Natural History) acquired an unrivalled overall knowledge of the plants of the Arabian peninsula. I am grateful to her for drawing my attention to this remarkable plant.

***Salvia mirzayanii*** Rech. f. & Esfandiari in Oest. Bot. Zeit. 99: 53 (1952).

SULTANATE OF OMAN. Musandam, Jabal al-Harim, 25°58'N 56°14'E, rocky summit and upper slopes, 1830 m, 27 ii 1979, *Mandaville* 7318 (BM).

Until the collection of the specimen cited above, *S. mirzayanii* was only known from S Iran in the provinces of Bandar-Abbas, Fars, Kerman and Baluchistan. It



is a very distinct species characterized by a shrubby habit, linear to linear-lanceolate leaves lanate to pannose beneath, large bracts and narrowly tubular violet-blue corollas. Although only limited material is available from the new station, there are no apparent differences between the Oman and the Iran plants.

***Stachys yemenensis* Hedge, sp. nov., sect. *Ambleia* Benth. Fig. 4.**

Affinis *S. bizense* Baker sed foliis tenuioribus, verticillastris 6–8(–12)-floris (non 2–4), calycibus minoribus (5–8 v. 10 mm) valde differt.

Suffrutex, multicaulis, appresse albido-tomentosus. *Caules* 30–50 cm, validi, plures, erecti vel arcuato-ascendentes dense foliati, pilis stellato-dendroideis brevibus appressis numerosis et glandulis sessilibus paucis obiecti. *Folia inferiora* 1.5–4.1 × 0.4–0.6 cm, lineari-oblonga, integerrima, apice obtusa vel ± acuta, bicoloria, supra viridia, pilis stellato-dendroideis pilosa, subtus dense brevissime appresse stellato-tomentella; nervatura supra valde impressa, subtus ± valde prominens; folia superiora parce decrescentia in folia floralia transeuntia. *Pedicelli* subnulli ad 1–3 mm longi. *Verticillastri* pauci vel numerosi, 6–8(–12)-flori, remoti vel approximati. *Bractee* subulatae inconspicuae pedicello vix longiores. *Calyx* florifer 5–8 mm fructifer vix auctus ad 9 mm longus, tubuloso-campanulatus, dense appressissime stellato-dendroideo-tomentosus, albidus, nervis indistinctis; dentes subaequales c. 2.5 mm, acuminato-mucronulatae, erecti. *Corolla* rosea, malvina vel violacea, interdum atro-maculata, 7–10 mm longa, extus dendroideo-tomentella; tubus c. 5 mm leviter curvatus, dense annulatus c. 2 mm e basi, fauce pilis glandulosis et pilis eglandulosis simplicibus provisus; labium superius bifidus; labium inferius lobo mediano late rotundato lobis lateralibus brevibus. *Filamenta* inclusa, pilosa. *Nuculae* oblongo-ovatae, c. 2 × 1.7 mm, rotundato-trigoniae, laeves. *Fl.* 1–3, 6, 9–10.

YEMEN ARAB REPUBLIC. Jiblah, slopes S of town, amongst rocks, fls pale mauve, c. 2000 m, 17 x 1978, *Miller* 549 (holo. E); E of Suq al Khamis, 2650 m, *Lavranos & Newton*, L. 13060 (E); Suq al Khamis, *Deflers* 580 (n.v.); Sana'a to Hodeidah, Haina area, 2130 m, *Ritchie* 93 (E); Yarim to Irian, 2600 m, *J. R. I. Wood* 1339 (E, K). Dobson Falls, 40 km W of Sana'a, 3 vi 1977, *Chaudhary* (E); Wadi Bana, Qal haqul, 14°11' N 44°21' E, 2500 m, *D. Wood*, Y. 1283 (E); Khutan, 15°44' N 43°43' E, 2300 m, *D. Wood*, Y. 1098A (E); Akahila, Turba, 2100 m, *J. R. I. Wood* 2597 (E); top of pass on Medinat al Abid road, 2500 m, *Radcliffe-Smith & Henchie*, R. S. 5026 (K, E); Sumara pass, 3100 m, *Miller* 460 (E); Jabal Nugum, Sana'a, *Deflers* 482 (n.v.).

The new species belongs to the distinctive sect. *Ambleia* (cf. Bhattacharjee in *Notes RBG Edinb.* 38: 94–95, 1980) which has a very wide range stretching from C Asia (Turcomania), SW Asia, Arabia, E Africa thence with a break to southern Africa. All the species have a dendroid-stellate-tomentose indumentum and are suffruticose in habit. The closest relative of *S. yemenensis* is the Eritrean *S. bizensis* [Schweinf. ex] Baker and, although it appears to be known only from the type, the differences between them, despite their apparently quantitative nature, are sufficient to warrant specific separation. A further character that distinguishes them is provided by the hairs: those of the Yemen plant being appreciably finer and smaller than those of the African species. This gives the impression of a coarser textured leaf in the Ethiopian plant. Although it is geographically far distant from the Yemen species, the N Iranian *S. laxa* Boiss. & Buhse has considerable overall similarity to *S. yemenensis*. Both share similar



FIG. 4. *Stachys yemenensis* Hedge: a, habit,  $\times 0.5$ ; b, calyx,  $\times 3$ ; c, corolla,  $\times 3$ ; d, nutlet,  $\times 6$ ; e, dendroid hairs,  $\times 120$ .

habit, markedly discolorous leaves, the same type of indumentum, and comparable floral measurements. It is of interest in this respect to note that the closest ally of *S. laxa* is another Iranian species, *S. turcomanica* Trautv., which differs from it in the coarser habit, a greyer indumentum, somewhat larger calyces and a more eastern distribution. That is, the differences between the Yemen and the E African species are of a comparable nature to those of the Iranian species-pair. The section as a whole, not a very large one, would certainly repay an overall investigation of its interesting vicarious distribution patterns and species-groups throughout its range.

The name '*Stachys bizensis* Schweinf. n. sp. ined.' first appears in a paper by O. Penzig on Eritrean plants in *Atti Congr. Bot. Genova* 1892: 356 (1893); there is no description, only the locality 'Fra le rocce vicine alla cima del Monta Sabber'. The first valid publication and description of the species is by Baker in *Fl. Trop. Africa* (ed. Thiselton-Dyer) 5: 468 (1900); the sole specimen cited is 'Abyssinia, Eritrea, sommet du Mont Bizen, 2480 m, 10 v 1892, Schweinfurth & Riva 1847' (K).

Schwartz in *Flora des tropischen Arabien* (226, 1939) erroneously used the name *S. hypoleuca* Hochst. for the new Yemen species. *S. hypoleuca* [Hochst. ex] Rich. is a much longer-leaved plant, quite different in facies, and restricted, as far as is known, to Ethiopia.

The only other specimens of *Stachys* so far collected in the Arabian peninsula come from two widely separated areas of Saudi Arabia. The first is in the north-west, almost due east of the mouth of the gulf of Aqaba (e.g. Jabal Dibbagh, *Collenette* 497). The two gatherings from here are of a twiggy plant with few and very small leaves. It may be an aberrant form of *S. aegyptiaca* Pers., but further specimens are needed. The second area, much further south, is near Mecca, Taif and Hadda. Plants from here have been named as *S. aegyptiaca*, but on the basis of the shorter broader calyces (c. 5.5–7.5 mm long versus 7–11 mm), and the  $\pm$  round, short, indistinctly triquetrous nutlets, they seem to be closer to the Ethiopian *S. schimperi* Vatke. But as with the specimens from further north, one can only give a provisional name till more material is at hand.