Microstegium brandisii (Hook. f.) Rhind, a Newly Recorded Grass (Poaceae) to Taiwan.

新發現的台灣禾草－布氏莠竹

Che-Yu Lin[1], Sheng-Zehn Yang[2], Jan Frits Veldkamp[3] and Chih-Hui Chen[1, *]

林哲宇[1]　楊勝任[2]　Jan Frits Veldkamp[3]　陳志輝[1, *]

[1] Endemic Species Research Institute, Jiji, Nantou, Taiwan

[2] Department of Forestry, National Pingtung University of Science and Technology, Neipu, Pingtung, Taiwan

[3] Netherlands Centre of Biodiversity – Naturalis, sect. National Herbarium of the Netherlands, Leiden University, 2300 RA Leiden, The Netherlands

[1] 行政院農業委員會特有生物研究保育中心　南投縣集集鎮民生東路 1 號

[2] 國立屏東科技大學森林系　屏東縣內埔鄉學府路 1 號

[3] Netherlands Centre of Biodiversity – Naturalis, sect. National Herbarium of the Netherlands, Leiden University, 2300 RA Leiden, The Netherlands

* Corresponding author: chchen@tesri.gov.tw

* 通訊作者：chchen@tesri.gov.tw

Abstract

In examining specimens of the family Poaceae deposited in major herbaria of Taiwan for the study of its diversity, we identified three specimens deposited at herbarium of Department of Forestry, National Pingtung University of Science and Technology (PPI) as *Microstegium brandisii* (Hook. f.) Rhind, a species newly recorded to the flora of Taiwan. It has been known only from Myanmar and Eastern Java. M. *brandistii* is fairly similar in characters to *M. tenue* but the former is distinguishable from the latter by the inflorescence as a single raceme. This paper provides the description and line drawing of *M. brandistii* and a key to the species of the genus *Microstegium* of Taiwan for its identification.

摘要

調查台灣各主要標本館以了解禾本科的多樣性，發現屏東科技大學植物標本館收藏有 3 份採集自南台灣的特殊標本。經詳細比對後，確認是原產於緬甸及爪哇的布氏莠竹。本種與纖細莠竹相似，主要區別是本種僅具單一的總狀花序。本文增補此種爲新紀錄之台灣產禾本科植物，並提供其物種描述、手繪圖，以及台灣莠竹屬之檢索表。

Key words: Andropogoneae, *Microstegium brandisii*, Poaceae, Taiwan

關鍵詞：蜀黍族、布氏莠竹、禾本科、台灣

Received: March 3, 2012 Accepted: May 14, 2012

收件日期：2012 年 3 月 3 日 接受日期：2012 年 5 月 14 日

Introduction

Microstegium Nees (Poaceae-Andropogoneae) comprises about 17 species distributed widely in tropical and subtropical regions of Africa, Asia, Australia, and some Pacific islands (Clayton and Renvoize 1986; Koyama 1987; Watson and Dallwitz 1992; Hsu 2000). Prior to 2000 eight species had been reported for the genus from Taiwan (Hsu 1975, 1978; Hsu 2000). Since then five more members of this genus have been added. They are *Microstegium japonicum* (Miq.) Koidz. (Chen and Kuoh, 2007), *M. fasciculatum* (L.) Henrard (Jung *et al*. 2010), *M. spectabile* (Trin.) A. Camus (Chen *et al*. 2011b), *M. tenue* (Trin.) Hosok. (Chen *et al*. 2011b), and *M. glabratum* (Brongn.) A. Camus (Chen *et al*. 2011a). Among them, we found *M. japoicum* to be a member of the genus *Leptatherum* Nees and so were the other two species, *Microstegium nudum* (Trin.) A. camus and for *Microstegium. somae* (Hayata) Ohwi (Chen *et al*. 2009).

Recently, we examined three interesting specimens deposited at herbarium PPI which were collected from the southernmost Pingtung County of Taiwan. They were identified as *Microstegium brandisii* (Hook. f.) Rhind known priorly only from Myanmar and Eastern Java. This paper provides a description of *M. brandisii* with its line drawing and a key to the species of the genus *Microstegium* in Taiwan for the identifidcation.

Key to the species of *Microstegium* of Taiwan

1. Pedicel margins glabrous.
   2. Both surfaces of leaf-blade glabrous ..... *M. fauriei*
   2. Both surfaces of leaf-blade tomentose ..... *M. geniculatum*
1. Pedicel margins ciliate.
   3. Rachis internodes pyriform.
      4. Inflorescence a single raceme .....*M. brandisii*
      4. Inflorescence composed of digitate racemes .....*M. tenue*
   3. Rachis internodes linear.
      5. Culms decumbent; awns geniculate ..... *M. vimineum*
      5. Culms rambling; awns flexuous.
         6. Rachis internode as long as the lower spikelet.....*M. glabratum*
         6. Rachis internode distinctly shorter than the lower spikelet
            7. Upper lemma awn with a twisted column, geniculate .....*M. fasciculatum*
            7. Upper lemma awn without a column, flexuous.
               8. Leaf blades linear, 5-10 by 0.8-1.5 cm; lower glume apex obtuse; upper palea present ....*M. ciliatum*
               8. Leaf blades narrowly lanceolate, 10-15 by 1.5-2.5 cm; lower glume apex acute; upper palea absent.....*M. spectabile*

Microstegium brandisii (Hook. f.) Rhind 布氏莠竹 Figure 1

Microstegium brandisii (Hook. f.) Rhind, Gr. Burma 632. 1945. --- *Coelarthron brandisii* Hook. f., Fl. Brit. India 7: 164. 1896; Hook., Icon. Pl. t. 2517. 1897. --- Type: *Brandis s.n.* (K, holo).

Pollinia clavigera Backer in Heyne, Nutt. Pl. Ned.-Ind. 1: 110. 1922 (reprint p. 34). --- *Microstegium clavigerum* (Backer) Henrard, Blumea 3: 453. 1940. --- Type: *Backer 21177* (BO, holo; L).

Microstegium eucnemis auct. non Henrard, Blumea 3: 455, 1940.

Pollina eucnemis auct. non Nees ex Steud. Syn. Pl. Glumac. 1: 409, 1854.

Annuals, mat-forming. Culms rambling, slender, 25-40 cm long, rooting from the lower nodes. The nodes glabrous. Sheaths glabrous or puberulous, outer margin glabrous; Ligule a glabrous membrane, 0.5-0.75 mm long. Blades ovate to lanceolate, 1.5-8 cm by 6-15 mm, firm; margins smooth; apex acute, glabrous or sparsely pilose. Racemes solitary, 3-7 cm long, ascending, straight or arcuate. Rachis angular, margins villous, internodes pyriform, 3-4 mm long. Sessile spikelets oblong to lanceolate, 3-6 mm long, callus pilose or setose. Lower glume oblong to lanceolate, coriaceous; midrib glabrous,

dorsally concave, glabrous; margins ciliate or setose; apex acute, entire or dentate. Upper glume elliptic, glabrous, midrib ciliate, apex acute, mucro 1-5 mm long. Lower florets present, male. Lower lemma oblong to lanceolate, c. 4 mm long. Upper lemma lanceolate, 1.5-2.25 mm long, without veins; apex entire or incised to 0.33-0.5-th of the lemma length; awn apical or from a sinus, geniculate; column straight to twisted, 11-16 mm long. Upper palea elliptic, 1-2 mm long, 0.75-th times as long as the lemma, membranous. Anthers 3, 1.5-2.5 mm long. Pedicels broadly clavate, V-shaped across, 2.5-3 mm long, margins pubescent. Pedicellate spikelets variously reduced, male or neuter.

Distribution: Myanmar, Java, and Taiwan showing a remarkable disjunctoined distribution.

Habitat: Grassy road margins at elevations of 50~1300m.

Taiwan specimen examined: PINGTUNG: Laochichia, *Shin-Ming Ku 207* (PPI 57344); Shihkochien, *Chien-Fan Chen 1507* (PPI 66586); *Chinshuiying, Yu-Jen Lin 296* (PPI 69637); Tahan Forestry Trail, *Chih-Hui Chen 6889* (TAIE 29364) .

Acknowledgements

The authors are grateful to the curators of BM, E, HAST, K, L, P, TAI, TAIF and TNM for their kind assistance and allowing us to examine the specimens. This study was sponsored financially in part by Ministry of Education and Council of Agriculture, R.O.C.

Literature Cited

Chen, C. H. and C. S. Kuoh. 2007. *Microstegium japonicum* (Miq.) Koidz. as a newly recorded grass to Taiwan. Endemic Species Research 8: 77-80.

Chen, C. H., J. F. Veldkamp, C. S. Kuoh, C. C. Tsai and Y. C. Chiang. 2009. Segregation of *Leptatherum* from *Microstegium* (Andropogoneae, Poaceae) confirmed by Internal Transcribed Spacer DNA sequences. Blumea 54: 175-180.

Chen, C. H., J. F. Veldkamp and C. S. Kuoh. 2011a. *Microstegium glabratum* (Brongn.) A. Camus (Poaceae, Andropogoneae), a new record for Japan, China, and Taiwan, based on morphological and molecular evidence. Taiwania 56: 111-117.

Chen, C. H., J. F. Veldkamp and C. S. Kuoh. 2011b. Supplements to the genus *Microrogsteium* Nees (Poaceae: Andropogoneae) of Taiwan. Taiwan Journal of Biodiversity 13: 85-91.

Clayton, W. D. and S. A. Renvoize. 1986. Genera Graminum, Grasses of the World. Her Majesty's Stationery Office, London.

Hsu, C. C. 1975. Taiwan Grasses. Taiwan Provincial Education Association, Taipei.

Hsu, C. C. 1978. *Microstegium*. pp. 671-676. *In*: Li, H. L., T. S. Liu, T. C. Huang, T. Koyama and C. E. DeVol (eds.), Flora of Taiwan. Vol. 5. Epoch Publishing Co., Taipei.

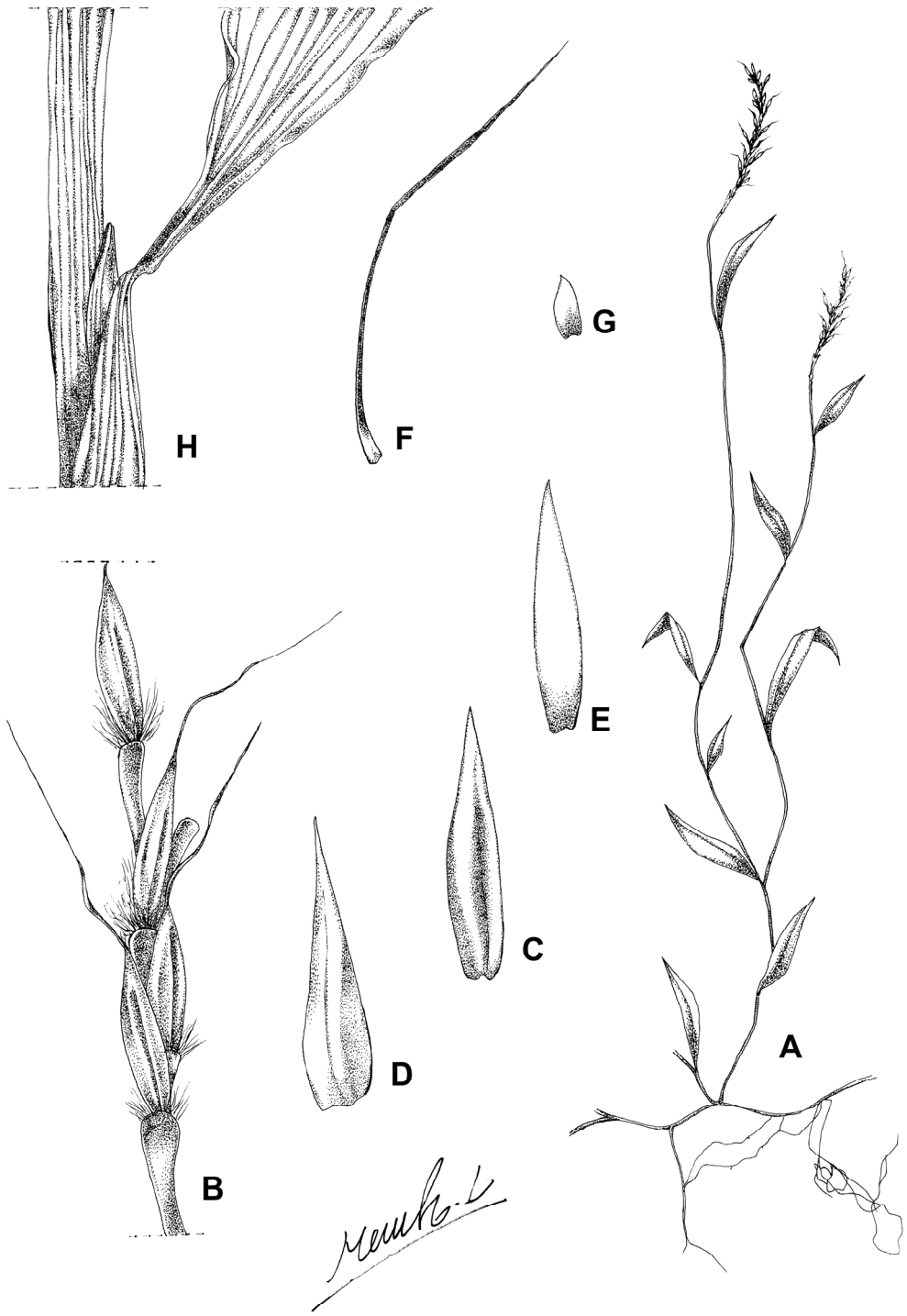
Hsu, C. C. 2000. *Microstegium*. pp. 562-567. *In:* Boufford, D. E., C. F. Hsieh, T. C. Huang, C. S. Kuoh, H. Ohashi and H. J. Su (eds.), Flora of Taiwan. Vol. 5, 2nd edition.

Editorial Committee of the Flora of Taiwan, Dept. Bot. National Taiwan University, Taipei.

Jung, M. J., C. W. Chen and S. W. Chung. 2010. Two newly naturalized plants in Taiwan. Taiwania 55: 412-416.

Koyama, T. 1987. Grasses of Japan and Its Neighboring Regions, an Identification Manual. Kodansha LTD., Tokyo.

Watson, L. and M. J. Dallwitz. 1992. The Grass Genera of the World. Cab International, Wallingford.


H
F
G
E
C
D
B
A
2cm: A
1mm: B
1mm: H
1mm: C, D, E, F, G