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DRYMONIA COLLEGARUM (GESNERIACEAE), A NEW SPECIES FROM ECUADOR

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ABSTRACT. Recent field expeditions and preliminary work on revising *Drymonia* and closely related genera have resulted in the discovery of a new plant species from Ecuador. The new species, *Drymonia collegarum* (Gesneriaceae), is an epiphyte that is often confused with other *Drymonia* and *Alloplectus* species. This species is differentiated by clustered fascicles of axillary flowers, hypocyrtoid corollas, fleshy capsules with tardily dehiscent endocarps, and a robust erect epiphytic habit. It is common along the western Andean slopes of Ecuador from Azuay to Esmeraldas. This and closely related species are characterized by non-poricidal anthers and hypocyrtoid corollas, characters that are atypical for the genus *Drymonia.*

RESUMEN. El trabajo de campo reciente y la revisión preliminar de *Drymonia* y los géneros cercanamente relacionados, han llevado al descubrimiento de una especie nueva en Ecuador. La especie nueva, *Drymonia collegarum* (Gesneriaceae), es una epífita frecuentemente confundida con otras especies de *Drymonia* y *Alloplectus.* Esta especie se caracteriza por presentar fascículos de flores axilares, corolas hypocyrtoides, cápsulas carnosas con endocarpo dehiscente tardíamente, y por ser una epífita erecta y robusta. Esta especie es frecuente a lo largo de la vertiente occidental de los Andes ecuatorianos, desde Azuay hasta Esmeraldas. Esta y las especies estrechamente relacionadas se caracterizan por poseer anteras no poricidas y corolas hypocirtoides, características atípicas en el género *Drymonia.*

Key words: Gesneriaceae, *Alloplectus, Drymonia,* gesneriad, hypocyrtoid, tardily dehiscent endocarps

INTRODUCTION

Recent field, taxonomic and phylogenetic work in the Episcieae (Gesneriaceae) has uncovered an undescribed but broadly distributed species of *Drymonia.* This new species, *Drymonia collegarum,* has often been confused with the closely related *D. teuscheri* (Raymond) J.L. Clark and *D. tenuis* (Benth.) J.L. Clark which have similar, overlapping ranges. These three species, along with *D. dodsonii* Wiehler, form a phylogenetically well-supported clade nested within other species of *Drymonia* (Clark et al. 2005, Clark et al. 2006).

Drymonia collegarum, D. dodsonii, D. tenuis, and *D. teuscheri* all differ markedly in floral form from what is considered typical for the genus (Clark et al. 2005). While other species of *Drymonia* can be characterized by poricidal anthers and campanulate corollas, the anthers of species in the *D. collegarum* clade lack poricidal dehiscence and the corollas have a constricted throat and a distinctive pouch on the lower surface. Flowers characterized by a constricted throat and pouch are known as hypocyrtoid (FIGURE 1), although this term is not commonly defined in most botanical dictionaries (e.g., it is absent from Harris & Harris 2006, Lawrence 1968, and Endress 1994). A variety of corolla pouches are found in many plant lineages throughout the Lamiales (e.g., *Calceolaria* of the Calceolariaceae and *Antirrhinum* of the Plantaginaceae), but characteristically hypocyrtoid corollas are unique to the Gesneriaceae.

TAXONOMIC TREATMENT

Drymonia collegarum J.L. Clark & J.R. Clark, sp. nov. TYPE: Ecuador—Imbabura: cantón Cotacachi, parroquia García Moreno, Cordillera de Toisán, Cerro de la Plata, Bosque Protector Los Cedros, sendero Camino del Oso, 0°18′N, 78°46′W, 1500–2600 m. 19 March 2003, *J.L. Clark, R. Hall, and F. Nicolalde 7414* (Holotype: US; Isotypes: CAS, COL, E, F, K, MO, NY, QCA, QCNE, SEL, UNA, US). FIGURES 1–2.

A *Drymonia teuscheri* fasciculis axillaribus multifloris, foliis majoribus, et calycibus atropurpureis differt.

Plant an obligate epiphyte; stems subwoody

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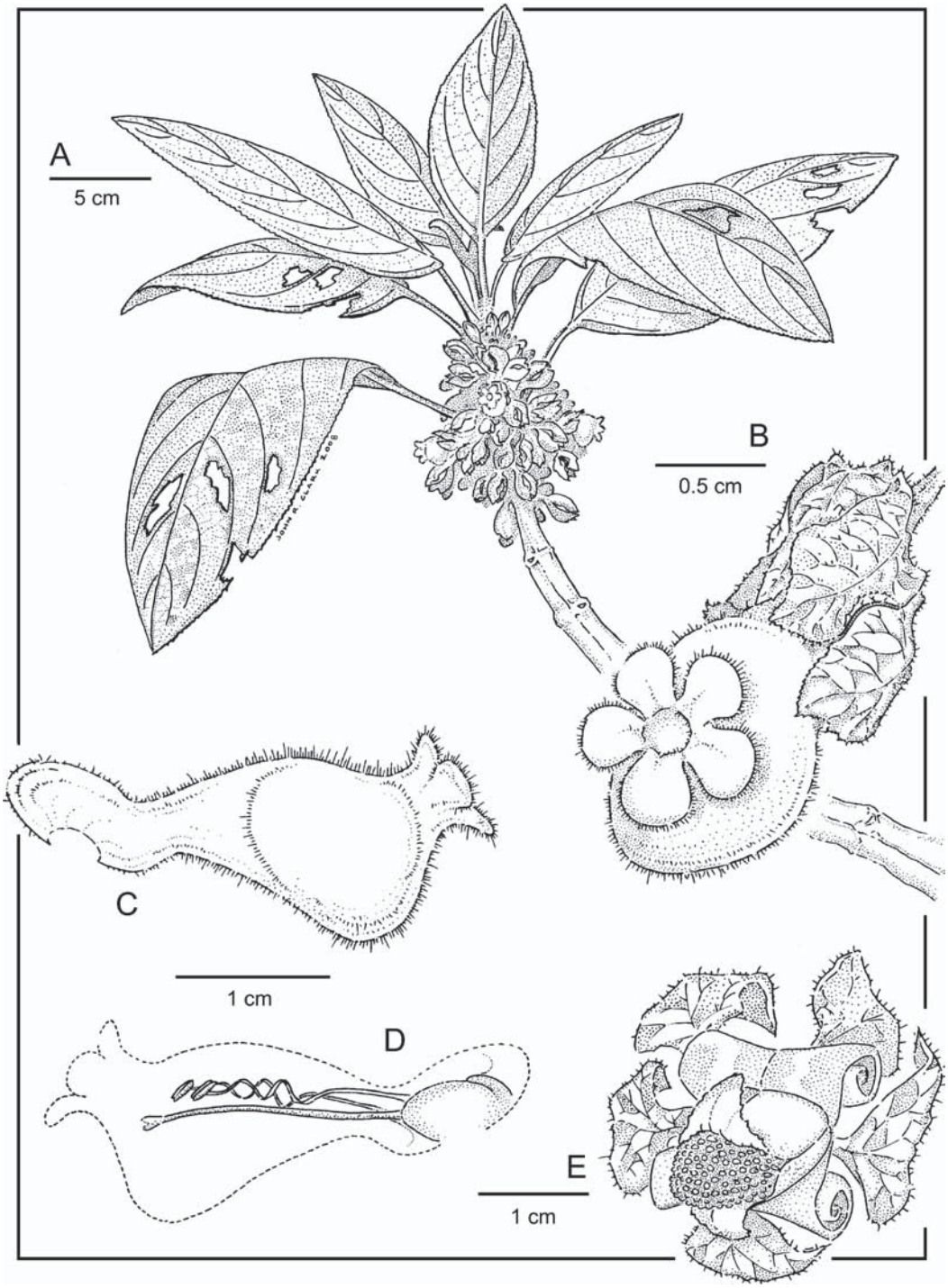

FIGURE 1. *Drymonia collegarum* J.L. Clark & J.R. Clark. **A.** Habit. **B.** Flower. **C.** Corolla. **D.** Detail of inner floral parts. **E.** Mature fruit illustrating tardily dehiscent endocarp.

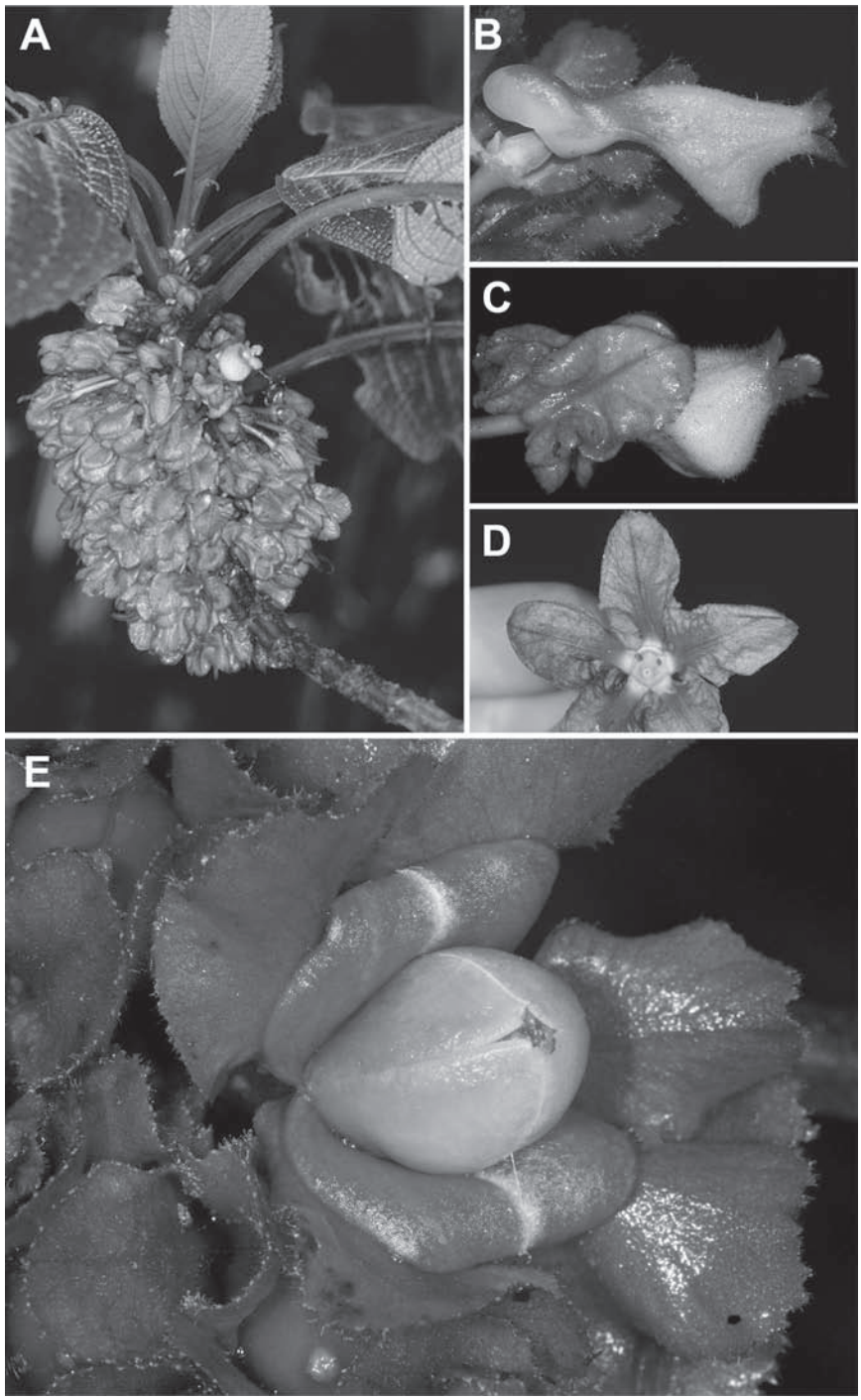

FIGURE 2. *Drymonia collegarum* J.L. Clark & J.R. Clark & *D. teuscheri* (B only). **A.** Habit. **B.** Lateral view of corolla and nectary gland of *Drymonia teuscheri.* **C.** Lateral view of calyx and corolla of *D. collegarum.* **D.** Front view of open calyx with corolla removed. **E.** Early stage of tardily dehiscent endocarp showing reflexed valves of capsule and inner layer covering seeds. (A & E from *J.L. Clark et al. 9821,* B from *J.L. Clark 6369,* C & D from from the holotype, *J.L. Clark et al. 7414*).

to herbaceous, erect, 1–1.5 m long, frequently branched, 0.4–0.8 cm wide, subquadrangular in cross-section, glabrescent to sparingly pilose below, densely pilose to sericeous above. ***Leaves*** opposite, equal in a pair; petioles dorsally grooved, 2–5 (–14) cm long, dark red to green; blade ovate to oblong, 6–14 (–25) long, 6–12 cm wide, abaxially uniformly green to green suffused with red, adaxially dark green to light green, mature leaves occasionally variegated, young leaves usually variegated, slightly bullate (especially when immature), membranaceous when dry, abaxially sparingly to densely pilose (especially on veins), adaxially uniformly pilose, base acute and occasionally asymmetrical, margin serrate, apex attenuate. ***Inflorescence*** epedunculate, reduced cyme, appearing fasciculate, with 5–10 (–15) flowers per node, flowers clustered near stem apices; bracteoles absent; pedicels shorter than the petioles, 1.0–2.5 cm long, sparingly pilose; flowers zygomorphic, not resupinate; calyx lobes 5, subequal with ventral lobe slightly smaller, lobes fused at base for 1–2 mm, obovate, 1.3–1.5 long, 1–2.5 cm wide, uniformly wine-red to dark-red, adaxially glabrous, abaxially uniformly papillate, margin ciliate, base cordate, basal lobes appressed to adjacent lobes and folded outward, margin serrate, apex ovate to acute, persistent and continuing to expand in fruit; corolla tubular, base gibbous on upper surface, apically bulbaceous and hypocyrtoid on lower surface, constricted apically, 2–3.5 cm long, base 0.5–0.8 cm wide becoming ampliate to 1.5 cm wide at pouch, throat 0.3 cm wide, corolla lobes subequal, oblong, serrulate, 3–6 mm long, 3–5 mm wide, spreading, uniformly red or uniformly yellow with red lobes, outer surface densely pilose on areas not covered by calyx and sparingly pilose on areas covered by calyx, inner surface glabrous; stamens 4, didynamous, adnate to the corolla tube for 0.5–1.0 mm, staminode not observed; ovary densely pilose with 1–3 celled trichomes, style sparingly pilose, stigma stomatomorphic, nectary a single dorsal gland, slightly bilobed to truncate. ***Fruit*** a dehiscent, fleshy capsule, pericarp reflexed, bright red, endocarp yellow, tardily dehiscent and separate from pericarp, seeds embedded in gelatinous fleshy funicula; seeds oblong, longitudinally striate, light brown when dry.

Paratypes. Ecuador—Azuay: cantón Cuenca, road from Cuenca to Guayaquil (vía Molleturo/El Cajas), San Jose de Molleturo, trail from road leading south through small patches of primary forest, 02°42′41″S 79°28′35″W, 1663 m, 30 May 2007, *J.L. Clark & Gesneriad Research Expedition 2007 Participants 9821* (QCNE, UNA, US); Cotopaxi: Cantón Sigchos, parroquia San Francisco de las Pampas, Bosque Integral Otonga, 00°25.17′S 79°00.19′W, 1900 m, 26 Jan 2001*, J.L. Clark & A. Muñoz 6126* (QCNE, QCA, UNA, US); Esmeraldas: cantón San Lorenzo, parroquia Alto Tambo, mature forest 4–8 km W of El Cristal, 00°50′16″N 78°31′04″W, 1500–1650 m, 27 May 2008, *J.L. Clark, J. Melton III, and O. Solarte 10306* (MO, QCNE, SEL, US); Pichincha: Cantón Quito, Cordillera de los Yumbos, overgrown path between La Victoria and Chiriboga, 0°0′S 78°40′W, 2400–2600 m, Mar 1998, *J.L. Clark & S.G. Nazzaro 4592* (AAU, COL, E, MO, QCA, QCNE, SRP, US); Cantón Quito, Reserva Florística-Ecológica ''Río Guajalito,'' km 59 de la carretera antigua Quito—Sto. Domingo de los Colorados, a 3.5 km al NE de la carretera, 00°13′53″S 78°48′10″W, 1800–2200 m, 4 April 2003, *J.L. Clark, N. Muchhala & A. Hoyos 7623* (QCNE, UNA, US); Cantón Quito, parroquia Nono, El Pahuma Orchid Reserve, 17 km east of Nanegalito, 00°01′S 78°37′W, 1700 m, 17 April 2003, *J.L. Clark, S. Clark, M. Elcome, W. Elcome, N. Harris & M. Mailloux 7636* (QCNE, UNA, US); Cantón Quito, parroquia Nono, El Pahuma Orchid Reserve, 17 km east of Nanegalito, trail from Centro de Interpretación to La Guarida del Oso, 00°01′S 78°37′W, 1700–2200 m, *J.L. Clark, M. Elcome, W. Elcome, N. Harris & M. Mailloux 7655* (QCNE, UNA, US).

Etymology. The epithet is Latin for 'colleague' and is in reference to the authorship of this new species by the authors who share the same name and same passion for the conservation and research of the flowering plant family Gesneriaceae. The species epithet and this publication will be a reference point that there are indeed two unrelated systematists by the name ''John Clark'' conducting research on the flowering plant family Gesneriaceae.

Distribution. *Drymonia collegarum* is distributed throughout cloud forests on the western slopes of the Ecuadorian Andes between 1500 and 2600 meters.

Comments. *Drymonia collegarum* is a locally abundant epiphyte and is often growing in prolific colonies 1–2 meters above the ground on tree trunks. It usually grows in the understory of shady mature cloud forests, but is also common in light gaps and sunny areas of mature forests.

Drymonia collegarum can be easily distinguished from other species of *Drymonia* by hypocyrtoid corollas, clustered fascicles of axillary flowers, fleshy capsules with tardily dehiscent endocarps, and a robust erect epiphytic habit. It grows sympatrically with *Drymonia teuscheri*

and *D. tenuis* and is often confused with these two species because they share a hypocyrtoid corolla and epiphytic habit. However, the stems of *D. tenuis* are herbaceous and scandent to clambering in contrast to the erect subwoody stems of *D. teuscheri* and *D. collegarum.* The large clusters (e.g., 10+) of axillary flowers in *D. collegarum* are distinctive from *D. teuscheri* which rarely has more than 5 flowers per axile. Additionally, the pouch in *D. collegarum* is not as pronounced as it is in *D. teuscheri* (FIGURE 2 for images of both flowers). The pouched region is more bulbaceous in *D. collegarum* in contrast to the narrowly angled region in *D. teuscheri.*

A third species, *D. dodsonii,* is closely related to the above mentioned species, but is easily differentiated by its large leaves (up to 30 cm long), terrestrial unbranched subshrub habit, and presence in lower elevation forests (500–1500 m).

The fruit type in *Drymonia collegarum* is a capsule with tardily dehiscent endocarps. This fruit is similar to the fleshy display capsules found in many other genera in the tribe Episcieae with one major difference: the endocarp separates from the outer layer of the fruit wall and remains attached and surrounds the placentae and mass of funiculi and seeds. The endocarp persists as a separate layer and becomes dehiscent at a later stage in the mature fruit (FIGURE 1E). Field observations suggest that the endocarp layer dehisces when the outer fruit walls are fully reflexed. This type of capsule was briefly described in Clark et al. (2006). Wiehler (1985) included an illustration of *D. dodsonii* showing a display capsule with an intact endocarp, but he did not elaborate on or mention it in the text. The morphological diversity of fleshy fruits in the Episcieae tribe is difficult to document because it is nearly impossible to evaluate characters from the shriveled and permanently distorted fruits on herbarium specimens. These findings exemplify the importance of field and living specimen observations for the accurate description of unique diagnostic characters.

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