

REVISION OF SALVIA SECT. FARINACEAE (LAMIACEAE)

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ABSTRACT

A preliminary revision of the Mexican species of *Salvia* sect. *Farinaceae* is rendered. Fourteen species are recognized as occurring in the complex in this area, four of these new to science: *S. gypsophila* B.L. Turner from Nuevo Leon; *S. jacalana* B.L. Turner from Hidalgo; *S. richardsonii* B.L. Turner from Tamaulipas; and *S. zaragozana* B.L. Turner from Nuevo Leon. A key to the species is provided, along with photographs of the types concerned and maps showing the distribution of all of the included species.

KEY WORDS: *Salvia*, Lamiaceae, sect. *Farinaceae*, Mexico.

Preoccupation with the identification of species of *Salvia* native to Mexico has occasioned the following treatment of the sect. *Farinaceae* (sensu Epling 1939).

SALVIA SECT. FARINACEAE

Perennial herbs to 3 m high; leaves linear to obovate or sub-cordate; stems glabrous to variously pubescent; spikes terminal, interrupted or not, the flowers mostly arranged 2-6 at a node; floral bracts lanceolate to ovate, soon deciduous, rarely not; calyx two-lipped, the upper lip with 3 or 5-7 major veins, or the lips sometimes truncate, or nearly so; corollas blue, or with lines of white, the tube invaginate or not; upper lip shorter than lower; stamens arising from the corolla throat, not extruding from the lip; style pilose apically, the upper branch much longer than the lower.

As treated here, and by Epling (1939), sect. *Farinaceae* is a very heterogeneous assemblage. For example, the latter author keyed the section in three places within his key to Mexican and Central American sectional groupings, including in this species having 3-veined

as well as 5-veined upper calyx lobes, a character of major importance by his evaluation. In the account that follows, I have largely followed his arrangement, except that I would exclude from the section *S. amissa* Epling, *S. platycheila* A. Gray, and *S. similis* Brandeg., relating these to the closely related sect. *Tomentosae*. So treated, I recognize 14 species in the complex, 4 of these described as new.

KEY TO SPECIES

1. Upper lip of calyx 5-7 veined.....(9)
1. Upper lip of calyx 3-veined.....(2)
 2. Leaves not especially bicolored.....(4)
 2. Leaves markedly bicolored.....(3)
3. Pubescence of calyx appressed; mid-stem leaves with petioles 10 mm long or less; Gue.....**S. jacobii**
3. Pubescence of calyx spreading; mid-stem leaves with petioles 11 mm long or more; Nue.....**S. gypsophila**
 4. Petioles of mid-stem leaves mostly 2-5 cm long; Coa.....
.....**S. pseudopallida**
 4. Petioles of mid-stem leaves mostly 1-2 cm long.....(5)
5. Corolla tube clearly 2-lipped (8)
5. Corolla tube more or less truncate, weakly 2-lipped (7)
 7. Corolla tube ca 5 mm long; Coa, Sierra Paila.....**S. lanicalyx**
 7. Corolla tubes 6-9 mm long; widespread.....**S. farinosa**
- 8(5). Leaves linear-lanceolate, widest at or near the middle; Tam.....
.....**S. richardsonii**
8. Leaves lanceolate, widest well below the middle; Nue.....
.....**S. zaragozana**
- 9(1). Mid-stem leaves mostly 6-30 mm wide.....(11)
9. Mid-stem leaves mostly 1-3(4) mm wide...(10)
10. Stems glandular-pubescent; Jal.....**S. heterotricha**

10. Stems not glandular-pubescent; widespread.....**S. reptans**
11. Blades of leaf lanceolate, markedly rugose on both surfaces;
Mic.....**S. nigriflora**
11. Blades of leaf otherwise.....(12)
12. Herbs 40 cm high or more; blades lanceolate to oblanceolate,
4-5 times as long as wide.....(14)
12. Herbs to 30 cm high; blades ovate to oval, 1-3 times as long as
wide; Cps.....(13)
13. Blades of leaf ovate to oval, 1-2 times as long as wide.....
.....**S. duripes**
13. Blades of leaf lanceolate, 2-3 times as long as wide.....
.....**S. oblongifolia**
14. Leaves glabrous beneath or nearly so; Nue, Tam, Dur.....
.....**S. jaimehintoniana**
14. Leaves pubescent beneath, especially along the veins; Hid.....
.....**S. jacalana**

SALVIA DURIPES Epling & Mathias, Brittonia 8: 309. 1957. **Map 1**

Cps, pine forests, near Monte Cristo and Margaritas, 1500-1600 m; Jun.

Perennial herbs 10-30 cm high, the stems pilose with hairs 1-2 mm long; leaves thin, remotely serrate, the blades mostly 1-2 times as long as wide, widest near the middle.

Salvia duripes is known to me only by the two collections cited by Epling and Mathias in their original description. It appears to be a well-marked taxon, what with its small habit and thin broad leaves.

SALVIA FARINACEA Benth., Lab. Gen. et Sp. 274. 1833. **Map 2**

Salvia earlei Woot. & Standl.

Salvia trichostyla Bisch.

Nue and southwestern U.S. (N. Mex. and Tex), shrubby areas, oak-pine woodlands and grasslands in mostly calcareous soils, 1400-2100 m; Apr-Sep.

Relatively simple-stemmed perennial herbs to 1 m high, the calyces usually bluish and densely farinose.

Mexican material belongs to the typical var. **farinacea**; var. *latifolia* Shinnery, having broader, usually dentate, leaves occurs in sandy soils of southeastern Texas.

SALVIA GYPSOPHILA B.L. Turner, **sp. nov.** **Fig. 1, Map 3**

Salviae rubropunctatae B. Rob. & Fernald similis sed differt labio supero calycis 3-venoso (vs. 5-7-venoso) et tubo corollae trichomatibus non ramosis (vs. ramosis).

Stiffly erect perennial herbs 40-100 cm high. **Stems** minutely white-pubescent. **Leaves** at mid-stem broadly lanceolate, more or less rugose above, 5-9 cm long, 2.5-3.0 cm wide; petioles 1.5-3.5 cm long; margins crenulate. **Spikes** terminal, 4-20 cm long, 2.0-2.5 cm wide (the corollas excluded). **Floral bracts** broadly ovate, apiculate, soon deciduous. **Calyx** 2-lipped, the lips 2-3 mm long; upper lip 3-veined, the tube pubescent with unbranched trichomes. **Corollas** "blue" or "bluish-purple"; tubes 8-10 mm long, the upper lip 4-5 mm long, lower lip 8-10 mm long. **Stamens** attached near the throat, mostly included within the lip. **Style** pilose, the upper branch 2-3 times as long as the lower. **Nutlets** ovoid, mottled brown-grey, glabrous, ca 2 mm long, 1.3 mm wide.

TYPE: MEXICO. NUEVO LEON: Mpio. Aramberri, "On exposed gypsum hills...about 7 miles north of La Escondida, 24 Sep 1973, *J.L. Reveal & N.D. Atwood 3421* (holotype: TEX).

ADDITIONAL SPECIMENS EXAMINED: MEXICO. NUEVO LEON: Mpio. Aramberri: Las Norias, 1975 m, 26 Oct 1978, *Hinton et al. 17470* (TEX); La Escondida, 1775 m, 3 Aug 2003, *Hinton et al. 23136* (TEX); near San Rafael, 17 Aug 1989, *Peterson 1376* (TEX).

Most previous workers have misidentified *S. gypsophila* as *S. rubropunctata*; the latter is a species of northwestern Mexico belonging

to the sect. *Tomentella*, having a very different calyx with branched hairs, the upper lip 5-7 veined.

SALVIA HETEROTRICHA Fernald, Proc. Amer. Acad. Arts 35: 500. 1900.

Map 2

Salvia heterotricha var. *multinervia* Fernald

Nay and southwestern Jal, dry gravelly or sandy soils in oak woodlands, ca 5500 ft; Jul-Aug.

Perennial herbs to 50 cm high, the leaves linear; best recognized by its glandular-pubescent stems and calyces. The type of var. *multinervia* is from near Tepec, Nayarit, having more venose leaves, this taxon not recognized by subsequent workers.

SALVIA JACOBII Epling, Bull. Torrey Bot. Club 67: 522. 1940.

Map 2

Known only from western Gue (Mina Distr.) in pine-oak forests, 2500-3100 m; Nov-Mar.

Reportedly perennial herbs or sub-shrubs 1-2 m high; among related species, readily recognized by its bicolored, relatively rugose, lanceolate leaves.

The species is named for James Hinton, who first collected the species. Jacob is Latin for James; Epling was an expert in Latin and preferred the translation concerned.

SALVIA JACALANA B.L. Turner, **sp. nov.** **Fig. 2, Map 4**

Salviae jaimehintonianae Ramamoorthy similis sed differt caulibus dense albopubescentibus trichomatibus patentibus (vs glabris vel paene glabris) et foliis pubescentibus subter secus venas (vs glabris).

Perennial **rhizomatous herbs** to 80 cm high. **Stems** moderately to densely pubescent with stiffly spreading white hairs, the vestiture ca

0.6-0.7 mm high. **Leaves** at mid-stem lanceolate to oblanceolate, 7-8 cm long, 1.0-1.5 cm wide, pinnately venose, the veins of lower surfaces pubescent like the stems; petioles 2-8 mm long, grading into the blades. **Spikes** ca 30 cm long, much-interrupted below, less so above, flowers 6 or more to a node. **Floral bracts** linear-lanceolate, 10-11 mm long, 2-3 mm wide, soon deciduous. **Calyces** ca 7 mm long, 2-lipped, the upper lip ca 1.5 mm long, 5-7 veined. **Corollas** blue, 14-15 mm long; tube ca 6 mm long; upper lip ca 4 mm long; lower lip reflexed, 8-10 mm long. **Stamens** not excurrent, the anthers purple. **Style** pilose apically, the dorsal branch 3 times longer or more than the ventral branch. Mature **nutlets** absent.

TYPE: **MEXICO. HIDALGO: Mpio. Jacala**, "6.5 air km E-NE of Jacala, between Cuesta Colorado and El Pinalito on Mex 85. At a sharp bend in road. Limestone boulders covered with cacti and many ferns in woodland of pine and oak." 1700 m, 13 Jul 1991. *M Mayfield, A. Hemple & A. Jack* 820 (holotype: TEX).

ADDITIONAL SPECIMEN EXAMINED: **MEXICO. HIDALGO: Mpio. Jacala**, along highway 85, immediately N of La Zorra, 7.1 mi NE of Jacala, 1720 m, 21 Aug 1981, *Peterson 650* (TEX).

Salvia jacalana, named for the municipio in which collected, is clearly closely related to *S. jaimehintoniana*, and was placed under the fabric of that species in my original description. I did, however, call attention to its unique vestiture, and I feel that this, and its isolation from the body mass of the species, warrants its specific status as proposed herein. After the foregoing was written, I chanced upon an additional collection (*Peterson 650*, cited above) that was annotated by Jay B. Walker of WIS as "*Salvia tarayensis* K. M. Patterson," presumably an unpublished name coined by Ms. Peterson; I prefer my name to hers, the origin of which I am ignorant. According to label data on her collection, the taxon was "plentiful" at the site concerned.

SALVIA JAIMEHINTONIANA Ramamoorthy ex B.L. Turner,
Phytologia 79: 97. 1995. **Map 2**
Salvia azurea subsp. *mexicana* Epling

Dur, Nue and Tam, pine-oak forests and oak woodlands, 1700-2800 m; May-Aug.

In my original description of this taxon, I called attention to its relationship to *S. azurea*, as also noted by Epling (1940), a species confined to the U.S.A. In the present paper, I have elevated the single collection from Hidalgo to the status of species (*S. jacalana*, cf. above). I have retained the isolated Durango specimen called to the fore in my original treatment as belonging to *S. jaimehintoniana*, but this too might ultimately prove to be worthy of formal recognition, considering its geographic isolation.

SALVIA LANICALYX Epling, Repert. Spec. Nov. Regni Veg. Beih. 110: 190. 1939. **MAP 1**

Coa, Sierra de Paila, calcareous soils in pine-oak woodlands, 1300-1600m; Oct.

Simple-stemmed perennial herbs to 1 m high; calyces small, weakly 2-lipped and densely grey-lavender pubescent, the corollas quite short, having tubes ca 4.5 mm long, the upper lip ca 3 mm long.

According to its author, the species resembles *S. farinacea* but has smaller flowers and a distinctive pubescence. It seems confined to the Sierra de Paila, site of numerous local endemics.

SALVIA NIGRIFLORA Epling, Bull. Torrey Bot. Club 67: 529. 1940. **Map 1**

Mic, Coalcoman Distr. in pine-oak or oak forests, 1300-2400 m; Jul-Oct.

Perennial herbs to 1 m high, readily recognized by its strongly corrugated leaves and relatively large deep blue corollas.

SALVIA OBLONGIFOLIA Mart. & Gal., Bull. Acad. Brux. 11: 279. 1844. **Map 1**

Oax and Cps, pine-oak forests, 2100-2500 m; Jul-Oct.

A poorly collected taxon; known to me only by reports in the literature and phototypes. It appears to be a perennial herb with ovate leaves, the flowers borne upon elongate much-interrupted spikes.

SALVIA PSEUDOPALLIDA Epling, Bull. Torrey Bot. Club 67: 522. 1940. **Map 3**

Central and northern Coa, oak woodlands and gullies, 1400-2100 m; Jul-Sep.

Stiffly erect, simple-stemmed, rhizomatous perennials to 1 m high, the leaf blades broadly ovate and borne upon elongate petioles, the flowers dark blue, and relatively large (the tubes 10-12 mm long).

Known to Epling only by the type, several additional collections of this distinct species have come to the fore, all of these from the Serranias del Burro, in Mpio. Villa Acuna of northern Coahuila (LL, TEX).

SALVIA REPTANS Jacq., Hort. Schoenbr. 3, 38. 1798. **Map 4**

Salvia angustifolia Cav. 1797; non *S. angustifolia* Salisb. 1796

Salvia angustifolia var. *glabra* A. Gray

Salvia leptophylla Benth.

Salvia leptophylla var. *glabra* (A. Gray) Epling

Salvia linearis Sesse & Moc.

Salvia linifolia Mart. & Gal.

Salvia virgata Ort.

Chi, Coa, San, Agu, Zac, Gua, Que, Hid, Jal, Mic, Mex, Pue, Oax, Cps and Guatemala, plains and pine-oak woodlands, 500-2000 m; Jun-Sep.

As suggested by the above synonymy, *S. reptans* is a widespread variable species. Epling (1939) accepted the name *S. leptophylla* for this taxon, not having seen the type of the earlier *S. reptans*, this omission corrected by Ramamoorthy (2001) and others. Epling discussed in some detail regional variation in this complex, noting that in northern Mexico and the southwestern U.S. populations are glabrous with longer leaves than is characteristic of the populations in central Mexico. Indeed, he recognized the more northern populations as var. *glabra*, as did Asa Gray before him. The complex

is in need of critical study both in the herbarium and in the field. My superficial examination of collections at LL.TEX, suggest that at least 3 or more infraspecific taxa might be warranted: a northern var. *glabra*, and a more southern Chiapasan complex, the latter surprisingly similar to the more northern populations. Central Mexico is largely occupied by the typical var. *reptans*, the latter perhaps including yet other cryptic taxa, some of these alluded to by Epling (1940).

SALVIA RICHARDSONII B.L. Turner, sp. nov. **Fig. 3, Map 3**

Salviae zaragozanae B.L. Turner similis sed foliis midcaulinis longioribus (9-12 cm longis vs 6-8 cm) laminis lineari-lanceolatis (vs ovatis) latissimis ad vel prope medium et bracteis floralibus longioribus plus minusve persistentibus (vs deciduis).

Rhizomatous perennial herbs 0.5-1.2 m high. **Mid-stems** minutely appressed-pubescent to glabrate. **Leaves** at mid-stem mostly 9-12 cm long, 1.5-2.5 cm wide; petioles 1-2 cm long, grading into the blades, the latter linear-lanceolate, widest at or near the middle. **Peduncles** 6-8 cm long. **Spikes** 6-12 cm long, ca 2 cm wide. **Floral bracts** lanceolate to ovate-lanceolate, more or less persistent, 1.5-2.0 cm long, ciliate with multiseptate trichomes 1-2 mm long. **Calyx** 8-9 mm long, pilose with multiseptate, white to lavender, trichomes 1-2 mm long, 2-lipped, the upper lip 3-veined. **Corolla** "blue," 9-10 mm long; tube 6-7 mm long; upper lip 3-4 mm long; lower lip 4-5 mm long. **Anthers** attached near the throat, not excurrent. **Style** pilose, the upper branch 2-3 times as long as the lower. **Nutlet** ovoid, glabrous, tan, ca 2.5 mm long, 1.5 mm wide.

TYPE: MEXICO. TAMAULIPAS: Mpio. Gomez Farias, Rancho Del Cielo, "Between La Perra and Indian Springs," 26 Nov 1968, Alfred Richardson 1050 (holotype: TEX).

ADDITIONAL SPECIMENS EXAMINED: MEXICO.

TAMAULIPAS: Mpio. Gomez Farias: Rancho Del Cielo, "Between Julilo and La Perra," 29 Aug 1968, Richardson 849 (TEX); Rancho Del Cielo, "Above Olla de Nubes," 26 Nov 1968, Richardson 1046 (TEX).

Salvia richardsonii is known only from cloud forests at ca 6800 ft in the well-studied Rancho Del Cielo of Tamaulipas (Johnston et al. 1989). It is clearly related to its closest cohorts *S. gypsophila* and *S. zaragozana* of southern Nuevo Leon. The distribution of these several taxa is shown in Map 1.

The species name was first proposed, but never published, by my colleague, Dr. Ramamoorthy. Richardson is an academic son of mine, having obtained his Ph.D. under my direction working on the genus *Tequilialia* (Boraginaceae). He lives in southernmost Texas and is the author of "Plants of Southernmost Texas" (1990, Gorgas Science Foundation), "Plants of the Rio Grande Delta" (1990, Univ. of Texas Press), and "Wildflowers and Other Plants of Texas Beaches and Islands" (2002, Univ. of Texas Press).

SALVIA ZARAGOZANA B.L. Turner, **sp. nov.** Fig. 4, Map. 3

Salviae gypsophila B.L. Turner similis sed differt foliis subter appressi-pilosis (non gossypinis) venatione perspicue visibili et calycibus aliquantum majoribus non dense floccosis.

Perennial herbs 0.6-1.2 m high, forming small colonies, presumably by rhizomes. **Stems** pubescent with recurved white hairs. **Leaves** ovate, 3-8 cm long, 1.5-2.5 cm wide; petioles 2-10 mm long; blades moderately appressed-pilose above and below, the margins crenulate. **Peduncles** 6-8 cm long. **Spikes** interrupted below, 15-30 cm long, ca 3 cm wide, bearing 8 or more florets at a node, the pedicels 3-10 mm long. **Floral bracts** broadly ovate-lanceolate, 10-15 mm long, soon deciduous. **Calyx** 8-10 mm long, pubescent throughout with multiseptate purplish trichomes 1-2 mm long; lips 3-4 mm long, the upper lip seemingly 3-veined. **Corollas** 16-18 mm long, "purple" or "purplish-blue;" tube ca 12 mm long; upper lip 5-6 mm long; lower lip 6-8 mm long. **Stamens** attached near the corolla throat; anthers purple. **Style branches** pilose; stigmas purple, the lower branch ca 1.5 mm long, the upper branch twice as long and variously curved or sigmoid. **Nutlets** ovoid, ca 2 mm long, 1.5 mm wide, variously mottled or not.

TYPE: **MEXICO. NUEVO LEON: Mpio. Zaragoza**, Cerro El Viejo, pine-oak woodlands, 2375 m, 5 Oct 1992, *Hinton et al.* 22382 (holotype TEX).

ADDITIONAL SPECIMENS EXAMINED: **MEXICO. NUEVO LEON: Mpio. Zaragoza**, same locality as type, 2025 m, 16 Oct 1992, *Hinton et al.* 22529 (TEX); 1830 m, 16 Oct 1992, *Hinton et al.* 22589 (TEX).

Salvia zaragozana is clearly closely related to *S. gypsophila*, described herein. I take the latter to be a localized edaphic endemic readily recognized by its strongly bicolored leaves and densely lanose calyx. Field work might ultimately show that the two are but varieties, but this is not suggested by the material at hand.

According to label data, *S. zaragozana* occurs as "small colonies" in pine-oak woodlands on Cerro El Viejo from 1830-2375 m; *S. gypsophila* occurs at lower elevations in oak woodlands. The taxon is named for the municipality to which it seems confined.

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