

Sobralia sanctorum and Sobralia purpurella

Two Elusive Lost Species are Found/By Robert Dressler and Diego Bogarin

WHEN DRESSLER PUBLISHED ON *Sobralia* species with tubular bracts in 2007, it was quite clear that something was missing. Species such as *Sobralia crispissima* Dressler, *Sobralia sororcula* Dressler and the true *Sobralia lindleyana* Rchb.f. (or the “*Sob. lindleyana* complex”) all have tubular bracts and a distinctive column shape. That is, the columns are slender basally and then quite thick, while the “arms,” or column appendages, are usually relatively long and slender. Further, each of these species has a prominent patch of hairs on the lip. Although most other *Sobralia* species have a slender callus at each side of the base of the lip, the members of the *Sob. lindleyana* complex each have a single, thick median callus at the base of the lip; however, the other species treated by Dressler in 2007 do not have hairs on the lip, and their columns are quite different in shape. It is clear that the tubular bracts then stressed by Dressler evolved independently in two or more different groups.



Robert Dressler

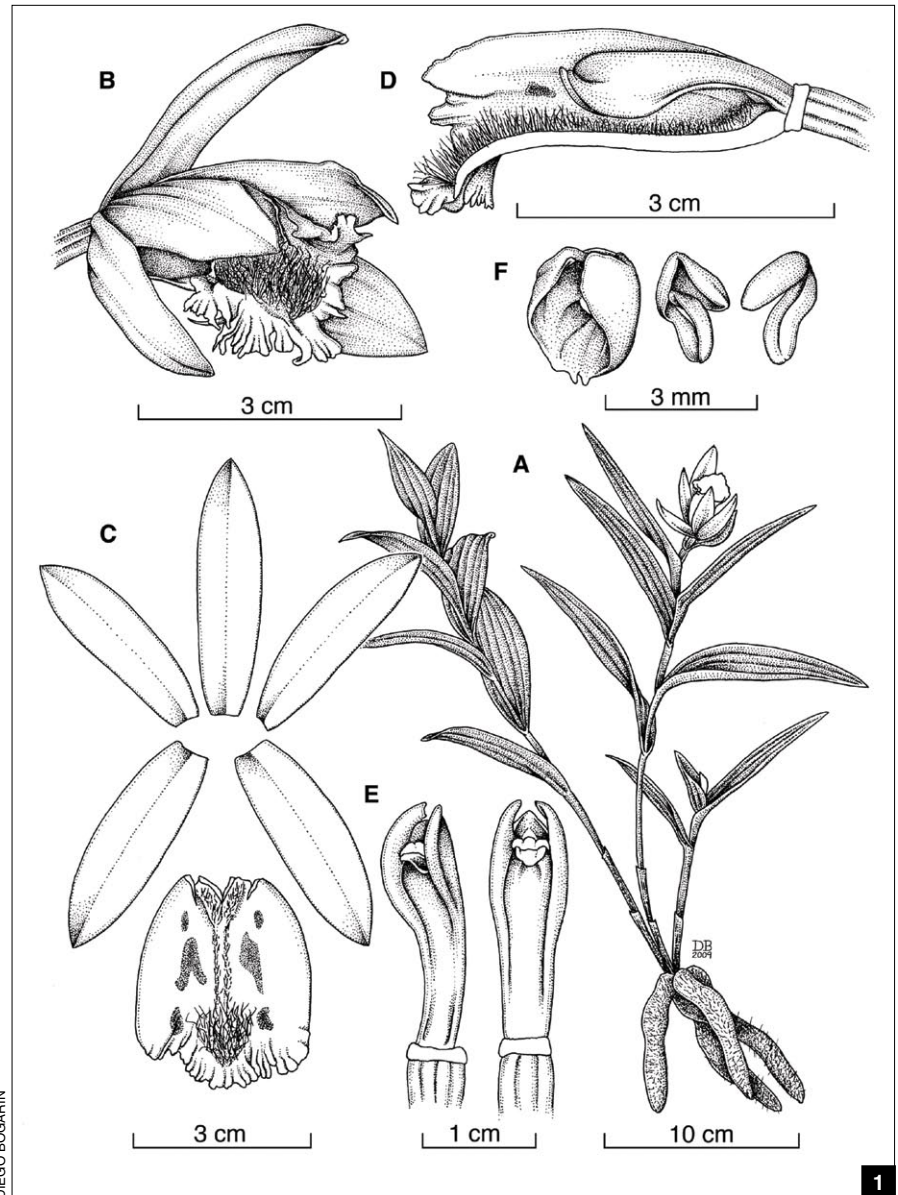


Diego Bogarin

Sobralia lindleyana and *Sobralia crispissima* have been confused for years, but they are easily distinguished (see key on page 310). *Sobralia sororcula* Dressler is a recently described species that looks superficially like a dwarf *Sobralia macrophylla* Rchb.f., but shows the hairy lip and the other distinctive features of *Sob. lindleyana* and its close allies. *Sobralia sororcula*

is known from only a single plant, but it is growing well. It was described as having white flowers, but the sepals and petals are sometimes pale yellow or somewhat “peach” colored.

The noted Costa Rican orchidologist Dr. Rafael Lucas Rodríguez illustrated another *Sobralia* with features similar to *Sob. lindleyana* (Rodríguez et al. 1986). It had, to be sure, been identified as *Sob. lindleyana* by Dressler (but that was a long time ago). The plant illustrated by Rodríguez was collected by Douglas C. Robinson, a



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- [1] *Sobralia sanctorum*, drawn from the type collection. A. Habit. B. Flower. C. Perianth parts, flattened. D. Section of lip with column. E. Two views of column. F. Anther and two views of pollinarium.
- [2] This specimen of *Sobralia sanctorum* was drawn years ago, but we did not know where it had been collected.



KERRY DRESSLER



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herpetologist, but we can find no record of where it was collected. Although this little plant is distinct from *Sob. lindleyana*, it has remained nameless, mostly because no one knew where to look for it. Plants of unknown origin may cause a great deal of confusion if they are named without geographic data, and most botanists try to avoid this situation. A couple of years ago, Dr. Carlos Ossensbach gave us a plant of this sort that he had purchased from a “matero” or plant collector, but again, we had no idea where it had been collected. Materos are generally loath to tell anyone where they collect, and some of them may even tell lies.

We found a pressed specimen at the Missouri Botanical Garden in St. Louis that looked much like the plant illustrated by Rodríguez. This plant had been collected near Santa María de Dota, Costa Rica, by Harvey Stork in 1932, so we decided to look near Santa María. There we sought the nearest forest and found a low, scrubby forest that really did not look promising. When we reached the forest, we nearly turned around and left immediately. However, someone said, “There’s a steep slope, let’s walk down and see if we can find anything along that road.” When we stopped at the top of the steep slope, Rey Gómez stepped to the edge of the forest and said, “There are sobralias here, lots of them.” There were and they were exactly what we were looking for. Later, we found similar plants near Nápoles, a town about 7½ miles (12 km) southwest of Santa María. Because all of our plants (with data) are from the region of “Los Santos” (Santa María, San Gerardo, San Joaquín, San Marcos, etc.) we decided to name the new species *Sobralia sanctorum* or “*Sobralia* of the (region of) the saints.”

[3] *Sobralia crispissima* ranges from western Panama to southern Mexico, but (as pressed specimens) it was long confused with *Sob. lindleyana*.

[4] *Sobralia lindleyana* was named in 1852 by Reichenbach, but it seems to be known only from the “Llanos del Volcan” in western Panama.

Now that we know where *Sobralia sanctorum* grows, we can name and describe it with a clear conscience.

***Sobralia sanctorum* Dressler & Bogarin, sp. nov.**

Costa Rica. San José: Tarrazú, San Lorenzo, Nápoles, road to Paso Real, 9°36'41.7"N 84°04'02.6"W, elev. 5,026 feet (1,532 m), lower montane rain forest, epiphytic on fences along the road, June 13, 2009, D. Bogarin 7259 and F. Pupulin, (holotype, CR; isotype, JBL spirit).

Species Sobraliae crispissimae Dressler, affinis, foliis atroviridis parvioribus angustioribus, marginibus labelli inciso-fimbriatis recedit.

Roots 6–8 mm in diameter; stem and sheaths purple or green speckled with purple; stems 9–30 cm, 2–3 mm in diameter; leaves 7–13 × 3–4.5 cm, dark green, often marked with purple near base, nearly flat, with five low keels beneath, elliptic or elliptic-lanceolate, somewhat acuminate; foliar inflorescence bract basally inflated, ca. 6 × 2.9 cm, next bract ca. 2 × 1.4–1.5, triangular-ovate; sepals and petals white, sepals with greenish midvein and apices; lip yellow in center (with prominent yellow hairs) with pink spots around the center, pale yellow, margins markedly incised-fimbriate, basal callus central, not divided; ovary 1.5–2.1 cm, sessile, sepals united ba-

sally 2–5 mm, but not tubular, dorsal sepal 3.4–4.3 × 0.8–1.4 cm, lanceolate-oblong, subacute; lateral sepals 3.4–4.1 × 0.9–1.4 cm, oblanceolate-oblong, subacute; petals 3–4 × 0.9–1.2 cm, elliptic-oblong or oblanceolate, subobtusate; column 21–24 mm, 6–8 mm wide, 5–7 mm dorsoventrally, lateral arms to 3 × 1.5 mm.

Although the species of this small group have been much confused, they are distinct, especially in the size and shape of the leaves.

Sobralia sanctorum is most similar to *Sob. crispissima*, and both of these species are found together near Nápoles, but *Sob. sanctorum* is a smaller plant, with darker leaves; the column arms of *Sob. sanctorum* are shorter than those of *Sob. crispissima*, and the lip of *Sob. sanctorum* is more fringed than crisped, whereas that of *Sob. crispissima* is more crisped than fringed. Also, the lip of *Sob. crispissima* bends markedly downward, while whereas that of *Sob. sanctorum* faces forward.

Both *Sob. lindleyana* and *Sob. crispissima* show synchronous (gregarious) flowering, with most plants of the same species commonly flowering on the same days at irregular intervals, and with ephemeral flowers. That is, the flowers open early in the morning and last until a bit after noon, when they quickly wither.

Our experience with *Sob. sanctorum* is still limited, but the plants from Nápoles have not shown synchronous flowering, even within a single plant. Some of the plants from Nápoles had capsules in different stages of development, but we have not seen any indication of self-pollination. To be sure, we had to press several flowers in good condition to prepare a good type specimen.

The pollinia of *Sobralia* are usually described as eight, but as the entire pollinarium is soft and mealy, there is not a sharp distinction between pollinia and caudicles, or even between pollinia. In *Sobralia callosa* L.O. Williams, which is adapted to hummingbird pollination, there are clearly eight distinct pollinia, as one finds in *Elleanthus*. In most other species of *Sobralia*, the structure may also be interpreted as four soft, mealy pollinia that are bent in the middle. In *Sob. sanctorum* the pollinarium is not so clearly symmetrical, but one of the “halves” is shorter than the other. This is especially obvious in the illustration drawn by Rodríguez (Rodríguez et al., 1986), though the drawing we offer here is similar, if less extreme.

Sobralia lindleyana is known only from western Panama, and especially from the “Llanos del Volcán” near the town of

Hato del Volcan, where the plants grow on the ground or among lava rocks. *Sobralia crispissima*, which is usually a forest epiphyte, is much more widespread, ranging from western Panama to southern Mexico. In 2007, we observed the pollination of *Sob. crispissima* by small bees of the genus *Trigona*. The bees seem tiny for such a large flower, but they are clearly just the right size to fit under the tip of the column and pick up the pollinia. These are social bees, and we sometimes see them in the greenhouse, but months may pass without seeing any, probably when there is not a colony anywhere near the greenhouse.

ANOTHER ELUSIVE NEW SPECIES
Dressler, with Dora Emilia Mora and two others, visited Bonilla Arriba, Costa Rica, in Cartago Province, in July 1994, or, at least, we thought that we were in or near Bonilla Arriba. There we found a small *Sobralia* to be frequent on a rocky slope. At least one of these plants was cultivated at the Florida Museum of Natural History greenhouse, in Gainesville, where it produced some flowers, and we started to prepare a description of the plant. The plant did not grow well in Gainesville. Eventually, it died.

In May 2007, Dressler set out with Pepe Moya and one of Moya's sons, by a different route, to revisit Bonilla Arriba, but we did not find the rocky slope with the small sobralias, and we may have been quite far from Bonilla Arriba. Actually, a couple of years earlier several of the staff and students from the Lankester Botanical Garden had visited the Rara Avis Reserve, about 31 miles (50 km) northwest of Bonilla Arriba, but in the same mountain range. There, Dressler found a quite small *Sobralia* that looked a bit different, and brought it back to the botanical garden. The plant has grown well, producing only a couple of flowers in 2008, but that was enough to show that we had refound the little purple-flowered plant that (presumably) still grows somewhere near Bonilla Arriba. In 2009, the plant had three inflorescences at the tips of leafy stems and two on much shorter basal stems without leaves.

We now have good material of the species we first found near Bonilla Arriba. We might try to find Bonilla Arriba someday, using a different highway, but there is no urgency. Now we can describe the little purple-lipped species we first saw (without flowers) near Bonilla Arriba.

***Sobralia purpurella* Dressler & Bogarin, spec. nov.**

Reserva Rara Avis, Sarapiquí, Heredia, Costa Rica, N 10°16.097' W 085°02.710', elev. ca. 705 m, flowered in cultivation, June 25, 2009, Holotype: Dressler 7174, CR.



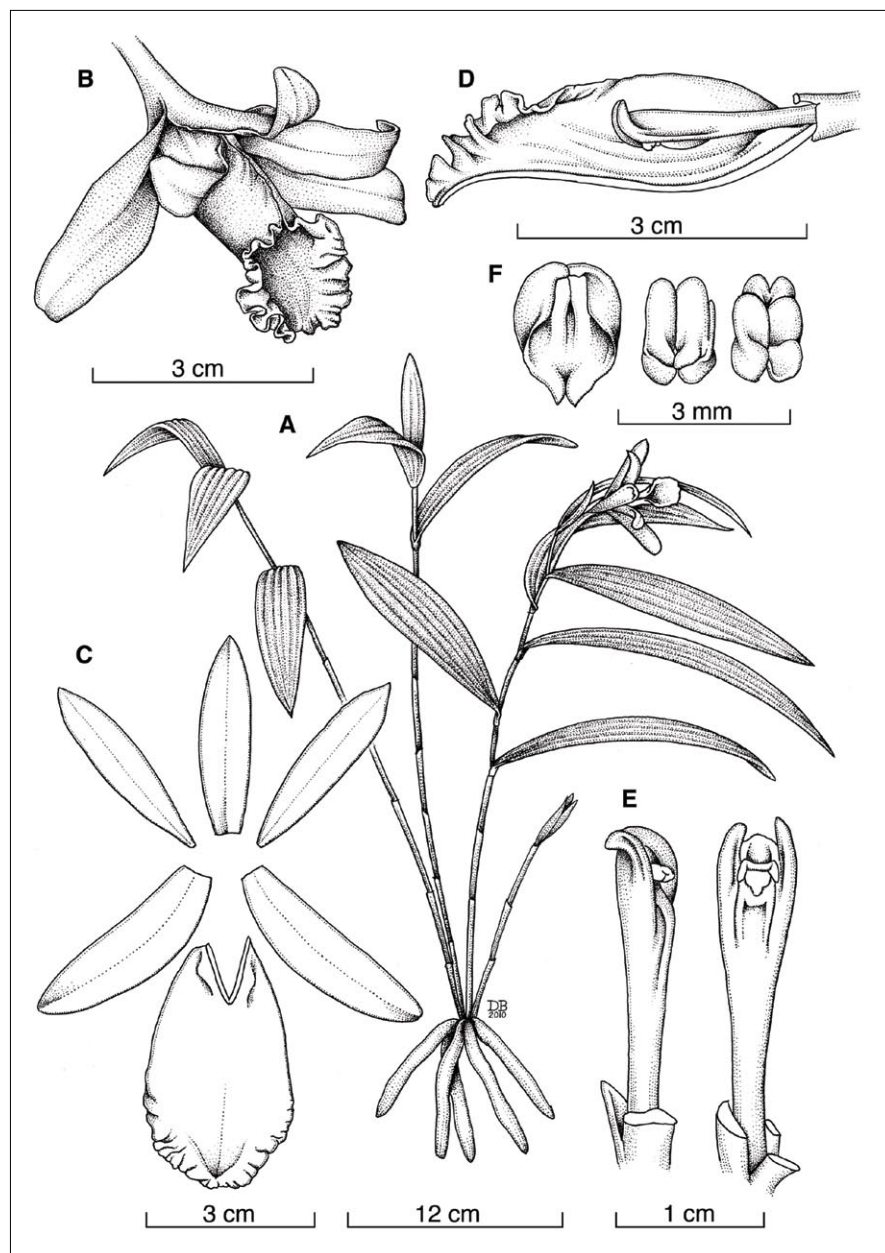
Species planta parva, gracili, caulibus foliosis 25–30 cm, longis, foliis 15–30 cm longis × 1.9–3 cm, lanceolatis-ellipticis acuminatis, inflorescentia parva elliptica apicali in caulibus foliosis vel aphyllis, sepalis petalisque albis rubellis vel notatis azureis, labello azureo-purpureo intus roseo-sanguineo, brachis columnae manifeste curvis a congeneribus diversa.

Epiphytic or terrestrial, caespitose, roots 3–4 mm in diameter; leafy stems 26–55 × 0.2–0.3 cm, leafless stems 8–10 cm; leaves 15–30 × 1.9–3 cm, lanceolate-elliptic, acuminate, subpetiolate; sheaths striate, sparsely scurfy; inflorescence terminal on leafy stems and also on short, leafless stems; inflorescences ellipsoid, 2.1–3.5 × 0.4–0.5 cm, bracts of inflorescence scurfy, outer bracts acuminate; ovary ca. 1 cm, sessile; sepals white, petals pale pink to purplish, lip intensely purple, blood red within; sepals basally forming a narrowly infundibular floral tube 17–18 mm long; dorsal sepal 4.2 × 1 cm, lanceolate, narrowly acute; lateral sepals 4 × 1 cm, lanceolate, acute to acuminate; petals 2.8 × 0.6 cm, lanceolate; lip 4–4.5 × 2.3–2.5 cm, subquadrate-obovate, basally clasping column, papillose within basally, lip undulate, emarginate, ventral outline of lip convex, column ca. 2 cm, triangular in section, basally slender, expanding to ca. 5.5 mm wide at stigma, with two prominent keels below stigma for ca. 9 mm, arms 3 ×

[5] Scans of representative fresh leaves of A. *Sobralia lindleyana*. B. *Sobralia crispissima*. C. *Sobralia sanctorum* and D. *Sobralia sororcula*.

1.5 mm, curved upward, projecting above top of column.

This species, *Sob. purpurella*, is named in reference to the intense purple of the lip and its relatively small size. In recent years, several smallish *Sobralia* species with delicate, ephemeral flowers have been found and named, in striking contrast with the common *Sob. leucoxantha* and its close allies *Sob. pendula* Dressler & Pupulin and *Sobralia blancoi* Dressler & Pupulin, all of which have flowers that last about three days. We now know *Sobralia tricolor* Dressler, *Sobralia aspera* Dressler & Pupulin and *Sobralia sotoana* Dressler & Bogarin have recently been published (Dressler and Bogarin 2010), and we are sure that several other smallish sobralias are to be found in either Costa Rica or Panama, if not both. Some of these stand out by their bright colors, as do *Sob. purpurella* and *Sob. sotoana*, with intense orange within the lip. The leafless inflorescences of *Sob. purpurella* suggest a relationship to *Sobralia leucoxantha* Rchb.f., though the leafless inflorescences of *Sob. leucoxantha* are usually about as long as the leafy stems.



[6] *Sobralia purpurella*. A. habit. B. Flower. C. Perianth parts, flattened. D. Section of lip with column. E. Anther and two views of column. F. Anther and two views of pollinarium.

[7] *Sobralia purpurella* had been common at one locality, but we couldn't find the place again. Without flowers, this little plant would be easy to overlook.

Key to the Species

1. Leaves 15–20 × 6–6.5 cm, green, ovate; flowers white (occasionally pale yellow or peach) with yellow hairs on lip *Sob. sororcula*
 1. Leaves green or dark green, 7–15 cm long
 2. Leaves 2–4 cm wide, dark green or marked with purple; lip irregularly incised-fimbriate, marked with pink within *Sob. sanctorum*
 2. Leaves 5–6.6 cm wide, green or gray-green
 3. Leaves 8.5–11 cm long, widest below middle, acuminate; lip white with yellow center and red-brown markings *Sob. lindleyana*
 3. Leaves 14–16 cm long, widest near middle, apices acute or subacute; lip yellow with red or red-brown markings, crisped *Sob. crispissima*
- Robert L. Dressler and Diego Bogarin.



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Acknowledgments

We are grateful to Carlos Morales for information on the collector of the plant illustrated by Dr. Rodríguez, to Franco Pupulin for help with the Latin diagnosis and to Dr. Carlos Ossensbach, whose plant convinced us that the odd little *Sobralia* illustrated by Rodríguez was not just a figment of his imagination. We also thank the scientific services of the Costa Rican Ministry of Environment and Energy and its National System of Conservation Areas for issuing the collecting permits under which wild species treated in this paper were collected.

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Robert Dressler, PhD, is the author of numerous papers and books, among them the award-winning *Phylogeny and Classification of the Orchid Family* and *Field Guide to the Orchids of Costa Rica and Panama*. He received the AOS Gold Medal of Achievement in November 2001. Dressler is affiliated with Jardín Botánico Lankester, Universidad de Costa Rica, Apartado 302-7050, Cartago, Costa Rica; Centro de Investigación en Orquídeas de los Andes “Ángel Andreetta,” Universidad Alfredo Pérez Guerrero, Extensión Gualaceo, Ecuador (e-mail kerry@bio-photo.com).

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