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A NEW SPECIES OF *POLYGONATUM* MILL. (ASPARAGACEAE) FROM GUIZHOU, CHINA

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Abstract

A new species *Polygonatum sinopubescens* from Yinjiang County, Guizhou Province, South-west China is described and illustrated. This species was found growing in evergreen broad-leaved forests or mixed needle-leaved and evergreen broad-leaved forests on slopes at altitudes of 870-930 m. It is related to *Polygonatum filipes* Merr. *ex* C. Jeffrey & Mc Ewan, but differs from the latter by pubescent stems, petiole, peduncle and pedicel, leaf blade shortly dense pubescent on abaxial surface, 2-3-flowered inflorescences and filaments 7-11 mm long.

Introduction

Polygonatum Mill. (Asparagaceae) comprises of ca. 60 species and distributed in temperate regions of the North hemisphere, mainly from the Himalayas to Japan having 39 species in China (Chen and Tamura, 2000).

During our expeditions in Yinjiang County, northeast of Guizhou Province, southwest China in May 2014 and May 2015, we collected previously unknown specimens of *Polygonatum* from evergreen broad-leaved forests or mixed needle-leaved and evergreen broad-leaved forests on slopes at altitudes of 870-930 m above sea level, in latitude 27°36′50.6″-27°57′28″ N, and longitude 108°26′15″-108°36′31.9″ E. After critical examination of the specimens deposited at GZAC, HGAS, IBK, IBSC, KUN and PE, and carefully consulting relevant literature (Baker, 1875; Li, 1966; Tang, 1978; Chen and Liu, 1984; Tu, 1986; Liang, 1987; Wan and Gao, 1990; Zhu, 1992; Chen and Tamura, 2000; Fu *et al.*, 2002), it was identified as a new species of *Polygonatum*. This paper describes and illustrates the new species as *Polygonatum sinopubescens* M. T. An, Yun Lin & J. G. Wang.

Polygonatum sinopubescens M. T. An, Yun Lin & J. G. Wang, **sp. nov.** (**Figs 1 & 2**).

Diagnosis: *Polygonatum sinopubescens* is morphologically similar to *Polygonatum filipes* Merr. *ex* C. Jeffrey & Mc Ewan based on moniliform or terete-moniliform rhizome, alternate leaves, oblong-lanceolate to elliptic leaf blade, very slender peduncle, 1.5-2.0 cm long perianth. However, it differs from the latter in stems pubescent, petiole pubescent, peduncle pubescent and pedicel pubescent (vs glabrous in *P. filipes*), leaf blade shortly dense pubescent on abaxial surface (vs shortly pubescent on abaxial veins in *P. filipes*), filaments 7-11 mm long (vs 4 mm long in *P. filipes*).

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Type: China. Guizhou Province: Yinjiang County, Yangxi Nature Reserve, alt. 870-930 m in evergreen broad-leaved forests or mixed needle-leaved and evergreen broad-leaved forests on slopes, 16 May 2011, *J.G. Wang & X.F. Li YJ* 2014-0110 (*Holotype*: GZAC, GZAC Herb. Bar Code No. 0026320; *Isotypes*: HUFD, PE); same locality, 21 May 2015, *M.T. An & J.G. Wang* 2015-0627 *(Paratypes*: GZAC, HUFD).

Rhizome moniliform or terete-moniliform, 1.0-1.8 cm thick, up to 30 cm long. Stem erect or ascending, 30-60 cm long, pubescent. Leaves 5-9, alternate; petiole short or indistinct, pubescent; leaf blade ovate-elliptic, elliptic or oblong-lanceolate, 8.0-11.5 cm long, 2.5-4.0 cm wide, base broadly cuneate to rounded, margin entire, apex obtuse to shortly acuminate, shortly dense pubescent on abaxial surface. Inflorescence axillary, 2-3-flowered; peduncle slender, 3.0-5.5 cm long, dense pubescent; bracts lanceolate, 2-4 mm long, greenish white, caducous. Flowers pendulous; pedicel 1-2 cm long, pubescent. Perianth yellowish green or greenish white, cylindric, 1.5-2.0 cm long; lobes 4-5 mm long. Stamens 6, 1.5-1.8 cm long; filaments 7-11 mm long, shortly cottony; anthers 3 mm long. Ovary obovoid, 4 mm long; style 1.3-1.5 cm long. Young berries obovoid, 4-5 mm long, 3-4 mm in diameter.

Phenology: Flowering from May to June, and fruiting from July to September.

Etymology: *Polygonatum sinopubescens* is named after shortly dense pubescent on abaxial surface of leaf blade, and this species is from China.

Vernacular name: *Roumao Huangjing*

Habitat: This species grows in evergreen broad-leaved forests or mixed needle-leaved and evergreen broad-leaved forests on slopes at altitudes of 870-930 m above sea level., latitude 27°36′50.6″-27°57′28″ N, longitude 108°26′15″-108°36′31.9″ E, comprises about 200 individuals growing in five populations within the nature reserve.

Distribution: Polygonatum sinopubescens is only known from its type locality, Yangxi Nature Reserve, Yinjiang County, northeast Guizhou Province, southwest China.

Pharmaceutical value: In traditional Chinese medicine the rhizome is used to moisten the lung, nourish the kidney and invigorate the spleen.

A comparison between the new species *Polygonatum sinopubescens* and its closely related is appended in Table 1.

Table 1. Comparison of morphological characteristics between *Polygonatum sinopubescens* sp. nov. and *P. filipes*.

Characters	*P. sinopubescens* **sp. nov.**	*P. filipes*
Stem	pubescent	glabrous
Leaf	petiole pubescent; leaf blade shortly dense pubescent on abaxial surface	petiole glabrous; leaf blade shortly pubescent on abaxial veins
Inflorescence	2-3-flowered; peduncle 3.0-5.5 cm long, pubescent	2-7-flowered; peduncle 3.0-8.0 cm long, glabrous
Pedicel	pubescent	glabrous
Filament	7-11 mm long	c. 4 mm long
Berry	obovoid	spherical

Conservation status: Polygonatum sinopubescens is known only from the type locality, comprises about 200 individuals growing in five populations within the nature reserve, and is therefore given the assessment of Data Deficient (DD) according to IUCN (2001) criteria.

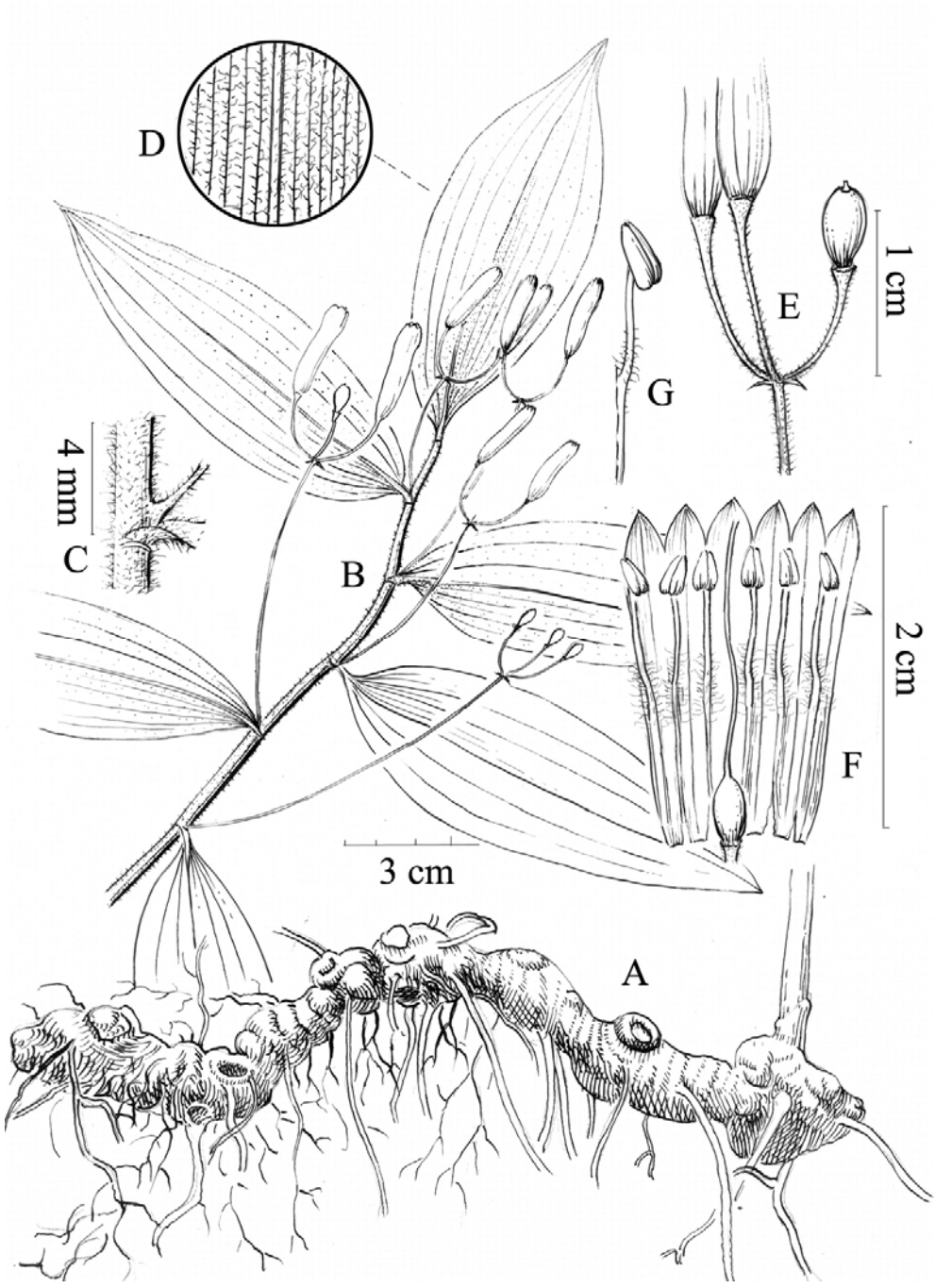

Fig. 1. **Polygonatum sinopubescens** M.T. An, Yun Lin & J.G. Wang, **sp. nov.** A. Rhizome; B. Habitat of flowering plant; C. Branch with node; D. Leaf blade pubescence on abaxial surface; E. Inflorescence; F. Dissected flower; G. Stamen. (*J. G. Wang & X. F. Li* YJ-2014-0110).

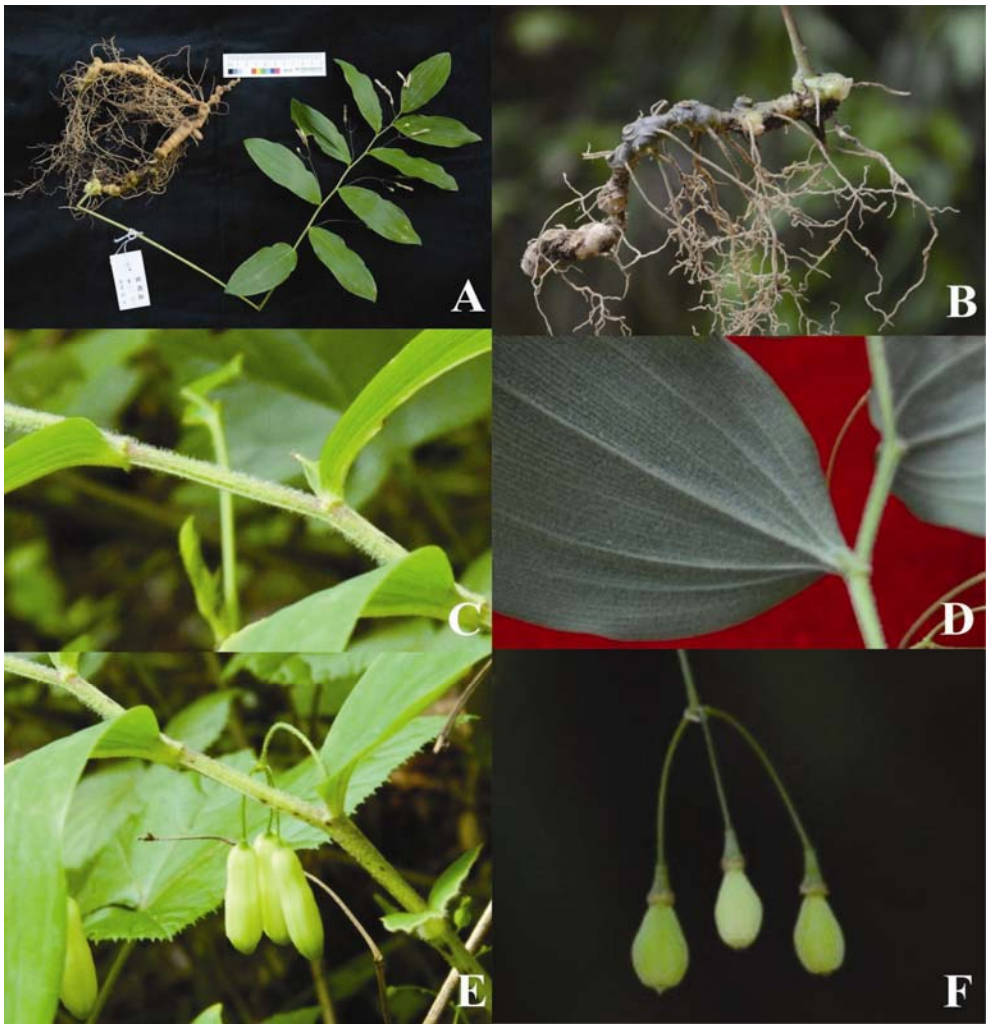

Fig. 2. **Polygonatum sinopubescens** M.T. An, Yun Lin & J.G. Wang, **sp. nov.** A. Habitat; B. Rhizome; C. Stem with pubescent; D. Leaf blade, showing shortly dense pubescent on abaxial surface; E. Inflorescence; F. Berries with bracts.

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