

A New Species of *Monopyle* (Gesneriaceae) with Axillary Inflorescences*

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Abstract: A new species of *Monopyle* is described from fragmented tropical habitat in southern Ecuador and northern Peru. The species is delimited from other *Monopyle* species by the presence of a prominent red indumenta and axillary inflorescences. At the same time, this species has rarely been found in specimens collected more than a decade ago, so it is necessary to concern of its conservation.

Key words: *Monopyle*, Gesneriaceae, phylogeny, Ecuador

Many species around the world are facing a significant threat due to habitat loss. This has made the description and evolutionary understanding of the world's biodiversity a priority. If we are unable to understand the diversity that exists, how do we protect or conserve that diversity. Accurate systematic studies of many remote tropical areas are imperative. The species of the genus *Monopyle* are dispersed by a splash cup type fruit and are typically endemic to specific drainages.

Monopyle Moritz ex Benth. (Gloxinieae; Gesneriaceae) is a group of terrestrial or epiphytic herbs distributed from Guatemala southward through northern South America. The genus currently comprises 26 known or described species^[1], and has been studied little since Morton's revision of the genus^[2]. The morphological complexity of the genus has led

to the misinterpretation of many species. The need for a more thorough treatment of the genus has been the impetus for a revisionary study (Keene, unpublished data). The genus is characterized morphologically by strongly anisophyllous opposite leaves, campanulate flowers, and the presence of uncinata trichomes^[3]. In depth study of the genus shows that these characters along with indument type, an osmophore, and inflorescence architecture are diagnostic for the genus. The travel by John L. Clark into many new or remote areas has allowed for the comparison of rare new material and has allowed for the recognition of many new species. Here I describe a morphologically distinct species from Ecuador. This taxon has been improperly assigned to *Monopyle sodiroana* Fritsch due to a limited understanding of the morphological complexity of the genus. *Monopyle sodiroana* during

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times of stress switches from inflorescence to stem development. This can be seen in a couple other species in the genus. The terminal inflorescence will flower then at the apex start forming a leafy stem, which could be mistaken as axillary flowers. This has caused confusion and several species with axillary inflorescences have been interpreted as the terminal flowering species. I have provided a description of the species and illustration along with a dichotomous key to aid in the identification of the new species.

Monopyle erythrochaete Keene, sp. nov. TYPE: ECUADOR. Morona-Santiago: Cantón Huamboya, Shankaimi, 01° 58' N, 77° 49' W, 850 m, September 1993, *Walter Palacios 11423* (HOLOTYPE: MO; ISOTYPE: SEL). (Fig.1)



Fig.1 *Monopyle erythrochaete*. A. Habit showing infructescence. B. Abaxial surface showing septate trichomes. C. Dissection of flower showing androecium. D. Calyx. E. Gynoecium (Illustrations from holotype and isotype).

Differs from all other *Monopyle* by the presence of dark red pubescence, reduced axillary inflorescences, and lanceolate leaves.

Terrestrial herb, roots fibrous, shoots brown to dark red, 40-60 cm tall, densely villous with long straight eglandular, distinctly red trichomes; lateral shoots absent in the axils of leaves. **Leaves** opposite, strongly anisophyllous; larger leaf with petioles (2.1-) 3.4-5.6(-7.1) mm long (occasionally appearing subsessile), indument same as the stem lamina asymmet-

rical lanceolate to oblong, base oblique, apex acuminate, (6.4-)8.1-11.1(-13.4) × (1.7-)2.4-4.1 cm, serrate to deeply serrate, spherical gland at the tip of most teeth; adaxially dark green to maroon, villous to densely villous with long straight trichomes intermixed with intermediate uncinata trichomes, abaxially maroon, villous with long eglandular (occasionally uncinata) trichomes (mostly on the veins); smaller leaf with petioles (0.9-)1.4-2.8 mm long, some appearing sessile, indument same as the stem; lamina orbicular to elliptic, base oblique (appearing equilateral), apex acuminate to cuspidate, (0.6-)1.0-2.5 × (0.8-)1.0-2.0 cm, shallowly serrate to serrate; adaxially same as the large leaf; abaxially same as large leaf. **Inflorescence** axillary with one to two flowers per axil; peduncles up to 2.0 mm long, densely villous with long straight red trichomes, floral bracts, 1.1-2.0 × 0.6 mm, persistent, opposite, adaxially densely villous, abaxially villous; pedicel 2.2-5.8 mm long, indument same as the peduncle. **Calyx** green to maroon, lobes five, (5.4-)8.8-12.1(-14.2) × 0.7-1.2(-2.1) mm, connate 3.2-7.0(-9.3) mm from base, apex attenuate to acuminate, abaxially villous with long straight red trichomes intermixed with intermediate uncinata trichomes, adaxially same as adaxial surface. **Corolla** white with varying amounts of violet spots, 15.5-17 × 10.1-11.8 mm, villous with long straight trichomes intermixed with glandular trichomes on the outer surface of tube, short gland-tipped papillae on the inner surface of the tube confined to the dorsal surface of the throat; limb glabrous, dorsal lobes 5.6-7.6 × 3.1-4.6 mm, ventral lobe 8.0-9.6 × 5.2-6.8 mm. **Androecium** stamens four, 5.1-8.4 mm long, didynamous, included, filaments 4.7-6.2 mm long, adnate to corolla, anthers 1.1 × 1.8 mm, connivent for up to 1.5 mm. Nectary usually absent, some flowers with small amounts of raised tissue at the base of the ovary. **Gynoecium** ovary half-inferior to subinferior, to 2.3 mm wide, densely puberulent with small uncinata trichomes (mainly at the apex near the base of the style), style to 4.5-6.7 mm long, glabrous, stigma stomatomorphic. **Fruits** 9.8 × 4.7 mm, accrescent, dehiscent.

ing along dorsal surface, calyx persistent in fruit; seeds numerous, ovoid, smooth or with some undulate ridges, 0.4–0.5×0.3–0.4 mm, dark brown to black.

Phenology—Collected in flower and fruit in March, April, May, July, September, and October.

Distribution and Ecology—*Monopyle erythrochaete* has been collected from areas noted on herbarium labels as intact humid forest and montane forest. This species is known from Morona-Santiago and Zamora-Chinchipe provinces in Ecuador as well as Amazonas department in Peru.

Conservation and IUCN Red List category—According to the IUCN Red List criteria^[4] for limited geographic range (B2a, less than 10 km² and known to exist at only a single location) and considering the uncertain future of habitat conservation in the area, *Monopyle erythrochaete* should be listed in the category CR (Critically Endangered). This species has only been collected once in the last decade.

Etymology—The specific epithet, erythrochaete, reflects the species having a conspicuous red indument.

Representative Specimens Examined—ECUADOR. Morona-Santiago: From Macas across Rio Upana for about 15 km, then a km hike by foot into the Cordillera de Cutucú, 16 Apr 1988, *Hans Wiehler, Mario Portilla Andrade & Gesneriad Research Foundation Study Group 8824* (US); Macuma, c. 50 km NE of Macas, 21 Mar 1973, *Holguer Lugo S. 3651*. Pastaza: 2 km NE outside Puyo at Rio Pindo Grande, 1 May 1979, *Hans Wiehler & D. Masterson 79232* (SEL). Zamora-Chinchipe: Cordillera del Cóndor, along road from Ecuacorriente camp to mine site, 03° 34' 11" S, 78° 25' 38" W, 1 400–1 600 m, 23 Oct 2006, *H. van der Werff & W. Quizhpe 21645* (MO).

PERU. Amazonas: Prov. Condorcanqui, Cordillera del Condor, Puesto de Vigilancia Alfonso Ugarte (PV3), cabeceras del Rio Comainas, 03° 55' S, 78° 24.5' W, 1 000–1 100 m, *Hamilton Beltran & Robin Foster 1098* (F); Cordillera del Condor, Puesto de Vigilancia Alfonso Ugarte (PV3), cabeceras del Rio

Comainas, 03° 54' 54" S, 78° 25' 45" W, 1 200 m, *Hamilton Beltran & R. Foster 1113* (US).

KEY TO DIFFERENTIATE THE NEW SPECIES FROM RELATED SPECIES

1. Inflorescences axillary.

2. Stems pubescent with longer trichomes to 1 mm or more.

3. Stems and calyx lobes densely pubescent with red trichomes, more than 1 mm long.

M. erythrochaete

3'. Stems and calyx lobes moderately pubescent, pubescence not red, usually not more than 1 mm.

M. multiflora

2'. Stems glabrescent or pubescent with short trichomes, less than 1 mm.

M. uniflora

1'. Inflorescences terminal.

M. sodiroana

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具腋生花序的异叶岩桐属一新记录种

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摘要:描述了产自厄瓜多尔南部和秘鲁北部的热带地区片段化生境下的异叶岩桐属 *Monopyle* 一新种。本种与异叶岩桐属其他物种的重要区别在于其具有明显凸出的红色毛被以及腋生的花序,同时本种在过去十多年前采集到的标本中很少被发现,因此需要关注他的保护问题。

关键词:异叶岩桐属 苦苣苔科 系统发育 厄瓜多尔

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本刊编委范航清应邀参加自然资源部广西片区红树林保护修复专题调研

2019年2月25—26日,以自然资源部副部长赵龙为组长,国家林草局副局长彭有冬为副组长的全国红树林保护修复调研组到广西考察。本刊编委兼专刊特邀主编、广西红树林研究中心主任范航清研究员作为专家,应邀全程陪同了广西片区的现场考察和座谈。

范航清研究员向与会主要领导赠送了我编辑部于2018年8月公开发行的《广西科学》第4期。该期主推栏目为范航清研究员科研团队关于“广西红树林资源及其恢复与利用”的最新研究成果,该栏目在概述广西红树林资源情况、简要回顾广西红树林造林历史和科学研究历程、评估造林成效、总结经验教训的基础上,探讨宜林滩涂潜在规模、红树林生态恢复类型划分理论问题、生态修复成本与收益问题。其详实的研究数据和多年的实践经验总结,为国家相关调研工作提供了具体事例和政策建议,是本次调研决策的重要依据,得到领导的一致好评。



广西北部湾作为中国红树林的重要分布区及典型滨海湿地区域,具有重大的科研价值和区域生态价值,据悉,国家有关部门高度重视湿地保护工作,2018年起将湿地列为一类土地类型,红树林滨海湿地为二类土地类型,这在中国历史上还是第一次。我编辑部自1993年起便与广西红树林研究中心建立合作,邀请范航清研究员等专家学者担任编委和组稿工作,策划了多期红树林与滨海湿地相关的专栏、专刊。编辑部整理了《广西科学》和《广西科学院学报》近年来发表的相关研究成果,对广西红树林保护研究成果以及滨海生态保护与研究情况作全面系统的展示,以便相关部门和专家学者阅览索引(详情可到我编辑部官网查阅)。

(本刊编辑部)

