Nautilocalyx erytranthus (Gesneriaceae), a new species from Northwestern Amazonia

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Abstract

A new species from western Amazonia is described and illustrated. Nautilocalyx erytranthus (Gesneriaceae) is characterized by an obligate terrestrial habit; leaf blades that are cuneate to attenuate at the base; and red funnelform corolla with an oblique limb and reflexed petal lobes with glandular trichomes clustered on the lateral and lower inner surfaces of the throat.

Resumen

Se describe y se ilustra una nueva especie del occidente Amazónico. Nautilocalyx erytranthus (Gesneriaceae) se caracteriza por su hábito estrictamente terrestre; por sus láminas foliares cuneadas o atenuadas en la base; y por sus flores de corola roja, infundibuliforme con un limbo oblicuo y los lóbulos de los pétalos reflexos con tricomas glandulares capitados agrupados en la superficie lateral e inferior de la garganta de la corola.

Introduction

The neotropical genus Nautilocalyx Linden ex Hanstein (1854: 207) is a member of the tribe Gesnerieae and subtribe Columneinae, which is the largest subtribe with 24 genera and 21% of the total species diversity in the family (Weber et al. 2013). The most recent treatment of the genus is more than one hundred years old (Sprague 1912). During the last 35 years new species of Nautilocalyx have been published (e.g., Skog 1974, 1989; Wiehler 1975, 1977, 1978; Skog & Steyermark 1991; Feuillet & Skog 2003; Kriebel 2004; Feuillet 2008), but there are still many undetermined specimens in museum collections. Preliminary molecular phylogenetic analyses support that Nautilocalyx as currently circumscribed is paraphyletic (Clark et al. 2006, 2012). An updated classification based on molecular sequence data and extensive taxon sampling will include revised circumscriptions of Paradrymonia, Nautilocalyx, and Chrysothemis (Mora and Clark in review).

Nautilocalyx erytranthus was collected by the second author during expeditions in 2006, 2007 and 2009 to the Tipituni Biological Research Station on the outskirts of the Yasuní National Park in the western Amazon basin of Ecuador. Additional research in herbaria resulted in the documentation of populations from other regions of the Amazon basin (Colombia and Peru) that indicates a relatively wide distribution.

Nautilocalyx erytranthus is commonly grown by horticulturists and especially by members of The Gesneriad Society, Inc. It is likely that the material currently in cultivation originated from a single introduction by Richard W. Dunn that resulted from a 1995 expedition to the Aguas Negras region located in Ecuador’s Cuyabeno Reserve (Dunn 1996).
Taxonomy

*Nautilocalyx erytranthus* J.L. Clark & M.M. Mora, *sp. nov.* (Figs. 1–2)

Differs from congeners by the combination of the following characters: obligate terrestrial habit; elliptic to obovate leaf blades with cuneate to attenuate base; red, funnelform corolla shape; reflexed petal lobes; and clusters of glandular trichomes on the lower inner surface of throat.

**Type:**—ECUADOR. Orellana: Aguarico, Yasuní Biosphere Reserve, Tiputini Biodiversity Station, tierra firme rainforest, 00°38’11’’S, 76°08’ 57’’W, 200 m, 24 June 2006, J. L. Clark et al. 9484 (holotype US!; isotypes AAU!, CAS!, E!, F!, MO!, NY!, QCNE!, SEL!, UNA!).

Terrestrial herb. Stems decumbent with branching erect shoots 15–60 cm tall, subquadrate, succulent; internodes 3–7 (~10.5) cm long, glabrescent to moderately hirsute at the apical nodes, glabrescent at the basal nodes. Leaves opposite, subequal to slightly unequal in a pair; petioles 1.0–2.5 cm long, green, tinged wine-red below, usually glabrescent, sometimes hirsute in new leaves; lamina 7.5–17.0 × (1.5–) 3–8 cm wide, elliptic to obovate-elliptic, sometimes narrowly lanceolate with crenate-serrate margins, base cuneate to attenuate, apex acute, adaxial surface dark green, abaxial surface light green, sometimes tinged with purple, glabrescent on both surfaces; the lateral pairs of veins 6–10 (~12), departing the midrib at 45–55° angle, tertiary venation anastomosing, forming series of areoles between adjacent secondary veins reaching almost to the margin. Inflorescence a reduced pair-flowered cyme, of 1–2 flowers in axillary clusters, the prophylls lanceolate, entire or with glandular teeth, up to 2 cm long, green suffused with reddish purple at the margins and the apex, tomentose; the pedicels 2.5–6 cm long, green to reddish purple, pubescent. Calyx lobes subequal 12–25 (~30) × 5–6 (~8) mm, ovate-lanceolate, glabrescent to hirsute, light green, with 2–5 glandular teeth on the margin. Corolla oblique relative to the calyx, 3.3–4.5 cm long, funnelform, spurred at base; limb oblique with reflexing lobes; corolla tube pubescent with translucent hairs, distal half a narrow tube, proximal half gradually expanding; corolla lobes subequal, 1.3–2.0 cm, slightly longer than broad; throat with glandular trichomes clustered on the lateral and lower surfaces. Androecium of 4 stamens, included, didynamous, 2.5–3.0 cm long, the filaments adnate to the base of the corolla tube up to 5.0 mm, white, glabrous, anthers apically coherent into a square, each pair of thecae ca. 2 mm long, oblong, dehiscent by longitudinal slits. Nectary a bilobed dorsal gland, entire and glabrous. Gynoecium with an ovoid ovary, 0.7 × 0.35 mm, densely sericeous, style up to 2.0 cm long, glabrous, stigma bilobed with glandular capitate hairs. Fruit a bivalved capsule, seeds not seen.

**Distribution and habitat:**—*Nautilocalyx erytranthus* occurs in the western Amazon basin of Colombia, Ecuador and Peru (100–700 m). It grows in abundant populations (10–15 individuals) in shady areas of mature forest. The vegetation zone (Holdridge 1967) where *N. erytranthus* occurs is classified as Tropical wet forest (Twf) to Tropical rain forest (Trf).

**Phenology:**—*Nautilocalyx erytranthus* has been collected in flower during the months of January, March, May, June and August to November.

**Eymology:**—The specific epithet, *erytranthus* refers to the red flowers.

**Conservation Status:**—Most collections of *Nautilocalyx erytranthus* are from the protected area of the Yasuni Biosphere Reserve in Amazonian Ecuador. The distribution of *N. erytranthus* includes three countries and at least two protected areas in Ecuador (Yasuni National Park and Cuyabeno Reserve). The Yasuni Biosphere Reserve (an area that includes the Yasuni National Park) is one of the most biologically diverse forests on Earth. It encompasses an area of approximately 10,000 km² between the Napo and Curaray rivers in the provinces of Napo and Pastaza. The Yasuni National Park was designated as a UNESCO Biosphere Reserve in 1989 and received formal protection by the Ecuadorian government’s Ministerio del Ambiente. Ecuador’s Congress under the presidency of Rafael Correa created an initiative to protect Yasuni National Park’s natural resources by raising funds from the international community to prevent oil drilling. This initiative was abandoned in 2013 because of insufficient support and President Correa is in the process of formally opening the park for drilling. According to the IUCN Red List criteria for estimated range, area of occupancy and population size (IUCN 2001), and considering the uncertain future of habitat conservation in the Yasuni Biosphere Reserve, *Nautilocalyx erytranthus* should be listed in the category NT (Near Threatened).
Discussion:—*Nautilocalyx erytranthus* is characterized by an obligate terrestrial habit and red corollas with reflexed lobes. The presence of red flowers in *Nautilocalyx* is relatively uncommon. The leaves of *N. erytranthus* are variable in color and texture. The abaxial leaf surface is either uniformly dark red to purple or uniformly light green. Variation of leaf color was observed in populations from the Yasuní Biosphere Reserve where it is locally abundant. It was observed to be a common terrestrial herb in the Tiputini Biodiversity Station. A commonly cultivated form of *Nautilocalyx erytranthus* has bullate leaves and future studies may recognize this taxon as heterospecific from the holotype of *N. erytranthus*, which has non-bullate leaves. The locality of the cultivated material with bullate leaves is from the Cuyabeno Reserve (Reserva de Producción Faunística Cuyabeno) in the Sucumbios Province of Ecuador where it was collected and brought into cultivation during an expedition by Richard W. Dunn (Dunn 1996).

*Nautilocalyx erytranthus* is similar to *N. urticifolius* (Leeuwenberg 1958: 314) Wiehler (1978: 43), which is endemic to Colombia and also has red corollas. These species are differentiated by the presence of erect corolla lobes (i.e., non-reflexed) and leaf blades less than 8 cm long in *N. urticifolius*. The corolla lobes in *N. erytranthus* are reflexed and the leaves are longer (7.0 to 17 cm long). Many museum collections of *N. erytranthus* were annotated as *N. lucianii* (Linden & Fournier 1876: 43) Wiehler (1978: 36). The presence of variegated foliage with reticulate bullae differentiates *N. lucianii* from the non-variegated leaves and non-riculate bullae in *N. erytranthus*. These two species are geographically isolated with *N. lucianii* endemic to Colombia (Antioquia and Caldas) and *N. erytranthus* mostly in Ecuador and Peru with a single collection from Putumayo (Fig. 3).

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