Novae Gesneriaceae Neotropicarum IX: Cremospermopsis, A New Genus from Colombia

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Abstract. A new genus in the Gesneriaceae, Cremospermopsis L. E. Skog & L. P. Kvist, is described from the very humid forests in the Colombian departments of Antioquia and adjacent Bolivar. The new genus of two species, C. cestroides and C. parvisflora, is similar and may be related to Cremosperma, but differs in having inflorescence bracts, unequal calyx lobes, and spherical papillate seeds.

Key words: Colombia, Cremosperma, Cremospermopsis, Gesneriaceae.

The flowering plant family Gesneriaceae is better represented in Colombia than in any other neotropical country, with approximately 400 known species according to a recent survey by Kvist et al. (1998). While identifying Colombian Gesneriaceae for that survey, the authors found collections of an undescribed gesneriad that is apparently endemic. This new genus, Cremospermopsis, is from a small area in the northwestern Colombian department of Antioquia, with two collections from adjacent Bolivar. Specimens of the new genus had often been filed in herbaria among unidentified material of Rubiaceae or (less frequently) Acanthaceae. A closer look demonstrates that Cremospermopsis cannot be a member of either of those families because of the presence of hypogynous flowers and the absence of stipules on the stems of the new genus. In addition, plants have unilocular capsules with many tiny seeds, four anthers with coherent stamens, and a more or less regular or divided nectary surrounding the ovary, characteristics that place the genus in the Gesneriaceae.

Other specimens of Cremospermopsis were recognized as Gesneriaceae, and mostly as unknown species of Cremosperma Bentham. This was reasonable since the two genera are similar in having connate calyx lobes and filaments adnate to the corolla tube base. The name of the new genus alludes to the similarity of Cremospermopsis to Cremosperma.

The two species of Cremospermopsis have a unique combination of characters, such as zygomorphic calyces, corolla limbs with glandular trichomes, and spherical papillate seeds, which justifies placing them in a new genus. They share more characteristics (e.g., erect habit, opposite leaves, calyx lobes connate, etc.) with Cremosperma than with any other genus, but are clearly distinguished by the presence of floral bracts.

We will not here assign Cremospermopsis to a tribe. Possible tribes are Beslerieae and Napeantheae, as defined by Wiehler (1983). The presence or absence of inflorescence bracts has been given much importance in the taxonomy of neotropical Gesneriaceae, mostly because Wiehler (1983) maintained an amended tribe Beslerieae, including Besleria L., Cremosperma Bentham, Gasteranthus Bentham, Reldia Wiehler, and Resia H. E. Moore, on the absence of floral bracts, a superior ovary, the lack of tubers or rhizomes, and seeds without funicles, etc., in the included genera. At the present time, however, the circumscription of Beslerieae may be open to question. For example, the discovery of a new subspecies of Resia ichthyoides Leeuwenberg having floral bracts led Skog and de Jesus (1997) to transfer the genus Resia from the Beslerieae to the formerly monotypic tribe Napeantheae where it seems better placed. The fact that species of Cremospermopsis also have bracts despite their close resemblance and possible relationship to Cremosperma makes it even clearer that tribal limits may well have to be reexamined. Table 1 compares Cremospermopsis with Reldia and Cremosperma.
Table 1. Morphological comparison of *Cremospermopsis* with four other similar genera of Gesneriaceae.

<table>
<thead>
<tr>
<th>Character state</th>
<th>Cremospermopsis</th>
<th>Resia</th>
<th>Napeanthes</th>
<th>Cremosperma</th>
<th>Reldea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Habit</td>
<td>Erect</td>
<td>Apical cluster</td>
<td>Rosulate to erect</td>
<td>Erect</td>
<td>Rosulate to erect</td>
</tr>
<tr>
<td>Leaf arrangement</td>
<td>Opposite</td>
<td>Congested</td>
<td>Congested</td>
<td>Opposite</td>
<td>Alternate</td>
</tr>
<tr>
<td>Inflorescence bracts</td>
<td>Present</td>
<td>Present or absent</td>
<td>Present</td>
<td>Absent</td>
<td>Absent</td>
</tr>
<tr>
<td>Calyx lobe connation</td>
<td>Present</td>
<td>Basal or to 1/2</td>
<td>Absent or rarely to 1/2</td>
<td>Present</td>
<td>Absent</td>
</tr>
<tr>
<td>Calyx lobe equality</td>
<td>Unequal</td>
<td>Equal</td>
<td>Equal</td>
<td>Equal</td>
<td>Equal to unequal</td>
</tr>
<tr>
<td>Corolla</td>
<td>Zygomorphic</td>
<td>Zygomorphic</td>
<td>Actinomorphic or rarely zygomorphic</td>
<td>Zygomorphic</td>
<td>Zygomatic</td>
</tr>
<tr>
<td>Spur</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Absent</td>
<td>Present</td>
</tr>
<tr>
<td>Corolla length vs. calyx length</td>
<td>Longer</td>
<td>Longer</td>
<td>Very short to nearly the same</td>
<td>Longer</td>
<td>Longer</td>
</tr>
<tr>
<td>Corolla throat</td>
<td>Glandular-hairy</td>
<td>Not glandular</td>
<td>± Glabrous</td>
<td>Glandular or not</td>
<td>Glandular or not</td>
</tr>
<tr>
<td>Filament adnation to corolla tube base</td>
<td>Adnate</td>
<td>Nearly free</td>
<td>Adnate</td>
<td>Adnate</td>
<td>Nearly free</td>
</tr>
<tr>
<td>Thecae confluent</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Partly</td>
</tr>
<tr>
<td>Nectary</td>
<td>Present</td>
<td>Present</td>
<td>Absent</td>
<td>Present</td>
<td>Present</td>
</tr>
<tr>
<td>Seeds</td>
<td>Papillate</td>
<td>Striate</td>
<td>Striate</td>
<td>Striate</td>
<td>Striate</td>
</tr>
</tbody>
</table>
(both included in Beslerieae) as well as with Napeanthus and Resia (the two genera currently in the tribe Napeantheae).

Although Cremospermopsis appears to be most similar to Cremosperma, further studies are necessary to determine if Beslerieae might have to be expanded to include genera and species having floral bracts, or alternatively if Cremosperma should be transferred to Napeantheae together with Cremospermopsis.


Ad Cremosperma affinis sed in inflorescentibus congestis bracteatis in lobis calycis inaequalibus zygomorphis, cum trichomatibus glandularibus in capsulis in sicco fatiscens. Ad Cremospermopsis parviflora, may also help to attract pollinators. The corolla tubes of Cremospermopsis, which tend to be more conspicuous than the corollas particularly in Cremospermopsis parviflora, may also help to attract pollinators. The corolla tubes of Cremospermopsis flowers seem nearly blocked by the coherent anthers, which tend to be located about where the corolla tube is narrowest. However, both species have well-developed glands around the ovary suggesting that pollinators may indeed find nectar in the flowers.

Cremospermopsis has numerous tiny seeds like many other understory Gesneriaceae, and the surrounding persistent calyces may function as splash-cups, as the capsules seem to disintegrate at maturity. Water transport, and possibly small animals to which the papillate seeds may adhere, may disperse the seeds.

The status of the two Cremospermopsis species in the wild is unknown. It is possible, however, that
both species are endangered. Low-elevation humid forests in Antioquia have mostly disappeared, and humid forest Gesneriaceae tend to be very vulnerable to deforestation, as they cannot survive the exposure to dryer microclimates.

**Key to the Species of Cremospermopsis**

1a. Corolla nearly 2 times as long as the calyx and not hidden by the calyx lobes; leaf blades oblanceolate or less commonly elliptic, apex acuminate . . . . . . . . . . . . . . . . . . . C. cestroides

1b. Corolla shorter than the calyx and hidden by the calyx lobes; leaf blades obovate or occasionally elliptic, apex obtuse or less frequently acute . . . C. parviflora


Plants herbs to shrubs, stems erect (0.3-)0.70-1.5(-2.0) m tall, to 7 mm diam., glabrescent below to distally pilose or villous and occasionally strigose, internodes (0.3-)1-5-(-9) cm long. Leaves with blades oblanceolate or less commonly elliptic, 8-18(-22) x (2-)4-7(-9) cm, apex acuminate, base cuneate, rarely acute, margin remotely serrate to subentire, adaxially pilose to glabrous, abaxially sparsely pilose or strigose, secondary veins 8 to 12 per side, pilose or strigose below. Inflorescences of umbel-like cymes, of 3 to 15 flowers, pilose, strigose or puberulent; peduncles 2-5(-8) cm long, distally with 2 to 4 bracts, each ovate, 5-10 x 1-4 mm; pedicels 2-3 mm long. Calyx lobes green, occasionally red tinged, outside pilose especially along margin, inside glabrous, connate, subequally to unequally, lanceolate to ovate with acute to acuminate apex, all 8-10 mm long and up to 12 mm long in fruiting stage, 3 or 4 of the lobes only 2-4 mm wide and the other 1 or 2 lobes to 6 mm wide. Corolla tubular, 1.2-1.7 cm long, tube 1.0-1.4 cm, 1-2 mm wide at base, diam. 2.5-3.5 mm basally, narrowing to 2.0-2.5 mm and then ampliate to 3-4 mm distally, yellow or white, outside upper 2/3 of length glandular pilose to villous, inside glabrous except apically; throat 3.5-5 mm diam., limb yellow, densely glandular hairy with trichomes that may be short or have a more extended stalk of several cells, dorsal lobes often with pink or violet markings, 1.5-2 mm long, lateral and ventral lobes 2-3.5 mm long. Filaments adnate to corolla tube base for 5-8 mm, above free for 1.5-3 mm; anthers 0.7-1.3 x 0.5-0.8 mm; nectary ± regularly annular, 0.3-0.7 mm high. Ovary 2 mm high. Capsule 5 x 3 x 2 mm.

**Distribution and ecology.** Plants are endemic to the Colombian departments of Antioquia and Bolivar, growing in disturbed primary or old secondary wet forest, along streams and in shady areas; (20-)500-1550 m, and collected in flower in all months of the year, except April and November; in fruit in June, but probably most of the year.

Cremospermopsis cestroides is distinguished from the apparently more abundant C. parviflora (see below) by the acuminate leaf apices and by larger corollas of the former.

This species, described originally by Fritsch as a Besleria species and later transferred to Cremosperma by Morton, was typified by a specimen at B (Kalbreyer 1391). Unfortunately, the holotype is no longer extant, although a photograph of the specimen at B taken in the 1930s is lodged at US and probably in other herbaria. The duplicate of Kalbreyer 1391 at K is selected here as lectotype. It is remarkable that neither Fritsch nor Morton commented on the bracteate inflorescences on the types and clearly evident in the photograph of the holotype and on the lectotype specimen at K.

**Additional specimens examined.** COLOMBIA. Antioquia: Mpio. Anorí, 3 km from Providencia hydroelectric plant, valley near confluence of Tirana stream with Río Anorí, 28 km SW of Zaragoza, Atversen et al. 130 (COL); Mpio. Amalfi, 8-15 km from Amalfi to Rumazón, Salazar and La Playa sites, Betancur et al. 776 (F, MO, US); border with Bolívar department, near the confluence of the Ité and Tamar rivers into Cimitarra river, ca. 38 km W of Barrancaberejma, de Brijau 1537 (MO, US); Mpio. San Luis, bank of Río Samaná Norte, above Medellín-Bogotá road, Callejas et al. 4104 (MO, US 2); Mpio. Anorí, Dos Bocas-Providence road, near Río Necho, Callejas et al. 4106 (HUA, NY); Mpio. Remedios, vereda Santa Lucía, Sánchez 9-18 km SW of Remedios along road to Puerto Berrio, Callejas et al. 8106 (HUA, US); Mpio. San Carlos, correg. Alto de Samaná, vereda Miraflores, Callejas et al. 8603 (HUA); Mpio. San Luis, Villa del Sol site, vereda La Cristalina on Medellín-Bogotá road, Callejas et al. 11159 (HUA); Mpio. San Francisco, Carretera de Aquitania, nacimiento de la quebrada La Cristalina, Cárdenas L. et al. 2629 (MO); Mpio. San Carlos, correg. Alto de Samaná, vereda Miraflores, Fonsega et al. 3018 (HUA, MO, US); Mpio. San Luis, Río Samaná-Río Claro sector near Medellín-Bogotá road, Hernández et al. 124 (HUA, SEL, 4694) (HUA); Mpio. San Luis, 8 km E of bridge over Río Caldera on Medellín road, Juncoza & Escobar 724 (MO, US); Mpio. San Luis, quebrada La Cristalina, Ramírez & Cárdenas 393 (COL, HUA), 543 (COL, HUA), 1123 (COL, HUA, MO); Mpio. Anorí, correg. Providencia, Río Anorí valley, between Dos Bocas and Anorí, Soejarto et al. 3283 (MEDEL); Mpio.
Anorí, Buenos Aires, between Providencia and Alibibe, Soegaard et al. 4305 (MEDE); Cordillera Central Auto-
pista from Medellín to Bogotá, ridge above Río Cocorna, Stein et al. 3182 (MO); Mpio. Anorí, valle of Río Anorí along road 3–5 km upstream from Providencia Hydroelec-
tric Plant, between Dos Bocas and Anorí, Zarucchi 3322 (MO, US). Bolívar: Mpio. Achi, correg. La Raya, refugio El Paraíso, near Ciénega Grande, 3–4 hours from Cau-
casia above Cauca river, Callejas et al. 4390 (HUA, MO, US); Mpio. Achi, La Raya, Cuadros & Gentry 3387 (US).

Cremospermopsis parviflora L. E. Skog & L. P. Kvist, sp. nov. TYPE: Colombia, Antioquia: Mpio. San Carlos, Embalse Punchiná, margin of streams leading into reservoir near site of dam, 6°12′N, 74°52′W, 780 m, 18 May 1988, J. L. Zarucchi, O. Escobar & A. Ayala 6651 (holotype, HUA; isotypes, MO, US). Figure 2.

C. cestroidis affinis sed foliis plerumque ad apicem ob-
tusibus, tubo corollae a calycis lobis occultis. Plants herbs, stems mostly erect, occasionally appressed to ground, 20–40–60 cm tall, to 5 mm diam., glabrescent proximally to tomentose distally; internodes 0.5–1.5 (–3) cm long. Leaves with ob-
 OV6) or occasionally ovate elliptic blades, 8–20 × 4–12 cm, apex obtuse, or less frequently acute, base acute, margin subentire, occasionally rugose, adax-
ially glabrous, occasionally sparsely pilose, abaxi-
ally sparsely appressed pilose, secondary veins (6 to)10 to 12 per side, below with appressed pilose to tomentose indumentum; petioles (0.5–)1–2 cm long, mostly tomentose. Inflorescences congested cymes but occasionally more open with an extended axis, of 5 to 12 (to 18) flowers; peduncles 2–9 cm long, pilose, sometimes dark purple, distally with

but in between much lower or absent. Ovary 1.5 mm high. Capsule 3 × 2 × 1.5 mm.

Distribution and ecology. Plants of Cremosper-
mondos parviflora are endemic to Colombia (Antio-
quía), growing on stream sides in disturbed primary wet forest or old secondary rain forest at (400–)
500 (–900–1250) m, and collected in flower in Jan-
uary to June, October and December, in fruit in April, August, and November.

The tiny corollas of Cremospermopsis parviflora are nearly hidden by the calyx lobes, a character that distinguishes the species from C. cestroides, which has corollas approximately twice as large and not hidden by the calyx lobes. The calyces and bracts of C. parviflora are apparently also mostly pale green to white while these may be darker green to yellow or red in the other species. In addition, C. parviflora is a small herb that rarely ex-
cceeds 50 cm, while C. cestroides can often be more than 1 m tall, and may be somewhat subshrubby. Cremospermopsis parviflora also tends to have ob-
 ovate leaves with an obtuse apex and a nearly entine margin contrasting with the mostly oblanceolate leaves with an acute apex and a remotely serrate margin in C. cestroides. The indument of the former tends toward pilose while the latter has a rather tomentose indumentum.

Paratypes. COLOMBIA. Antioquia: Lake Punchiná, 47.5 km E of San Carlos, Brant et al. 1661 (HUA, MO, US); Mpio. San Luis, vereda La Josefina, above the Medel-
lin–Bogotá road, 16 km SW of San Luis, Callejas et al. 4186 (NY, US); Mpio. San Luis, veredas La Cristalina & La Jose-
FIN, Rio Claro region, 98 km SE of Medellín, Callejas & Acevedo 11167 (HUA); Mpio. San Luis, vereda las Confus-
sas, Cardenas et al. 2670 (MO); Mpio. San Luis, vereda La Josefina, quebrada La Mariola, Cardenas & Ramírez 2729 (MO); Mpio. San Luis, carretera to Aquitania, 12 km from Medellín–Bogotá road, Cogollo et al. 3756 (MO); Mpio. San Luis, vereda La Josefina, quebrada La Mariola, Cogollo et al. 4285 (MO); Mpio. San Francisco, correg. Aquitania, Río Venado, Fonnerga et al. 4103 (US, MO); Mpio. San Luis, Río Samaná–Rio Claro sector near Medellín–Bogotá road, Hernández et al. 191 (HUA, SEL), 211 (HUA, SEL), 280 (HUA); Mpio. San Luis, Río Claro, Iouaiz & Cogollo 42 (MED-
Fl); Mpio. Amalfi, NE of Salazar, along road between Amalfi and Fraguas 23–26.5 km from Amalfi, Machdough et al. 4025 (US); bank of Guatapé river between San Rafael and Holanda, Orozco et al. 729 (COL (2)); Mpio. San Carlos, near ISA hydroelectric dam reservoir, McPherson 13330 (HUA); Mpio. San Luis, quebrada La Cristalina, Ramírez & Cárdenas 232 (HUA, MO), 367 (COL, HUA, MO), 599 (HUA), 1127 (COL, HUA), 1350 (COL, HUA), 1922 (HUA, MO); road from Independencia to Santa Rita, Romero-Castañeda 1573 (COL); Mpio. Anorí, Río Anorí valley near Planta Providencia, Shepherd 456 p.p. (MO), 564 p.p. (US); Mpio. Anorí, Río Anorí valley between Dos Bocas and Anorí, close to Planta Providencia, SW of Za-
ragoza, Shepherd 456 p.p. (COL), 564 p.p. (COL, MEDE); Mpio. Anorí, near Providencia hydroelectric plant, Soegaard & Villa 2692 (GH (2)), 2693 (GH (2)); Mpio. Amalfi, mina
La Vetilla, edge of quebrada Vetillita, *Tabebuia & Gómez* 20 (HUA); Mpio. Anorí, Anorí river valley near Providencia electric plant ca. 35 km SW of Zaragoza, Waide 62408 (US).

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Literature Cited


