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Pleurothallis pugio (Orchidaceae), a new Pleurothallidinae from Costa Rica

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Abstract

A new species of *Pleurothallis* is described from Ciudad Quesada in Costa Rica. The novelty belongs to *Pleurothallis* series *Acroniae* Luer, having a close floral affinity with *P. dentipetala* and *P. rowleei*, from which it can be easily distinguished by the two-flowered inflorescence branches, bearing tiny yellow flowers with ovate-lanceolate, undulate dorsal sepal, decurved, oblong-lanceolate, dagger-like petals, and an ovate lip. *Pleurothallis pugio* is reminiscent of *P. imitor*, a species which also has two-flowered branches bearing yellow flowers. However, the latter is only known to occur in Monteverde Reserve at higher elevations, and differs in the petals that are only slightly decurved, with an entire margin, the sepals that are elliptic, and the lip that is triangular-sagittate.

Keywords: Ciudad Quesada, new species, orchid, *Pleurothallis imitor*, San Carlos, taxonomy

Introduction

Pleurothallis Brown in Aiton (1813: 211), with about 500 species, is the fourth most species rich genus of subtribe Pleurothallidinae Lindley ex G. Don (1839: 636) (Karremans 2016, Karremans & Vieira-Urbe 2020). The high diversity of species within the genus and an overall morphological similarity of its flowers has made the circumscription of some species traditionally difficult. The publication of a series of monographic works on the species belonging to *Pleurothallis* (i.e. Luer 1989, 1998, 1999, 2005), has resulted in a steady and maintained increase in the recognition of additional taxa in the last few decades (Karremans & Davin 2017).

The monographic works have especially prompted the publication of detailed clarification works that look to disentangle particular so-called species complexes within the genus (e.g. Wilson *et al.* 2017a, 2017b, 2018, 2019, Zambrano Romero *et al.* 2017, Jiménez *et al.* 2018, 2021, Sierra-Ariza 2023). Costa Rican species of *Pleurothallis* are no exception, with several novelties proposed on their own (e.g. Karremans & Bogarín 2011, Karremans & Muñoz 2011, Karremans & Jiménez 2018) or in revision papers dealing with species complexes such as in the *Pleurothallis cardiothallis* Reichenbach (1857: 158–159) and *P. phyllocardia* Reichenbach (1866: 97) groups (Pupulin *et al.* 2017a, 2017b, 2021).

While revising *Pleurothallis* material in Costa Rica, a specimen not conforming to any of the known species was encountered. It is a member of *Pleurothallis* series *Acroniae* Luer (1988: 134), a group featuring plants with a racemose inflorescence, long-pedicellate flowers, ciliate, denticulate or pubescent petals, and a lip lacking prolonged lateral lobes. Among those, the taxon here described is morphologically similar to *Pleurothallis imitor* Luer (1996: 78–81) and *P. rowleei* Ames (1922: 11–12), but is easily distinguished from both.

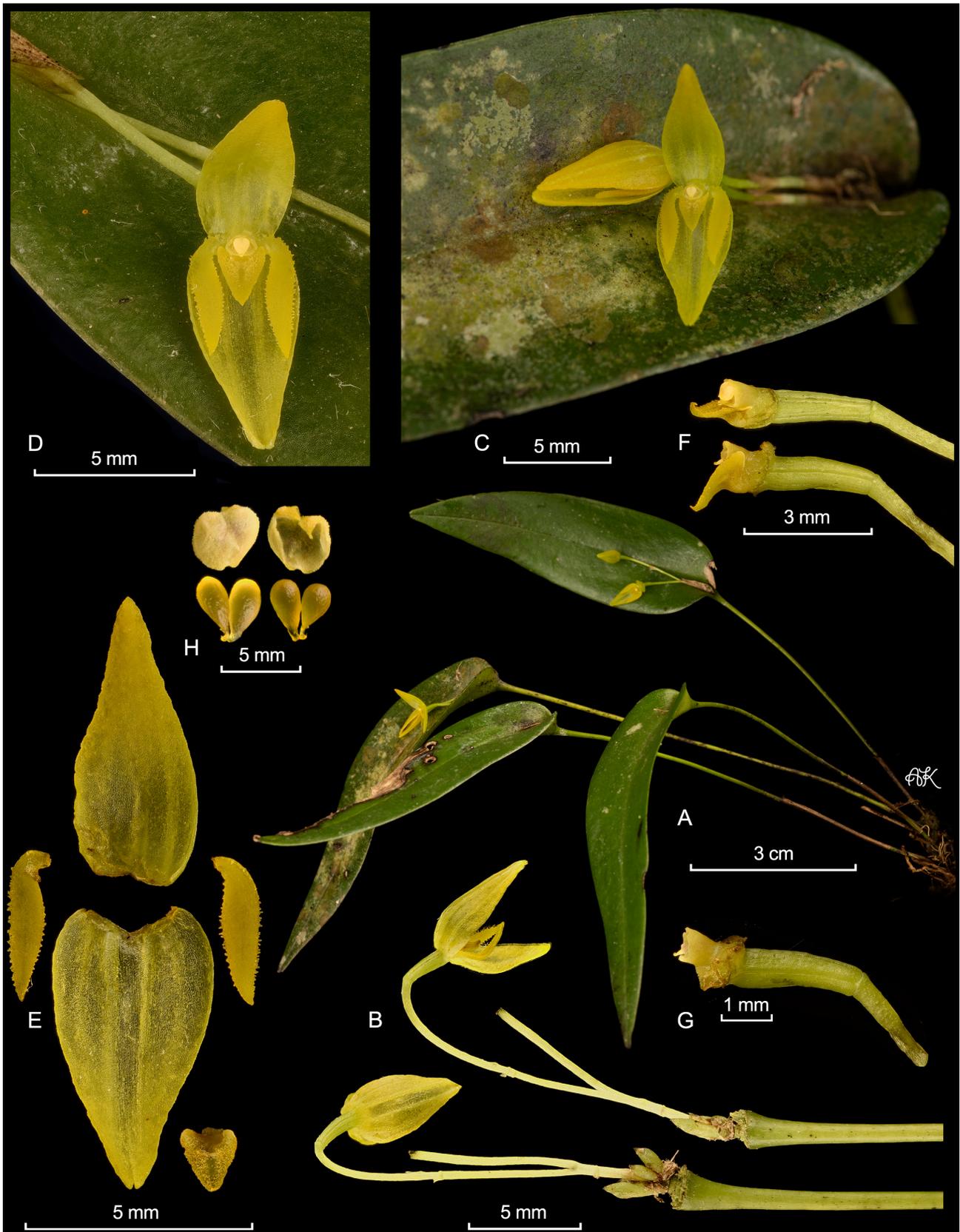


FIGURE 1. LDCP of *Pleurothallis pugio* Karremans & J.E. Jiménez. **A.** Habit. **B.** Inflorescence, showing the branching succession. **C.** Two-flowered inflorescence branch. **D.** Flower. **E.** Dissected perianth. **F.** Column and lip, lateral view. **G.** Column and ovary, lateral view. **H.** Anther cap and pollinarium. Plate by APK based on type specimen Jiménez & Morales 6614 (JBL-spirit).

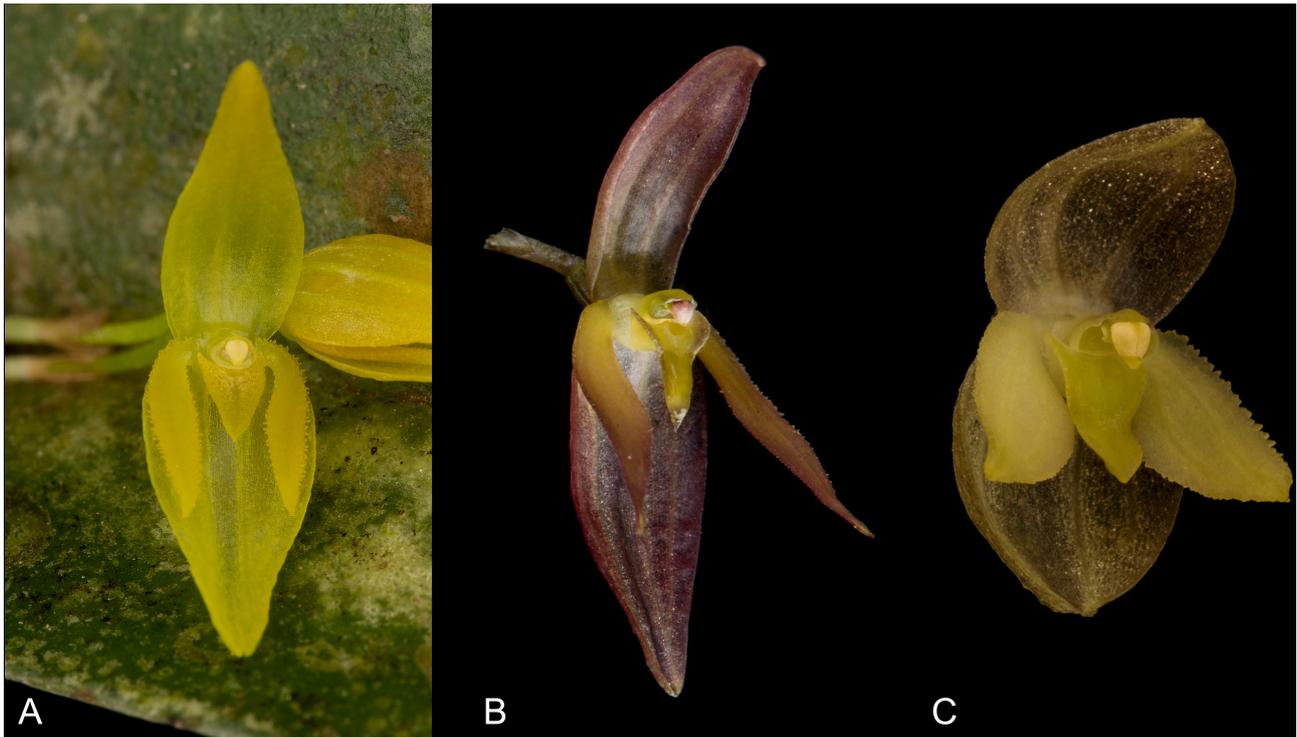


FIGURE 2. Floral comparison. **A.** *Pleurothallis pugio* Karremans & J.E. Jiménez, Jiménez & Morales 6614 (JBL-spirit). **B.** *Pleurothallis rowleei* Ames, JBL-033598 (JBL-spirit). **C.** *Pleurothallis dentipetala* Rolfe ex Ames, Karremans 7287 (JBL-spirit). Photographs by APK and Lizbeth Oses.

Taxonomy

Pleurothallis pugio Karremans & J.E. Jiménez, *sp. nov.* (Figures 1–2a).

Type:—COSTA RICA. Alajuela: San Carlos, Ciudad Quesada, Buena Vista, bosque aledaño a Laguna González, bosque primario Intervenido, 10°17'11.63" N, 84°27'54.19" W, 767 m, florecido y preparado el 07 febrero 2023, J.E. Jiménez & P. Morales 6614 (holotype: JBL-spirit).

Similar to *P. imitor* in the two-flowered inflorescence branches bearing yellow flowers, but distinguished by significantly smaller flowers with the dorsal sepal ovate-lanceolate, with the apical margin undulate (*vs.* elliptic, margin entire), strongly decurved, conspicuously dentate petals (*vs.* slightly decurved, margin entire), lip ovate (*vs.* triangular-sagittate). The overall appearance of the flower is similar to *P. rowleei* (Figure 2b), but the new species is distinguished in the two-flowered branches bearing tiny yellow flowers (*vs.* inflorescence branches bearing many purple flowers), the sepals marginally undulate (*vs.* margin entire), the petals oblong-lanceolate (*vs.* sigmoid) and the lip ovate (*vs.* triangular-sagittate, with a narrow midlobe).

Description:—*Plant* epiphytic, herbaceous, erect, caespitose, up to 17 cm tall. *Roots* flexuous, thin, 0.5–1 mm diameter, densely sub-fasciculate. *Ramicauls* erect, terete, thin, up to 5.0–9.0 cm long, covered by tubular, papyraceous sheaths close to the base, tightly adpressed, up to 2.4–3.2 cm long. *Leaves* sub-horizontal to arching, coriaceous, sessile, narrowly ovate, acute, slightly emarginate at the apex, 5.8–7.5 × 1.5–1.8 cm. *Inflorescence* with an extremely reduced peduncle, producing multiple 2-flowered branches in slow succession, subtended by a spathaceous bract 0.5–0.8 cm long, papyraceous when mature; pedicels terete, pale green. *Ovary* somewhat clavate, 2.6–2.8 mm long, green. *Flowers* slightly spreading, solid yellow; *dorsal sepal* ovate-lanceolate, slightly concave, membranous, acute, 3-veined, 6.2–6.4 × 2.5–2.7 mm, with the apical margin undulate; *lateral sepals* connate into an ovate, slightly concave synsepal, membranous, obtuse, 4-veined, 6.2–6.4 × 3.2–3.5 mm, minutely bifid at the apex, apical margin undulate; *petals* strongly decurved, oblong-lanceolate, oblique, conspicuously dentate, acute, 3.3–3.5 × 0.8–1.1 mm; *lip* ovate, thick, papillose, decurved, 1.3–1.5 × 1.2–1.4 mm, apex acute, the base deflexed into a claw, hinged to a short column-foot, 0.9–1.1 mm long; *glenion* inconspicuous transversally oblong. *Column* short, straight, transversely elliptic, 0.8–

0.9 mm long. The *anther* and the *stigma* apical; anther cap ovate, cucullate, obtuse at the base, bilobed at the apex, 2-celled, ca. 4 × 4 mm; pollinia 2, narrowly ovate-pyriform, 4 mm long, joint by an elliptic viscidium. *Fruits* and *seeds* unknown.

Distribution and ecology:—Only known from the type locality in Ciudad Quesada, Costa Rica. The species is only known from Buena Vista de Ciudad Quesada, Central Volcanic Mountain Range. It is found in a transitional forest from lowland tropical rainforest to premontane forest, at an elevation between 700–800 m. Plants were seen to flower in July in the field, and February in cultivation. Like many *Pleurothallis* species it is likely able to continue blooming successively indiscriminately.

Etymology:—From the Latin *pugio*, a Roman dagger in reference to the petal morphology.

Taxonomic Discussion:—*Pleurothallis pugio* is known from a single collection the surrounding of Ciudad Quesada. The new species can be easily distinguished by the two-flowered inflorescence branches, bearing tiny yellow flowers with an ovate-lanceolate, undulate dorsal sepal, decurved, oblong-lanceolate, dagger-like petals and an ovate lip. *Pleurothallis pugio* belongs to *Pleurothallis* series *Acroniae* having a close floral affinity with *P. dentipetala* Rolfe ex Ames (1923: 7–8) and *P. rowleei* (Figure 2), which also occur in Costa Rica. *Pleurothallis dentipetala* differs in its congested, many-flowered raceme (vs. two-flowered branches), flowers light rose or brownish rose (vs. yellow), suborbicular dorsal sepal (vs. ovate-lanceolate), elliptic-ovate petals (vs. oblong-lanceolate), and a sub-trilobed lip (vs. entire). *Pleurothallis rowleei* can be distinguished from *P. pugio* by its longer inflorescences with many purple flowers (up to 14 cm long vs. up to 1.5 cm, with yellow flowers), sigmoid petals (vs. oblong-lanceolate), and a lip with a rounded glenion (vs. lip with a transversally oblong glenion). The plant morphology and two-flowered branches bearing yellow flowers are reminiscent of *P. imitor* a species with longer sepals (11–12 mm long vs. 6.2–6.4 mm long), entire, oblong-subfalcate petals (vs. dentate, oblong-lanceolate), and a triangular-sagittate lip (vs. ovate). In Costa Rica, *Pleurothallis pugio* is found growing at lower elevation in the mountains of the Central Volcanic Range, between 700–800 m, whereas *P. imitor* is found in the continental divide in Monteverde Reserve, Tilarán Range, at 1500 m.

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