

Supplements to the Genus *Microstegium* Nees (Poaceae: Andropogoneae) of Taiwan

台灣產莠竹屬禾草補註

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Abstract

For the genus *Microstegium* Nees (Poaceae: Andropogoneae) of Taiwan, four known species have been verified. They are *Microstegium ciliatum* (Trin.) A. Camus, *Microstegium fauriei* (Hayata) Honda, *Microstegium geniculatum* (Hayata) Honda and *Microstegium vimineum* (Trin.) A. Camus. This paper described additional two species, *Microstegium spectabile* (Trin.) A. Camus and *Microstegium tenue* (Trin.) Hosok, as the supplements to the *Microstegium* flora of Taiwan. *M. spectabile* is a replacement of misidentified endemic species *M. okamotoi* Honda, while *M. tenue* is a new record. Also, a key to the six valid species of the genus *Microstegium* of Taiwan and line drawings of the two supplementary species are provided for identification.

摘要

台灣產禾本科莠竹屬植物已確認的有剛莠竹、法利莠竹、膝曲莠竹及柔枝莠竹4種，本文增補2種，大莠竹及纖細莠竹。大莠竹是先前發表的 *Microstegium okamotoi* 的正確鑑定，纖細莠竹則是新紀錄種。本文並提供全屬6個種類之檢索表及增補的2個種類的手繪圖。

Key words: *Microstegium spectabile*, *Microstegium tenue*, Andropogoneae, Poaceae, Taiwan

關鍵詞：大莠竹、纖細莠竹、蜀黍族、禾本科、台灣

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Introduction

There are a total of 17 known species in the genus *Microstegium* Nees (Poaceae: Andropogoneae) from tropical and subtropical Asia, Africa, Australia, and some of the Pacific islands (Clayton and Renvoize 1986; Koyama 1987; Watson and Dallwitz 1992; Hsu 2000). Of them eight species have been reported from Taiwan (Hsu 1975, 1978, 2000). Of these species we regard *Microstegium glaberrimum* (Honda) Koidz. and *Microstegium dilatatum* Koidz. as synonyms of *Microstegium ciliatum* (Trin.) A. Camus and *Microstegium vimineum* (Trin.) A. Camus, respectively. Besides, *Microstegium japonicum* (Miq.) Koidz. was a species recently added to the *Microstegium* flora of Taiwan by Chen and Kuoh (2007), but it was later found to belong to the genus *Leptatherum* Nees by Chen *et al.* (2009). The similar cases were found for *Microstegium nudum* (Trin.) A. Camus and *Microstegium somae* (Hayata) Ohwi (Chen *et al.* 2009).

M. okamotoi Honda was described by Honda

(1942) as an endemic species to Taiwan, based on a single collection from Kaohsiung County. Since then, the species has never been found (Hsu 1975, 1978; Koyama 1987; Hsu 2000; Chen and Phillips 2006). We examined the type specimens of *M. okamotoi* deposited at herbarium, University of Tokyo (TI) and found it to be synonymous to *M. spectabile* (Trin.) A. Camus.

Also, there were four unidentified collections from Tsao-Pu, Hengchun Peninsula and deposited at the herbarium of National Taiwan University (TAI) (TAI 137740, 137741, 137742 collected by C. C. Hsu, Oct. 9, 1960, and TAI 016186 by S. Sasaki, Oct. 20, 1934). We examined the specimens and identified them as *M. tenue* (Trin.) Hosok., a new record to Taiwan. Since 1960, however, this species has never been collected.

This paper provides a key to the six valid species of the genus *Microstegium* of Taiwan, with the descriptions and drawings of *M. tenue* and *M. spectabile*, the two new members to the flora of Taiwan.

A key to the species of the genus *Microstegium* from Taiwan

- 1. Pedicel margins glabrous; rachis internodes obviously longer than the lower sessile florets.
 - 2. Leaf-blade surfaces glabrous*Microstegium fauriei*
 - 2. Leaf-blade surfaces tomentose*Microstegium geniculatum*
- 1. Pedicel margins ciliate; rachis internodes shorter than the lower sessile florets.
 - 3. Rachis internodes pyriform; anther 1*Microstegium tenue*
 - 3. Rachis internodes linear; anthers 3.
 - 4. Culms decumbent; awns geniculate*Microstegium vimineum*
 - 4. Culms rambling; awns flexuous.
 - 5. Leaf blades linear, 5-10 cm long, 0.8-1.5 cm wide; upper palea present; culms of moderate stature; lower glume apex obtuse*Microstegium ciliatum*
 - 5. Leaf blades narrowly lanceolate, 10-15 cm long, 1.5-2.5 cm wide; upper palea absent; culms robust; lower glume apex acute*Microstegium spectabile*

1. *Microstegium spectabile* (Trin.) A. Camus 大莠竹(Fig. 1)

Microstegium spectabile (Trin.) A. Camus. Ann. Soc. Linn. Lyon II, 68: 200. 1921; Hosok., J. Soc. Trop. Agric. 7: 310. 1935. Isonyms: *Pollinia spectabilis* Trin. Mém. Acad. Imp. Sci. St. Pétersbourg VI, Sci. Math. 2: 305. 1832; *Eulalia spectabilis* Kuntze. Revis. Gen. Pl. 2: 775. 1891 [*Pogonatherum glabratum* (Brongn.) Roberty subvar. *spectabile* Roberty. Boissiera 9: 389. 1960, nom. inval.]. Type: *Mertens in Herb. Trinius 57.1* (LE, microfiche IDC BT-16/1).

Pollinia spectabilis Trin. var. *ternatana* Backer in Heyne, Nutt. Pl. Ned.-Ind. 1: 113. 1922. Reprint 37. Type: *Beguin 73* (BO, holo).

Microstegium spectabile (Trin.) A. Camus forma *cryptochaetum* Ohwi. Bot. Mag. (Tokyo) 55: 550. 1941. Type: *Hatusima 11084* (FU, holo).

Microstegium okamotoi Honda. Bot. Mag. (Tokyo) 56: 16. 1942. Type: *Okamoto 1* (TI, holo) Annuals. Mat-forming. Culms rambling, robust, 100-170 cm long, rooting from lower nodes. Nodes glabrous. Sheaths glabrous; outer

margin glabrous or hairy; oral hairs absent or ciliate. Ligule a glabrous membrane, c. 1 mm long. Blades firm, lanceolate, 10-18 cm by 10-20 mm; base attenuate to slightly rounded, pseudopetiole absent; margins scabrous; apex acute to acuminate, glabrous. Panicle 7-14 cm long, common axis 1-2.5 cm long. Racemes 10-40, digitate, ascending, straight, 7-10 cm long. Rachis fragile, semiterete; margins ciliate; internodes linear, 2.7-3.3 mm long. Sessile spikelets without a short stalk, deciduous with the adjacent joint and pedicel, oblong to lanceolate, 2.5-4 mm long; callus pilose. Lower glume oblong to lanceolate, coriaceous; midrib ciliolate, dorsally longitudinally grooved, smooth, glabrous, margins glabrous; apex acute, entire. Upper glume elliptic; back acute, glabrous; midrib glabrous; apex entire, attenuate, muticous or mucro, c. 1 mm long. Lower florets absent or present, paleate or barren, epaleate. Lower lemma absent to present, oblong, c. 0.5 mm long, muticous. Upper lemma linear, c. 1 mm long, without veins, glabrous; apex entire; awn apical, flexuous, column absent, 4-10 mm long. Upper palea absent or minute. Anthers 3, 1.5-2 mm long. Pedicels linear,

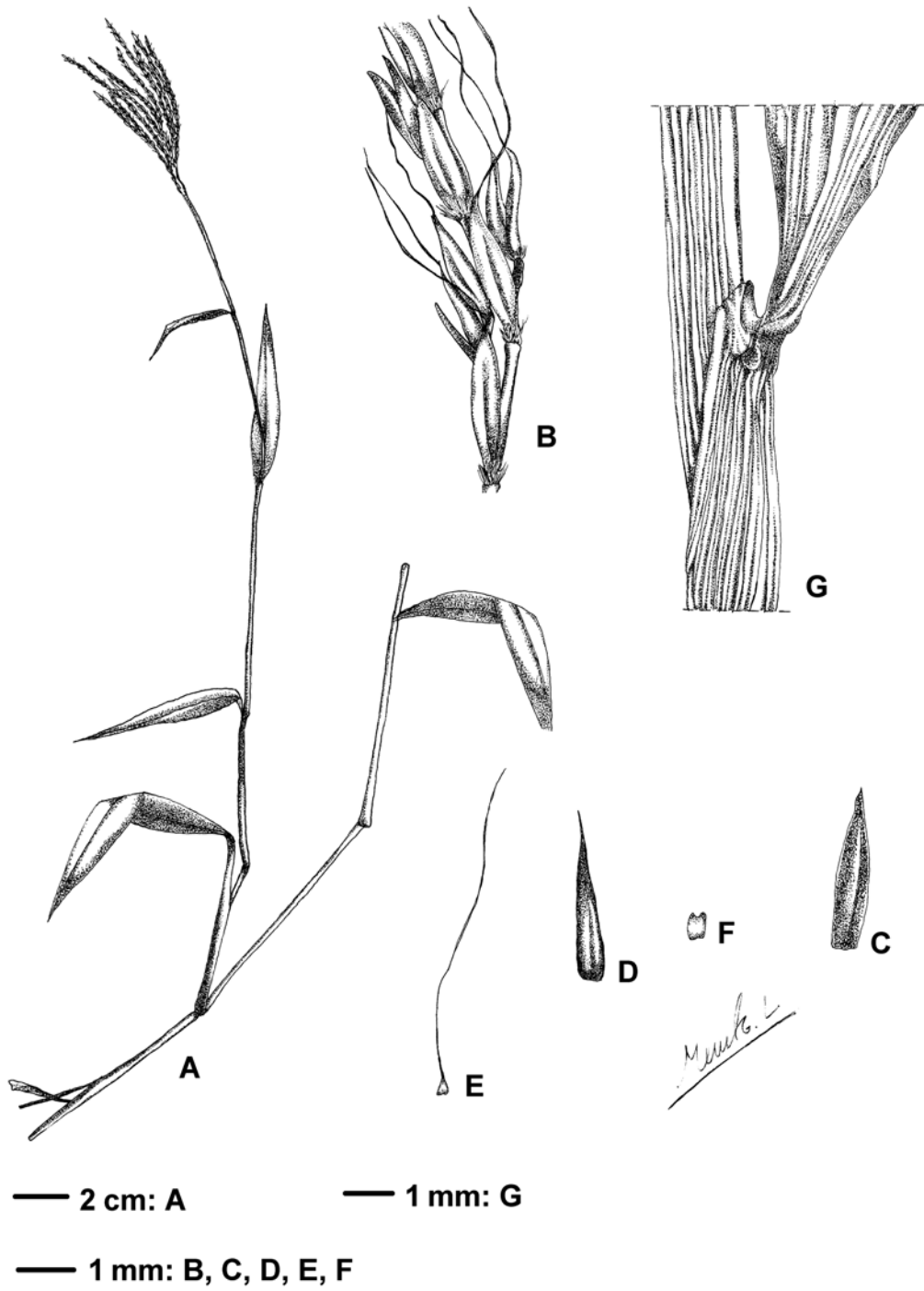


Fig. 1. *Microstegium spectabile* (Trin.) A. Camus: A, habit; B, spikelets; C, lower glume; D, upper glume; E, upper lemma with long flexuous awn; F, upper palea; G, joint of leaf sheath and leaf blade.

flattened, 2-2.5 mm long; margins pubescent. Pedicelled spikelets subequal to sessile ones.

Distribution: Burma, Hong Kong, Sumatra, Borneo, Celebes, Philippines (Luzon, Mindanao), Lesser Sunda Isl. (Flores), Moluccas (Halmaheira, Ternate), New Guinea (wide spread), Micronesia (Solomon Islands).

Habitat: Young secondary rain forest, sandy flood banks, 1,500-2,000m alt.

Taiwan specimens examined: TAIPEI: Mt. Chanchu (Mt. Toad), *Nakamura 2907* (TAI); *Suzuki 6283* (TAI). NANTOU: Hsitou, *C. H. Chen 5637* (TAIE). CHIAYI: *Chuang & Wu s.n.* Oct. 21, 2001 (NCKU). KAOHSIUNG: Shanping, *C. S. Kuoh 15381* (NCKU). PINGTUNG: Mt. Liding, *S. Z. Yang 29813* (PPI), *C. H. Chen 6040* (TAIE). HU-ALIEN: Tienhsiang, *Shimizu & Kao 10557* (TAI); Hualien Port, *Kawakami s.n.* Oct. 1909 (TAI); Fuyuan, *P. C. Wang 15381* (NCKU).

2. *Microstegium tenue* (Trin.) Hosok 纖細莠竹 (Fig. 2)

Microstegium tenue (Trin.) Hosok. Trans. Nat. Hist. Soc. Formosa 28: 150. 1938; Jansen, Reinwardtia 2: 307. 1953. Isonyms: *Pollinia tenuis* Trin. Mém. Acad. Imp. Sci. St. Pétersbourg VI, Sci. Math. 2: 306. 1832; *Eulalia tenuis* Kuntze. Revis. Gen. Pl. 2: 775. 1891 [*Pogonatherum glabratum* (Brongn.) Roberty subvar. *tenue* Roberty, Boissiera 9: 389. 1960, nom. inval.]. Type: *Chamisso 24* in *Herb. Trinius 58.1* (LE, microfiche IDC BT-16/1; W).

Pleuroplitis producta Griseb. in Ledeb. Fl. Ross. 4 (1853) 478. Isonym: *Andropogon productus* (Griseb.) Regel. Bull. Acad. Imp. Sci. Saint-Pétersbourg 5: 760. 1866, t. 2, f. 16-21. Type:

Eschscholtz s.n. (LE, holo).

Annuals. Mat-forming. Culms rambling, weak, 20-100 cm long, rooting from lower nodes. Nodes glabrous. Sheaths glabrous; outer margins glabrous; oral hairs absent or ciliate. Ligule a glabrous membrane, c. 1 mm long. Blades firm, linear or lanceolate, 4-20 cm by 4-8 mm; base attenuate to slightly rounded; pseudopetiole absent; margins scabrous; apex acute to acuminate, glabrous to sparsely pilose on both sides, with tubercle-based hairs. Panicle 3-5 cm long, common axis c. 0.5 cm long. Racemes 2-4, digitate, ascending, straight, 2-5 cm long. Rhachis fragile, flattened; margins ciliate; internodes pyriform, 1.5-2 mm long. Sessile spikelets without a short stalk, deciduous, with the adjacent joint and pedicel that are lanceolate, 2-3 mm long; callus puberulous. Lower glume oblong to lanceolate, coriaceous; midrib glabrous; the dorsal longitudinally grooved, smooth, glabrous; margins glabrous; apex entire or dentate. Upper glume elliptic; the back acute, glabrous; midrib glabrous; apex entire, acute; mucro 1-3 mm long. Lower florets present, well-developed, paleate or barren, epaleate. Lower lemma lanceolate, c. 1.5 mm long, muticous. Upper lemma lanceolate, c. 0.3 mm long, without veins, glabrous; apex entire; awn geniculate; column twisted, 7-12 mm long. Upper palea absent or minute. Anthers 1, c. 0.5 mm long. Pedicels clavate, flattened, c. 1.5 mm long; margins pubescent. Pedicelled spikelets variously reduced.

Distribution: Philippines (Luzon) to Micronesia (Kosrae).

Habitat: Dry open slopes, cliffs, 0-1,200m alt.

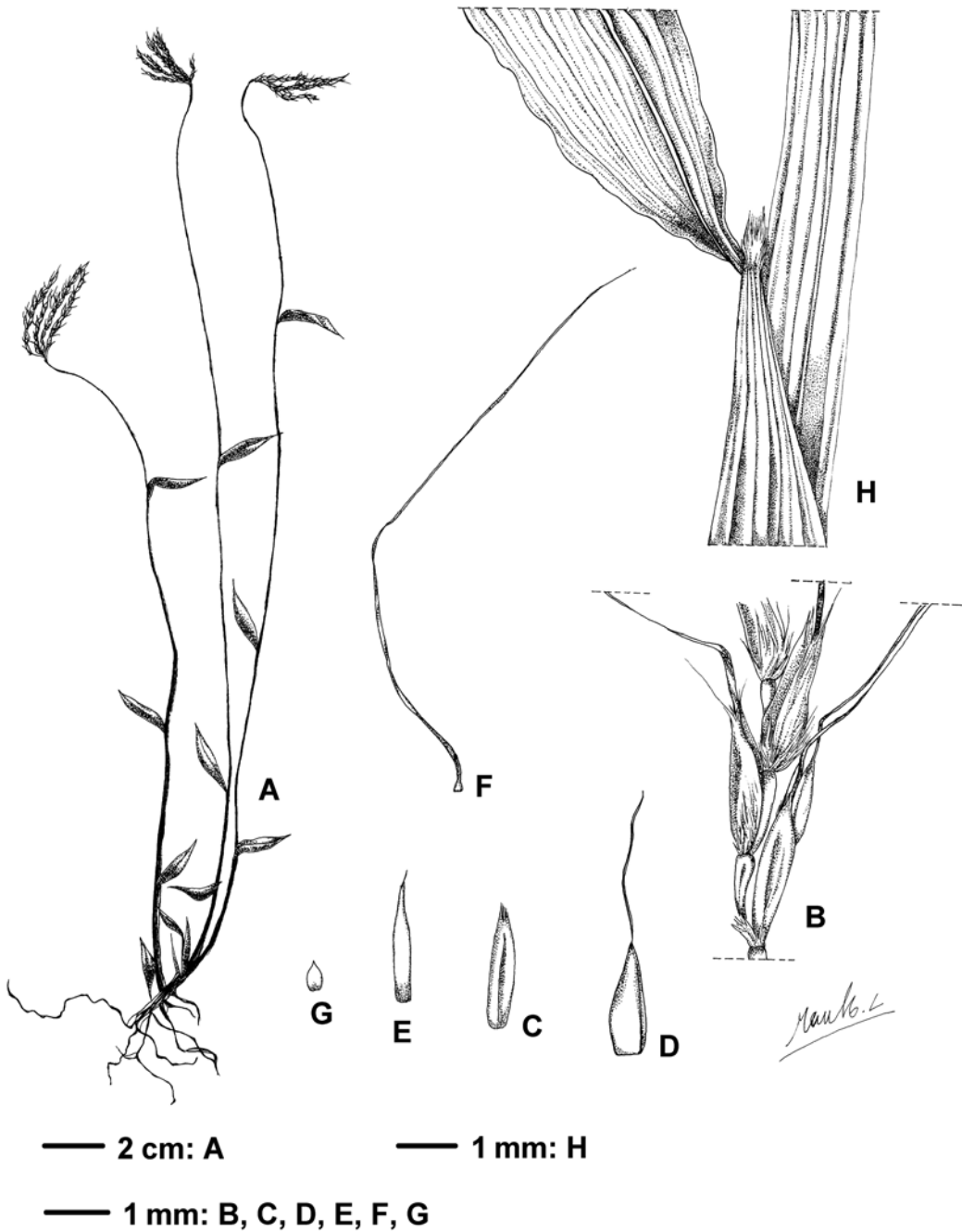


Fig. 2. *Microstegium tenue* (Trin.) Hosok.: A, habit; B, spikelets; C, lower glume; D, upper glume; E, lower lemma; F, upper lemma with awn; G, upper palea; H, joint of leaf sheath and leaf blade.

Taiwan specimen examined: PINGTUNG: Tsao-Pu, *Sasaki s.n.* Oct. 20, 1934 (TAI); C. C. Hsu 1075 (TAI).

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