

## 中国肿足蕨科一新记录属——翼囊蕨属\*

谭运洪<sup>1</sup>, 卫 然<sup>2</sup>, 李剑武<sup>1</sup>, 张宪春<sup>2\*\*</sup>

(1 中国科学院西双版纳热带植物园, 云南 勐腊 666303; 2 中国科学院植物研究所系统与进化植物学国家重点实验室, 北京 100093)

**摘要:** 报道了中国肿足蕨科一新记录属——翼囊蕨属 (*Didymochlaena* Desv.)。该属为泛热带分布的单型属, 在中国为首次记录。本文结合原始文献对该属及其折囊蕨种的特征进行了详细描述。

**关键词:** 翼囊蕨; 翼囊蕨属; 肿足蕨科; 新记录

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## *Didymochlaena* Desv. (Hypodematiaceae): A Newly Recorded Fern Genus to China

TAN Yun-hong<sup>1</sup>, WEI Ran<sup>2</sup>, LI Jian-wu<sup>1</sup>, ZHANG Xian-chun<sup>2\*\*</sup>(1 *Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences, Mengla, Yunnan 666303, China*; 2 *State Key Laboratory of Systematic and Evolutionary Botany, Institute of Botany, Chinese Academy of Sciences, Beijing 100093, China*)

**Abstract:** *Didymochlaena* Desv., a monotypic genus placed in Hypodematiaceae with a pan-tropical distribution, is reported new to China (Yunnan Province) in the present study. Descriptions of the specimens and brief discussions on the systematic placement of this genus are provided.

**Key words:** *Didymochlaena* Desv.; *Didymochlaena truncatula*; Hypodematiaceae; New record

During the floristic surveys of the local flora supported by the project “Theory and Practice on Full Conservation of Regional Biodiversity in Xishuangbana” in 2013, *Didymochlaena truncatula* (Sw.) J. Sm., a special fern species was collected for the first time in China. It is the sole representative of *Didymochlaena* Desv., which exhibits a pan-tropical distribution with considerable polymorphism (Ching, 1940).

The placement of *Didymochlaena* has been a long-term subject of controversy, and remains poorly understood (Schuettpelz and Pryer, 2007). In earlier classifications, *Didymochlaena* was considered to be closely related to the dryopteroid ferns based on

some shared features, such as the erect rhizomes bearing scales, petiole adaxially grooved, scales covering the rachis and petioles, and the chromosome number ( $x=41$ ) (Pichi-Sermolli, 1977; Tryon and Tryon, 1982; Kramer and Green, 1990), whereas Ching (1940, 1978) treated this genus as a segregated family Didymochlaenaceae due to its unique combination of morphological characters resembling *Lindsaea* or *Sphaerostephanos*. More recently, molecular phylogenetic studies based on chloroplast markers have revealed that *Didymochlaena*, *Hypodematium* and *Leucostegia* form a poorly supported clade sister to the remainder of the eupoly-pod I ferns (Schneider *et al.*, 2004; Schuettpelz

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\*\* Author for correspondence; E-mail: zhangxc@ibcas.ac.cn

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作者简介: 谭运洪 (1979-) 男, 实验师, 主要从事植物分类学与植物区系研究。E-mail: tyh@xtbg.org.cn

and Pryer, 2007), which suggests that *Didymochlaena* should be separated from Dryopteridaceae (Smith *et al.*, 2006; Christenhusz *et al.*, 2011). However, since support for these relationships was poor, alternative topology, that is, an isolated position of *Didymochlaena* as the basalmost lineage in eupolypod I, was also recovered (Liu *et al.*, 2007; Kuo *et al.*, 2011; Rothfels *et al.*, 2012). Therefore, additional evidence, from either more variable plastid markers or nuclear markers, is needed in future studies before a firm conclusion on the placement of *Didymochlaena* can be drawn.

**Didymochlaena** Desv.; Berl. Mag. Naturf. 5: 303. 1811; Copel., Gen. Fil.: 112. 1947.

#### 翼囊蕨属

Plants terrestrial. Rhizomes short, ascending to erect, scaly; scales long and narrow, almost hair-like, entire, glabrous, concolorous, those on stipe lacerate at margin. Lamina oblong, bipinnate with pinnate apex, long-petiolate. Petioles with several vascular bundles arranged in a half-circle. Pinnae articulated, all more or less similar in size and shape, somewhat rectangular in outline. Veins free, forked, with thickened endings before reaching the margin. Sori terminating a vein, indusiate, often somewhat sunken in the blade, forming bumps on the upper side. Indusia elliptic, elongate, rounded at distal end, cordate at base, firm, glabrous, centrally attached along a line, opening on either side. Sporangia long-stalked. Spores monoletate, ellipsoidal to globose, tuberculate and echinate.

Pan-tropical, monotypic genus.

#### 翼囊蕨 Fig. 1: A-J

*Didymochlaena truncatula* (Sw.) J. Sm., J. Bot. 4: 196. 1841; Tardieu & C. Chr., Fl. Indo-Chine 7 (2): 331, f. 36.4 & 36.5. 1941; Holtum, Rev. Fl. Malaya ed. 1, 2: 483, f. 285. 1955 [‘1954’]; Tagawa & K. Iwats., SE. Asian Stud. 5: 93. 1967; Tagawa & K. Iwats., Acta Phytotax. Geobot. 23: 55. 1968; Tagawa & K. Iwats., Fl.

Thailand 3: 331, f. 28.8–28.11. 1988; Boonkerd & Pollawatn, Pterid. Thailand: 157, 202. 2000. —*Aspidium truncatulum* Sw., Schrad. J. Bot. 1800 (2): 36. 1801. —*Didymochlaena lunulata* auct. non (Burm.) Desv.: Bedd., Handb. Ferns Brit. India: 199, f. 99. 1883.

Rhizomes massive, ascending to erect, forming a short caudex up to 25 cm in diameter, caudex sometimes more than 10 cm long, like a small tree fern; rhizomes covered densely with scales; scales chartaceous, castaneous, adnate, lanceolate to narrowly ovate, with long filiform outgrowths along the margin, up to 20 × 5 mm, pale to dark brown, glabrous, entire. Fronds tufted, caespitose, erect to arching, firmly herbaceous to coriaceous, up to 2.5 m long. Stipes up to 70 cm long, straw-coloured, set with reddish-brown, twisted scales, scales chartaceous, castaneous lanceolate or narrowly lanceolate, up to 1 cm long. Lamina anadromous or isodromous, up to 1.8 × 0.5 m, bipinnate, oblong-elliptic in outline, with a pinnate apical segment. Pinnae articulated to the rachis, nonfunctional, opposite to alternate, 1-pinnate, basal pinnae slightly more widely spaced than those towards the lamina apex, often slightly overlapping distally, linear-acute, up to 25 × 4 cm, with up to 26 pinnule pairs. Pinnules sessile, articulated to the pinna-rachis, opposite to alternate, firmly herbaceous to subcoriaceous, dimidiate, parallelogram-shaped, up to 24 × 12 mm, adaxially with a few scales along the costa, scales chartaceous, stramineous, filiform, simple or with outgrowths along the margin, up to 4 mm long, abaxially sparsely scaled, scales thinly chartaceous, stramineous to ferruginous, sessile, filiform, simple or with long filiform outgrowths along the margin, apex terminates in an oblong thin-walled cell, up to 4 × 0.4 mm. Venation anadromous, obscure, pinnately branched, free, vein branches terminate near the margin. Rachis and secondary rachis straw-coloured, densely scaled, scales chartaceous to thinly chartaceous, castaneous, ferruginous or stramineous, sessile, filiform, simple or with numerous filiform



Fig. 1 *Didymochlaena truncatula*. A. Habit; B. Leaves; C. Pinnae; D. Sori; E. Rachis and pinna bases; F. Crozier; G. Young leaves; I-J. Petiole scales. Photographs by Yun-Hong Tan

outgrowths along the margin , apex terminates in an oblong thin-walled cell. Sori elliptic , at the apex of an abbreviated anadromous vein branch , up to 3 mm long , 1 - 6 per pinnule; sporangium long-stalked , simple , 3-seriate below the capsule , capsule globose in lateral view , with ( 13 - ) 15 ( - 16 ) indurated annulus cells , epistomium ( 2 - ) 3 ( - 3 ) -celled , hypostomium ( 2 - ) 4 ( - 4 ) -celled; indusium firmly herbaceous , brown , elliptic , entire , centrally attached along an elongated receptacle , up to 3 mm

long , up to 1 mm wide; receptacle nude. Spores 64 per sporangium , brown , ellipsoidal , monolete , perispore with large inflated tubercles , echinulate.

China. Yunnan ( 云南 ): Xishuangbanna ( 西双版纳 ) , Menghai ( 勐海 ) , alt. 1 100 m , in tropical montane evergreen broad-leaved forest , TAN Yun-hong ( 谭运洪 ) 9472 ( HITBC , PE ) .

**General distribution:** Pan-tropical ( type from Java ) , Tropical Africa and subtropical southern Africa , tropical Asia , tropical America , Madagascar ,

and Pacific ( Fiji ) . China ( Yunnan ) .

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