

## Two new species of the genus *Xanthoxerampellia* (Orchidaceae, Maxillariinae) from Antioquia, Colombia

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*Summary:* Two new species of *Xanthoxerampellia*, *X. anthropophora* and *X. betancuri*, are described based on Colombian material. Morphological characteristics of novelties are complemented with illustrations and taxonomic notes. An updated key to Colombian species of *Xanthoxerampellia* is provided.

*Keywords:* biodiversity, Maxillariinae, Neotropics, orchids, taxonomy

The infratribal classification of Maxillariinae proposed by LINDLEY (1843) has been a topic of discussion among taxonomists worldwide for over 130 years (BENTHAM 1881; PFITZER 1887; ROLFE 1911; SCHLECHTER 1926; DRESSLER 1993; SENGHAS 1993; SZLACHETKO 1995; CHRISTENSON 2002; BLANCO et al. 2007; WHITTEN et al. 2007; SCHUITEMAN & CHASE 2015). Despite fundamental disagreement on the taxonomic position of many genera and divergence between results of molecular and morphological studies, the separateness of few taxa was rarely questionable. One of these distinctive groups of plants was delimited by FENZL (1850) who proposed the new generic name *Mormolyca* for the plants characterized by conduplicate, linear to elliptic-oblong leaves arising from the base of the pseudobulb, the basal, elongate inflorescence consisting of a single flower with dissimilar, free tepals, 3-lobed lip, hinged at the apex of the column-foot with a puberulent, basal callus and 4 pollinia. During the last century, the genus was not recognized only in two classification systems, SCHLECHTER's (1926) and CHRISTENSON's (2002). In the broad concept (i.e. BLANCO et al. 2007; WHITTEN et al. 2007), the genus was intermixed with section *Rufescens* within *Maxillaria* Ruiz & Pav. Due to the long history, the definition of the genus became broader hereby embracing species characterized by, e.g. subsimilar tepals, unequally 3-lobed lip (e.g. *Mormolyca richii* (Dodson) M.A. Blanco) or the oblong callus (e.g. *Mormolyca rufescens* (Lindl.) M.A. Blanco).

Due to the inconclusive results of the molecular research or their incompatibility with the morphological observations on *Mormolyca*, SZLACHETKO et al. (2012) proposed a reclassification of the genus and a resumption of its narrower concept according to which the genus consists of only about 10 species. The changes proposed by the authors included also description of a new genus *Xanthoxerampellia* to embrace species differing from *Mormolyca* s. str. by the shorter inflorescence, always much shorter than the leaf or even the pseudobulb, the subsimilar tepals and an unequally 3-lobed lip with an oblong callus. The comparison of both genera are presented in Table 1.

ORTIZ & URIBE (2007) listed six Colombian *Maxillaria* species which should be currently classified as *Xanthoxerampellia*: *X. aureoglobula*, *X. hedwigiae*, *X. muelleri*, *X. rufescens*, *X. sanantonioensis* and *X. tenuibulba*. Their occurrence was reported from the Pacific lowlands as well as from cloud and montane forests of the Andes.

**Table 1.** Comparative morphology of *Mormolyca* and *Xanthoxerampellia*.

Character	<i>Mormolyca</i>	<i>Xanthoxerampellia</i>
Pseudobulbs	ovoid ellipsoid, laterally compressed, subtended by scarious non-foliaceous bracts, unifoliate	ovoid to oblong, more or less laterally flattened, rugose, somewhat fleshy, unifoliate
Leaf	conduplicate, leathery, linear to elliptic-oblong, acute	coriaceous, lanceolate, oblong to elliptic, narrowed towards the base and apex
Inflorescence	from the base of pseudobulb, elongate, longer than pseudobulbs, reaching the leaf apex	much shorter than the leaf, subtended basally by 1–2 bracts
Tepals	dissimilar, free	subsimilar, rather fleshy
Lip	3-lobed; basal callus puberulent	distinctly, unequally 3-lobed, the middle lobe subrectangular, truncate at the apex, lateral lobes obliquely triangular to falcate, acute, much smaller; callus oblong, usually in the basal half of the lip
Gynostemium	slender, elongate; column-foot rudimentary	short, massive, slightly arcuate; column-foot short, rather massive

During the studies on the Colombian Maxillariinae, two distinctive species of *Xanthoxerampellia* were found in the material collected in the department of Antioquia, from which no species of the genus have been reported so far (IDARRAGA PIEDRAHÍTA et al. 2011). Both species are described here as new.

## Materials and methods

Herbarium specimens were examined according to the standard procedures. Every studied sheet was photographed and data from the labels were taken. Both vegetative and generative characters of each plant were examined (the shape and size of the pseudobulbs, leaves, inflorescence architecture, shape and size of the floral bracts, flower morphology and gynostemium structure) and were compared with existing type material.

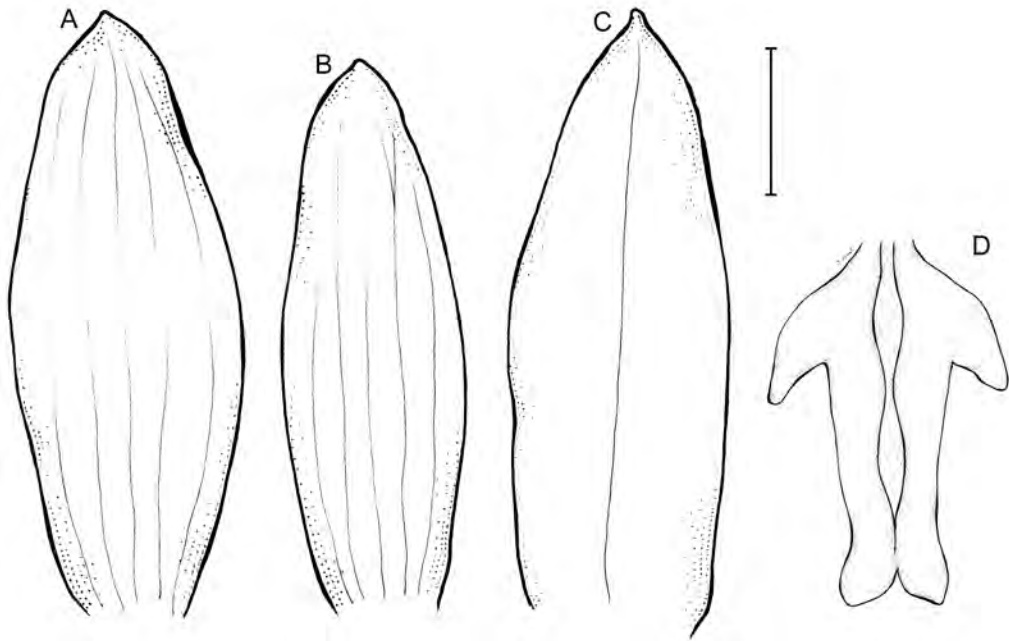
## Taxonomic treatment

*Xanthoxerampellia anthropophora* Szlach. & Kolan., sp. nov. (Fig. 1)

**Diagnosis.** Similar to *X. dressleriana* but with smooth pseudobulbs, lip lateral lobes produced in the basal third and bilobulate lip apex, with both lobules being obliquely acute to subobtuse.

**Type.** Colombia, Antioquia, Mpio. Urrao. Vereda Calles Abajo, Parque Nacional Natural Las Orquídeas, sector Venados. 6°30'50.7"N 76°17'23.3"W, 1196 m, 30 Jul 2011, R. Arevalo et al. 930 [Holotype: COL!]

**Description.** Plants caespitose. Pseudobulbs up to 9 cm long and 0.4 cm wide, oblong, laterally compressed, unifoliate, basally enclathed by 2–3 leafless sheaths. Leaf petiolate; petiole up to 3 cm long, narrow, conduplicate; blade up to 25 cm long and 2.5 cm wide, linear-lanceolate, acute, somewhat fleshy. Inflorescence single-flowered. Scape 2 cm long, with 1–2 sheaths. Flowers rather medium-sized, sepals somewhat fleshy. Floral bracts 13 mm long, ovate-lanceolate. Pedicel and ovary up to 20 mm long. Dorsal sepal 21 mm long, 6 mm wide, narrowly elliptic, rounded,



**Figure 1.** *Xanthoxerampellia anthropophora*, dissected perianth: A – dorsal sepal; B – petal; C – lateral sepal; D – lip. Drawn by S. Nowak from the holotype. Scale bar = 5 mm.

shortly apiculate at apex, 5-nerved. Petals 16 mm long, 4 mm wide, oblong-lanceolate, subacute to subobtuse, somewhat oblique, 3–4-nerved, lateral nerves unbranching. Lateral sepals 19 mm long, 5 mm wide, oblong- or ligulate-lanceolate, subacute, somewhat concave in the centre, 5-nerved. Lip 12 mm long in total, 8 mm wide when spread, fleshy, thick, sessile, 3-lobed just above the base; basal lobes up to 2 mm long, 1 mm wide, rhombic, subacute; the middle lobe 8 mm long, 4 mm wide, oblong-rectangular, somewhat contracted below apex, slightly expanded again above it; apex deeply incised, hence bilobulate, both lobes obliquely acute to subobtuse; callus oblong running from the base to below the apex, expanded and tightened twice, covered by resin. Gynostemium 8.5 mm long.

**Etymology.** An allusion to the lip form, reminding human being.

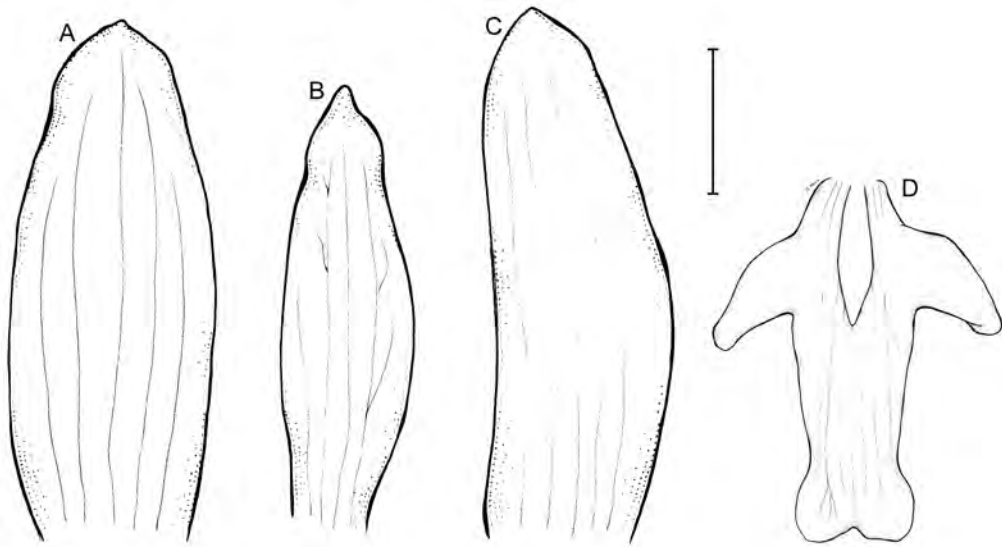
**Distribution and ecology.** Known so far only from the Western Cordillera in the Colombian department of Antioquia where it was found growing at an altitude of about 1200 m. Flowering occurs in July.

**Notes.** *X. anthropophora* resembles *X. dressleriana*, but unlike the latter species it has smooth pseudobulbs, the lip lateral lobes are produced in the basal third and the lip apex is bilobulate with both lobules being obliquely acute to subobtuse.

***Xanthoxerampellia betancuri* Szlach. & Kolan., sp. nov. (Fig. 2)**

**Diagnosis.** This species appears to be related to *X. acutifolia*, from which it differs in having obtuse petals and sepals, widely spread lip lateral lobes and callus gradually disappearing on the lip lamina.

**Type.** Colombia. Antioquia. Mpio. Urrao. Corregimiento La Encarnación. Vereda Calles, camino Calles-La Encarnación, Parque Nacional Natural Las Orquídeas, después de la confluencia



**Figure 2.** *Xanthoxerampellia betancuri*, dissected perianth: A – dorsal sepal; B – petal; C – lateral sepal; D – lip. Drawn by S. Nowak from the holotype. Scale bar = 5 mm.

del Rio Polo al Rio Calles y antes del Rio San Pedro, sitio La Queibra. 6°30'31"N 76°14'W, 1600–1850 m, 2 Feb 2011, *Betancur et al.* 14885 [Holotype: COL!].

**Description.** Plants caespitose. Pseudobulbs up to 6 cm long and 0.6 cm wide, oblong, laterally compressed, unifoliolate, basally enclathed by 2–3 leafless sheaths. Leaf petiolate; petiole up to 2 cm long, narrow, conduplicate; blade up to 17 cm long and 2.5 cm wide, oblong to ligulate-lanceolate, acute, somewhat fleshy. Inflorescence single-flowered. Scape 3 cm long, with 2 sheaths. Flowers rather medium-sized, sepals somewhat fleshy. Floral bracts 11 mm long, ovate-lanceolate. Pedicel and ovary up to 20 mm long. Dorsal sepal 17–18 mm long, 6 mm wide, oblong-elliptic, rounded at apex, somewhat concave in the centre, 5-nerved. Petals 15 mm long, 4 mm wide, obliquely oblong-lanceolate, subacute, 3–4-nerved, lateral nerves branching. Lateral sepals 15–16 mm long, 5 mm wide, obliquely ligulate, rounded at the apex, 5-nerved. Lip 12 mm long in total, 8 mm wide when spread, fleshy, thick, 3-lobed just above the base; claw short and wide; basal lobes up to 3 mm long, 1.5 mm wide, triangular-falcate, rounded at apex; the middle lobe 7 mm long, 3 mm wide, oblong-rectangular, somewhat contracted below apex, slightly expanded again above it; apex gently emarginated; callus oblong in the basal third only, disappearing gradually on the lamina. Gynostemium 9 mm long.

**Etymology.** Dedicated to Julio Betancur, an eminent Colombian plant collector.

**Distribution and ecology.** Known so far only from the Western Cordillera in the Colombian department of Antioquia. It was found growing in the primary forest at an altitude of about 1600–1850 m. Flowering occurs in February.

**Notes.** *X. betancuri* is vegetatively similar to *X. acutifolia* and *X. dressleriana*. It differs from the former in the flower segments morphology, i.e. obtuse petals and sepals, widely spread lip lateral lobes and callus gradually disappearing on the lip lamina. The new species is easily separable from *X. dressleriana* by having smooth pseudobulbs, smaller flowers and smaller lip callus, limited to its basal third only.

**Key to the Colombian species of *Xanthoxerampellia***

1. Pseudobulbs oblong to oblong-fusiform, about 0.6–0.7 cm wide ..... 2
  - Pseudobulbs ovoid to ellipsoid ..... 4
2. Lip apex bilobulate ..... *X. anthropophora*
  - Lip apex entire ..... 3
3. Lip lateral lobes triangular-falcate, rounded at the apex, middle lobe oblong-rectangular, apex gently emarginated ..... *X. betancuri*
  - Lip lateral lobes obliquely oblanceolate, subacute; middle lobe oblong, obtuse ..... *X. tenuibulba*
4. Lateral lobes extending to about the middle of the lip ..... *X. hedwigiae*
  - Lateral lobes small, extending to about 1/3 of the basal part of the lip ..... 5
5. Floral bract almost as long as the pedicellate ovary ..... *X. sanantonioensis*
  - Floral bract much shorter than the pedicellate ovary ..... 6
6. Lateral sepals up to 11 × 8 mm, lip up to 12 × 4 mm, callus linear, extending from the base of the lip up to above the base of the middle lobe ..... *X. aureoglobula*
  - Lateral sepals 12–20 × 5.5–8 mm, lip 10–14 × 5–6 mm, callus ligulate, extending from the base of the lip up to about the middle of the lip ..... 7
7. Pseudobulbs 5 × 2.5 cm, the upper bract of scape does not reach the base of the ovary ..... *X. muelleri*
  - Pseudobulbs 3 × 2 cm, the upper bract of scape exceeds the base of the ovary ..... *X. rufescens*

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