

A new Taiwan species *Veronicastrum loshanense* (Scrophulariaceae)

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ABSTRACT. A new species, *Veronicastrum loshanense* (Scrophulariaceae), found in eastern Taiwan is described. Its growth is restricted to near Loshan Village, Hualien County. A morphological comparison to related species is provided. In addition, a detailed description, geographic distribution, habitat, photographs, and line-drawings are provided for this new species.

Keywords: *Veronicastrum loshanense*; New species; Taiwan.

INTRODUCTION

Veronicastrum, a genus of Scrophulariaceae (*s. l.*) (Fischer, 2004), contains about 20 species in the world and has a limited distribution from East Asia to North America (Chin and Hong, 1979). In Taiwan, three species (Yamazaki, 1957) or two species and one variety (Liu, 1998) of the genus have been recognized, including *V. simada* Yamazaki (or *V. axillare* [Sieb. & Zucc.] Yamazaki var. *simada* [Masamune] H. Y. Liu), *V. formosanum* (Masamune) Yamazaki, and *V. kitamurae* (Ohwi) Yamazaki, and are all endemic to this island.

In 2001, the first author made a field collection near Loshan Village, Hualien County, and found a species characterized with a terminal spike-like infructescence and alternate ovate-oval leaves. Based on the four-valved fruit displayed on the infructescence and winged stems, the species was putatively referred to as a species of *Veronicastrum*. It was thought to have vanished until the second author re-collected fresh materials with inflorescences and blooming flowers in October 2006. After a detailed study of its morphological characters in comparison with related species through either examining specimens or reviewing the relevant literature concerning the genus, we concluded that it is a new species. It is described below.

DESCRIPTION

Veronicastrum loshanense T.-T. Chen & F.-S. Chou—
TYPE: TAIWAN. Hualien Co., Loshan Village, ca. 600 m elevation, on a substratum of a sparse broadleaf for-

est; *Fu-Shan Chou 00001* (with flowers and young fruit, Oct. 15, 2006) (holotype: TAIF; isotypes: HAST, TAI, SYSU). *Chen Tien-Tsai 11738* (PPI). 羅山腹水草

Figures 1, 2

Caulis scandens vel decumbens, teres striatus. Folia alterna, chartacea, glabra, oblanceolata vel ovata, subsessilia vel breviter petolata. Inflorescentia in ramum, ternalem disposita. Flores subsessiles. Corolla 4-fissa, tubulobis subaequilongo. Stamina corolla paulo exserta, filamentis inframedium pilosis.

Perennial herb. Stems scandent or decumbent, much branched, ca. 1 m long, ca. 0.5 mm wide, with wings about 1 mm wide, glabrous. Leaves alternate, simple, dimorphic, margins serrate, glabrous, oblanceolate-elliptic on lower part of stem, 7-10 cm long, 2-2.5 cm wide, apex acute, base attenuate, ovate-oval on branches and upper part of stem, 2-5 cm long, 1-3 cm wide, apex acute, base cuneate; petioles short, 1-2 mm long, glabrous. Inflorescences terminal, racemose, 5-12 cm long, glabrous; flowers dark purple, nearly sessile, bracteate. Pedicels ca. 1 mm long. Bracts lanceolate, ca. 3 mm long, ca. 1 mm wide. Calyx deeply 5-lobed, green, lobes narrowly trullate, acuminate, shallowly serrate, glabrous, ca. 3 mm long, ca. 1 mm wide. Corolla 4-lobed, tubular-campanulate, dark purple; tube ca. 2.5 mm long, woolly inside near mouth, glabrous outside; upper lobe slightly curved, ovate-orbicular, ca. 2.5 mm long, ca. 2 mm wide; other lobes lanceolate, 2.5 mm long, 1.5 mm wide, recurved. Stamens 2, slightly exserted, inserted beside upper corolla-lobe, ca. 3 mm long; haired near base, anther dorsifixed, ca. 1 mm long, longitudinally dehiscent, yellow. Ovary ovate-oval, ca. 1 mm long, 1.5 mm wide; style ca. 2 mm long; stigma punctate. Fruit an ovoid capsule, 3-4 mm long, 2-3 mm wide, dehiscent into 4 valves. Seeds numerous, ovoid-ellipsoid, ca. 0.5 mm long, ca. 0.4 mm wide, with reticulate-striated.

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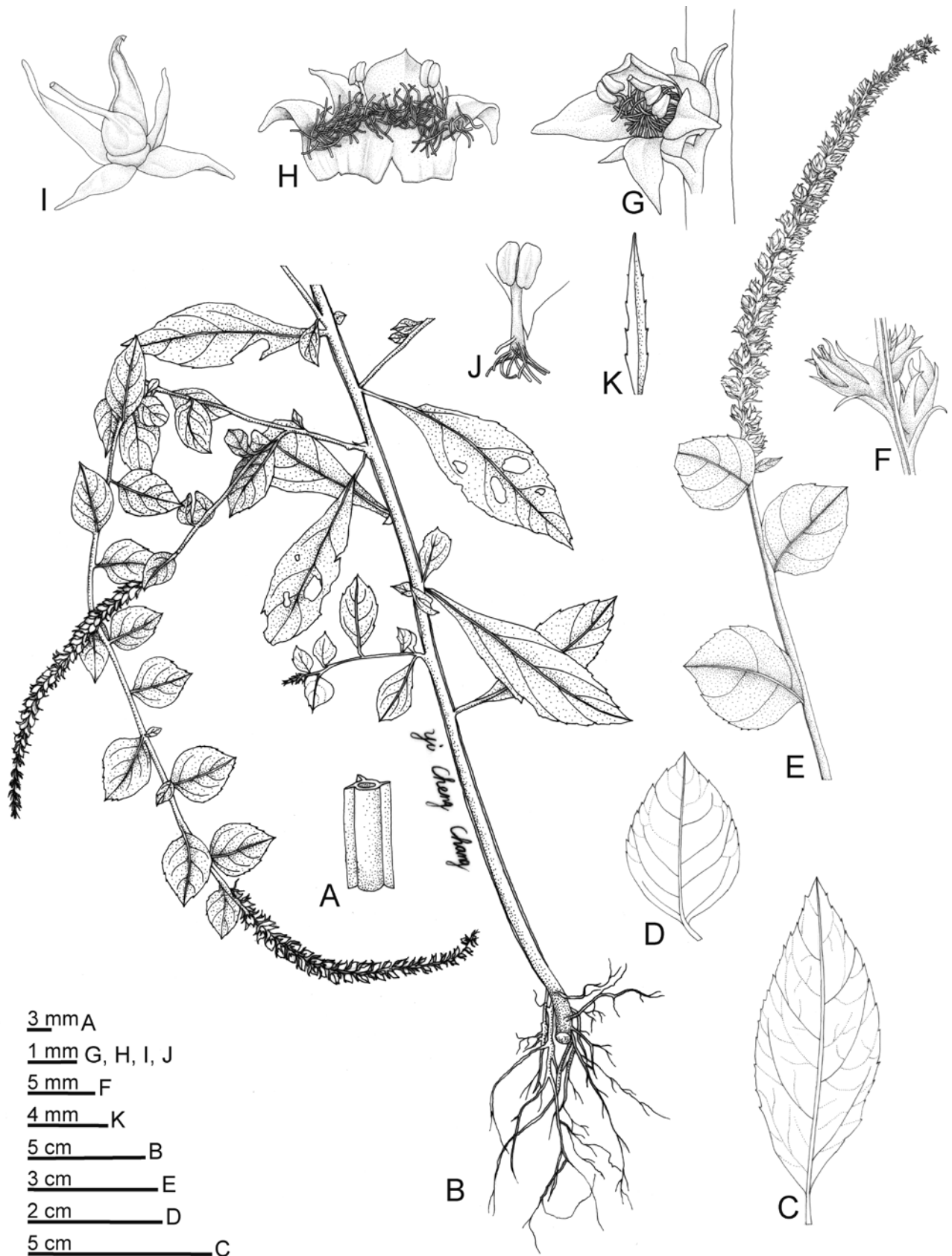


Figure 1. *Veronicastrum loshanense* T.-T. Chen & F.-S. Chou. A, Stem with wings; B, Habit; C, Upper-stem leaf; D, Branch leaf; E, Branch with terminal inflorescence; F, Fruit with sepals; G, Flower; H, Collora with woolly upper inside and two stamens; I, Calyx and ovary; J, Stamen with hairs; K, Bract. (All materials from the holotype, *Fu-Shan Chou 00001*).

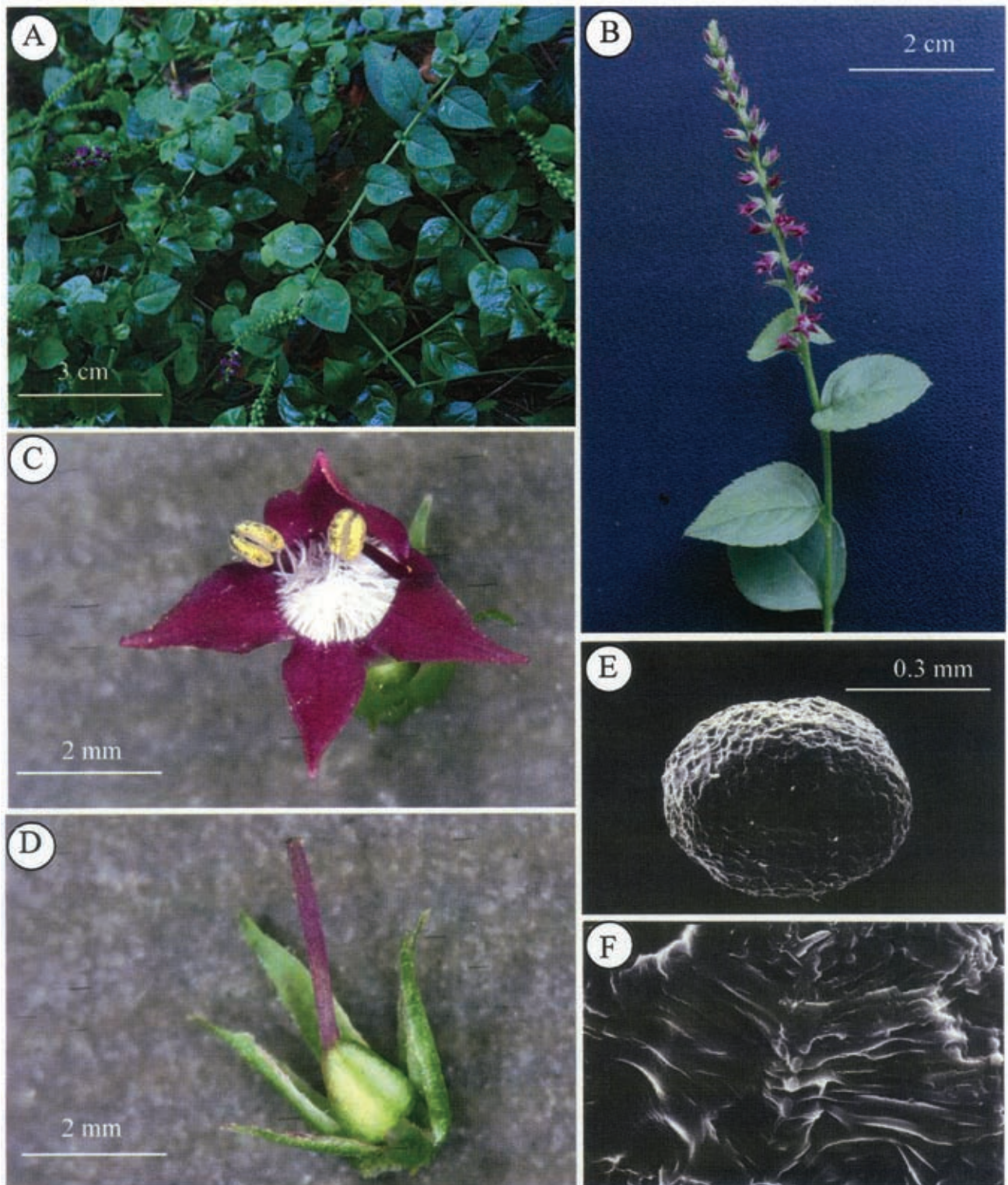
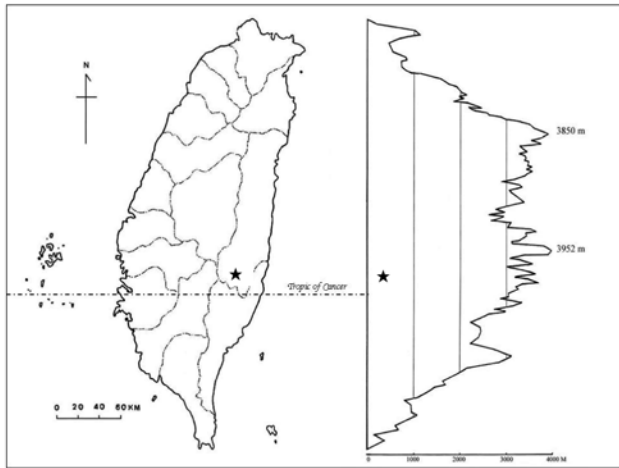


Figure 2. *Veronicastrum loshanense* T.-T. Chen & F.-S. Chou. A, Habit; B, Branch and terminal inflorescence; C, Flower; D, Calyx and ovary; E, Seed (SEM); F, Seed surface with reticulate-striated. (A, B, C, and D from *Fu-Shan Chou 00001*; E and F from *Tien-Tsai Chen 11738* (PPI))

Table 1. Morphological comparison of *Veronicastrum loshanense* and *V. caulopterum*.

	<i>V. loshanense</i>	<i>V. caulopterum</i>
Habit	Scandent or decumbent	Erect
Leaf shape	Oval (on branches and upper stems) and oblanceolate (on lower stem)	Oblong, ovate to lanceolate
Floral arrangement	Not crowded	Crowded
Lower corolla-lobes	Recurved	Straight

**Figure 3.** Distribution of *Veronicastrum loshanense* in Taiwan.

Ecology. On substratum of a sparse broadleaf forest.

Distribution. Known only from Hualien Co., Loshan Village, and eastern Taiwan; at ca. 600 m elevation; very rare. (Figure 3).

Etymology. The specific epithet is derived from the type locality, Loshan (Hualien Co.).

Phenology. Flowering from September to October; fruiting from November to January.

Notes. The new species has a superficial resemblance to *Veronicastrum caulopterum* (Hance) Yamazaki in having the characters of a stem with narrow wings, inflorescence terminal on branches, and flowers with equal lengths of the corolla tube and lobe; however, the former differs from the latter in having a scandent or decumbent stem and dimorphic leaves (Table 1).

In Taiwan, this new species can be separated from other species of the genus by the following diagnoses. A key to the species is given as follows.

1. Stems erect; leaves linear-lanceolate or lanceolate.
 2. Leaves linear-lanceolate, sessile or subsessile *V. formosanum*
 2. Leaves lanceolate, shortly petioled *V. kitamurae*
1. Stems prostrate, decumbents or scandent.
 3. Stems scandent or decumbent; leaves dimorphic, oval on branches and upper part of stem; inflorescence terminal *V. loshanense*
 3. Stems prostrate, rooted at nodes; leaves monomorphic, ovate; inflorescence axillary *V. axillariae* var. *simadai*

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台灣腹水草屬新種植物：羅山腹水草

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本文發表台灣產腹水草屬之新種植物—羅山腹水草 (*Veronicastrum loshanense*)。此新種植物僅發現於台灣東部花蓮縣富里鄉羅山村的山區，族群數量相當稀少。本文提供羅山腹水草詳細的形態特徵描述、地理分布、線繪圖及彩色照片以資辨識，並將與其相近種之形態差異予以列表比較，且將台灣產四種腹水草植物之檢索表加以區別。

關鍵詞：腹水草屬；羅山腹水草；新種；台灣。

