

Galeoglossum cactorum Salazar et Chávez-Rendón, sp. nov.

(Figs. 2, 3).—HOLOTYPE: MEXICO. Oaxaca: Distrito Tlaxiaco, municipio San Bartolomé Yucuañe, Cerro Jacaba, 6 km al sur del poblado sobre el camino de San Bartolomé Yucuañe a La Paz Tilantongo, 1708 m elev., collected 15 Aug 2008, flowered and pressed in cultivation 1 Oct 2008, *Chávez-Rendón, Avendaño & Sánchez 1604* (MEXU!).

Galeoglossum thysanochilo (B. L. Rob. & Greenm.) Salazar simile, a quo cataphyllis ad rosulae basem imbricatis, foliis lineari-oblancoelatis, labello prope basin excrescentia papillosa instructo, columna proportione brevior, obtrapezoidea, aliis lateralibus decurvatis provista, filamento toto adnato et apiculo reliqui rostellis magis prominenti differt.

Geophytic, acaulescent herb ca. 18 cm in height above ground including the inflorescence. Roots fasciculate, fleshy, terete, dull yellow, to 5 cm long, 5–7 mm in diameter. Leaves 4–5, forming a rosette, present and functional at flowering time but subtended by several imbricating, brown, papery cataphylls that apparently represent the sheathing bases of the leaves of the previous growing season; functional leaves consisting of a sheathing basal portion and a blade; leaf sheaths white, imbricating, forming a “neck” covered by the cataphylls, to ca. 5.5 cm long; leaf blades shiny pale green above, opaque grayish green with three darker longitudinal veins below, somewhat fleshy, narrowly oblanceolate, acute, with the midvein somewhat prominent on the underside, 6–11 cm long, 8–18 mm wide. Inflorescence erect; peduncle ca. 11 cm long from the top of the rosette of leaves, ca. 2 mm in diameter, pale green, glabrous, with three tubular, loosely adpressed bracts, these pale green with white margins, glabrous, acute, 7–21 mm long; raceme dense, ca. 4 cm long and 2.5 cm in diameter, our specimen with 16 flowers that start opening successively, eventually there being three or four open at the same time. Floral bracts glabrous, ovate, acuminate, slightly concave, pale green with three darker veins and white margins, 7–10 mm long. Flowers nonresupinate, ascending, campanulate, white, with two yellowish green calli and a short green line in between on the distal one-third of the labellum (the intensity of the color of the calli is variable among flowers of the same inflorescence, probably depending on age), without a perceptible fragrance during the day. Sepals free. Dorsal sepal slightly concave at base, otherwise somewhat convex, lanceolate, rounded, 3-veined, 6.3 mm long, 3 mm wide. Lateral sepals slightly concave, obliquely lanceolate, acute, somewhat conduplicate at apex, 3-veined, 6.2 mm long,

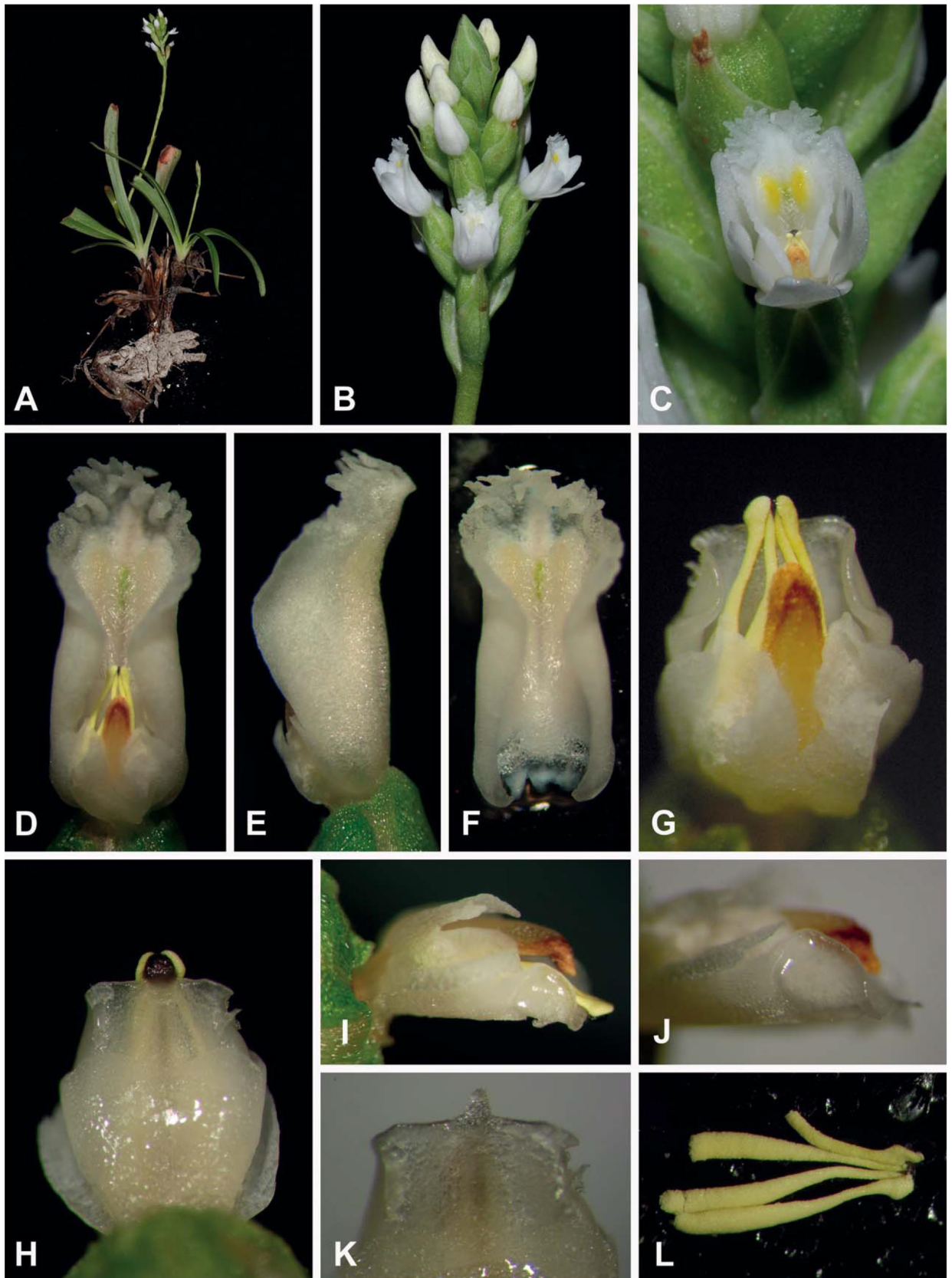


FIG. 2. *Galeoglossum cactorum*. A. Flowering plant removed from soil. B. Inflorescence. C. Flower. D. Labellum and column from above. E. Labellum and column from side. F. Labellum from above after removing the pollinarium. G. Column from above. H. Column from below. I. Column from side prior to removal of the pollinarium. J. Column from side after removal of the pollinarium, illuminated from the back to highlight the lateral flap and one of the two receptive areas of the stigma. K. Column apex from below after removal of the pollinarium showing the apiculate rostellum and the non-receptive area of the stigma. L. Pollinarium from above (the two pollinia broke at their apices during sample preparation). Scale bars: A = 10 cm; B = 10 mm; C = 5 mm; D-F = 2.5 mm; G-J, L = 1 mm; K = 0.5 mm. Photographs by G. A. Salazar from Chávez-Rendón *et al.* 1604.

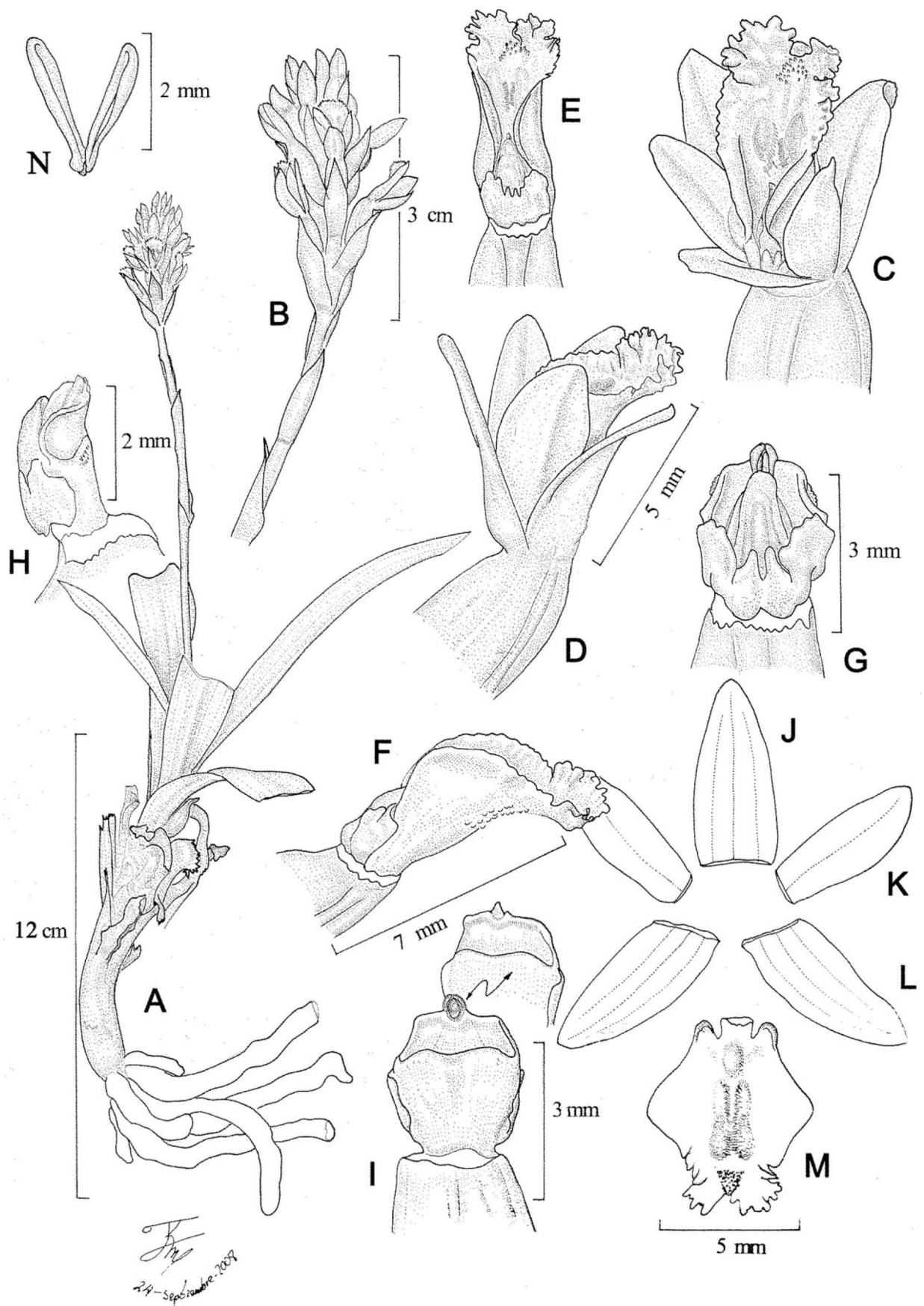


FIG. 3. *Galeoglossum cactorum*. A. Habit. B. Inflorescence. C. Flower from above. D. Flower from side. E. Labellum and column from above. F. Labellum and column from side. G. Column from above. H. Column from side. I. Column from below and detail of column apex after removal of the pollinarium, showing the apiculate rostellum remnant. J. Dorsal sepal. K. Petal. L. Lateral sepal. M. Labellum. N. Pollinarium from above. Drawn with camera lucida by Rolando Jiménez-Machorro from Chávez-Rendón et al. 1604.

TABLE 1. Comparison of the three known species of *Galeoglossum*.

Feature	<i>G. cactorum</i>	<i>G. thysanochilum</i>	<i>G. tubulosum</i>
Leaf shape	linear-oblancoelate	elliptic to ovate	obovate
Leaf condition at anthesis	fresh	fresh	withered or absent altogether
Flower color	white with green or yellow markings on the labellum	white with green or yellow markings on the labellum	Sepals and petals greenish, labellum yellow with base and apex whitish
Apical labellum lobe	prominent, dentate-fimbriate	prominent, dentate-fimbriate	minute, entire to denticulate
Papillose thickening near labellum base	present	absent	absent
Column	shortly obtrapezoid, with lateral decurved wings and fused filament	clavate, wingless, with partially free filament	clavate-cuneate, wingless, with fused filament
Apicule of rostellum remnant	distinctly prominent beyond the apical column margins	not prominent beyond the apical column margins	not prominent beyond the apical column margins

3 mm wide. Petals slightly concave, obliquely oblanceolate, obtuse, 1-veined, 6 mm long, 1.2–1.3 mm wide. Labellum with involute sides, free from the column but tightly embracing the column near its base, canaliculate and with two small elliptic areas of spherical, translucent papillae on the distal one-third of the underside; margins crenate near the middle, irregularly dentate near the apex; labellum base shortly clawed, with a rounded, concave-convex retrorse lobe at each side, each of these with a small marginal/apical thickening (nectar gland); inside the labellum at a short distance from the base there is a central, cushion-like, irregularly papillose callus, above the latter starts a central channel that ends at the base of the apical lobe between two colored calli of irregular surface; the channel is flanked along its whole length by long, translucent, retrorse hairs that reach the inner side of the two calli; labellum rhombic in outline when spread out, on the distal one-fourth distinctly narrowed and then expanded again into the apical lobe, the latter obcordate, ruffled, the margins irregularly dentate-fimbriate and sparsely papillose; whole labellum 6.5 mm long, 5.5 mm maximum width near the middle. Column white, shortly obtrapezoid, ventrally broadly channeled and covered by nectar, 2.5 mm long, 2 mm wide, provided with an inconspicuous column foot at base and a prominent, slightly downcurved flap or wing at each side covering an oblique channel; in natural position the channel accommodates the margins of the labellum and the flaps curve over them, likely adding structural strength; clinandrium with a prominent, V-shaped dorsal margin covering most of the anther. Anther dorsal, narrowly triangular-ovoid, fleshy, dull yellow with brownish margin, the filament fully fused with the column. Pollinarium ca. 2.5 mm long, formed by two hairpin-shaped, narrow and laterally compressed yellow pollinia attached at apex to a common, blackish viscidium. Rostellum truncate, upon the removal of the pollinarium having a prominent apicule. Stigma consisting of a broad, concave central dry (sterile) area and two lateral, earlike vertical receptive areas, these concave, shiny, sticky and obliquely ovoid in outline. Ovary ascending, narrowly clavate, pale green with three whitish costae and inconspicuous pedicel, ca. 10 mm long and 2.5 mm in diameter. Capsule not seen.

Etymology—The specific epithet, *cactorum*, in Latin means “of the cacti” and refers to the distinctive habitat of this species, dominated by columnar cacti of the genus *Neobuxbaumia* Backeb.

Distribution and Habitat—So far, *Galeoglossum cactorum* is known from a single limestone rocky slope with an extension of a few hectares in the Mixteca Alta region of the Sierra Madre del Sur, Oaxaca, around 1,700 m elevation. About a dozen

plants were found rooted in chalky soil in a xerophilous scrub of *Neobuxbaumia* sp. with few individuals of the palm *Brahea dulcis* (Kunth) Mart., *Hechtia* sp. (Bromeliaceae), and *Agave* sp. (Agavaceae), with an open herbaceous stratum including *Selaginella* sp. (Selaginellaceae), *Begonia* spp. (Begoniaceae), *Sedum* sp. (Crassulaceae), *Pinguicula* sp. (Lentibulariaceae), and some grasses and ferns. Two other geophytic orchid species were observed in the area, namely an as yet undescribed species of *Bletia* and an unidentified *Malaxis*. That particular habitat is not common in the area but further exploration is required to determine whether additional suitable patches in which the new species occur exist in other parts of the Mixteca region, large expanses of which remain botanically unexplored.

The single locality known for *G. cactorum* is located in the same general area in Oaxaca where populations of both *G. thysanochilum* and *G. tubulosum* occur, but the particular habitat of the former seems to differ substantially from that of the other two species. *Galeoglossum cactorum* dwells in warmer, drier conditions in a xerophilous scrub about 1,700 m, whereas its congeners inhabit moister, cooler oak and pine-oak forests above 2,000 m. The closest known localities of *G. thysanochilum* and *G. tubulosum* are about 16 and 26 air kilometers, respectively, from the site of *G. cactorum*.