

Supplements to the Pteridophytes in Taiwan (I): *Dryopteris decipiens* (Hook.) Kuntze (Drypteridaceae)

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ABSTRACT: This paper reports *Dryopteris decipiens* (Hook.) Kuntze collected from northern Taiwan. The species can be distinguished from other congeners by its pinnate fronds with pinnatifid apex, costa on abaxial side covered by small saccate scales and usually a single row of sori on each side of costa. A key to the related taxa, taxonomic description, illustration, spore characteristics, and geographical distribution are provided here.

KEY WORDS: *Dryopteris decipiens*, Drypteridaceae, Pteridophyta, New record, Taiwan.

INTRODUCTION

Dryopteris is a highly diversified genus containing about 225 species mainly distributed in the north-temperate to warm-temperate parts of Central, S. E., and E. Asia (Kramer, 1990). Polyploidizations are common events in this genus (Nayar and Kaur, 1971; Weng, 1989). Individuals of different level of chromosome ploidy are usually hard to identify. Moreover, occurrence of triploid agamosporous species let the problem become more complicated (Serizawa, 1986; Hirabayashi, 1989). Agamospory, an unusual but simplified reproductive process, makes the plant be able to propagate asexually and establish a large but little variant population just from a single spore. All in all the genus is quite difficult in classification and results in the chaos of taxonomic treatment. Since the publication of the Flora of Taiwan, first edition (DeVol and Kuo, 1975), the species number of *Dryopteris* (*sensu str.*) in Taiwan has ever been reported as 23 (DeVol and Kuo, 1975), 27 (Kuo, 1997), 29 (Shieh *et al.*, 1994), 31 (Jeng, 1978), and 36 taxa (Kuo, 1985) by different taxonomists. Recently the first author found a small population of *Dryopteris decipiens* (Hook.) Kuntze in the northern Taiwan. Phytogeographically, *D. decipiens* distributed to Taiwan is to be expected because it is common in the neighboring area, such as Fujian and Guangdong of China. Here we provide taxonomic description, illustration, spore characteristics, distribution map, and a key to distinguish this species from other related taxa in Taiwan.

TAXONOMIC TREATMENT

***Dryopteris decipiens* (Hook.) Kuntze, Revis. Gen. Pl. 2: 812. 1891; Iwatsuki, Fl. Jap. 1: 159. 1995.**

Figs. 1 & 2

Nephrodium decipiens Hook., Sp. Fil. 4: 86-87, pl. 243. 1862.

Aspidium decipiens (Hook.) Luerss. ex Engl., Bot. Jahrb. Syst. 4(4): 360. 1883.

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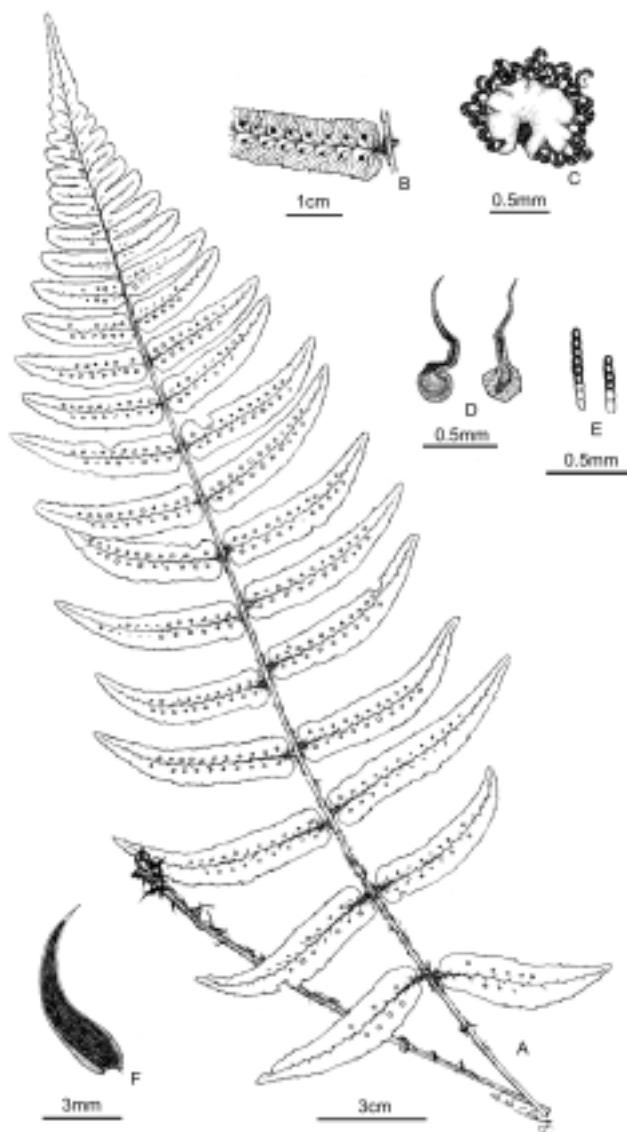


Fig. 1. *Dryopteris decipiens* (Hook.) Kuntze. A. Fertile frond. B. Venation and sori. C. Indusium. D. Saccate scales on abaxial side of pinnule. E. Multicellular hairs. F. Stipe scale.

Evergreen fern; rhizome stout, erect; stipes tufted, 15-25 cm long, pale brown, scales linear, entire, dark brown, with narrow pale brown margin, 8-12 mm long and 1 mm broad at base of stipe, decreasing in size upwards; lamina oblong, pinnate, 25-35 cm long, 10-13 cm broad, apex pinnatifid, basal pinnae gradually shorted, deflexed; pinnae opposite or subopposite, pinna long falcate, 4-8 cm long, 1-1.5 cm broad, sessile to with a short stalk, cuneate or acuminate at apex, cordate or oblique cordate at base, margin denticulate or notched, or crenate in deeply dissected form; pinna stalk 1-3 mm long, densely covered by dark brown, linear scales; costa at abaxial side covered by small saccate scales; abaxial surface of pinna loosely covered by appressed multicellular hairs; sori round, usually in a single row on each side of costa, or in two rows in deeply dissected form; indusia round-reniform, entire; spore monolete, bean-shape, perispore cristate or reticulate with rugulate surfaces.



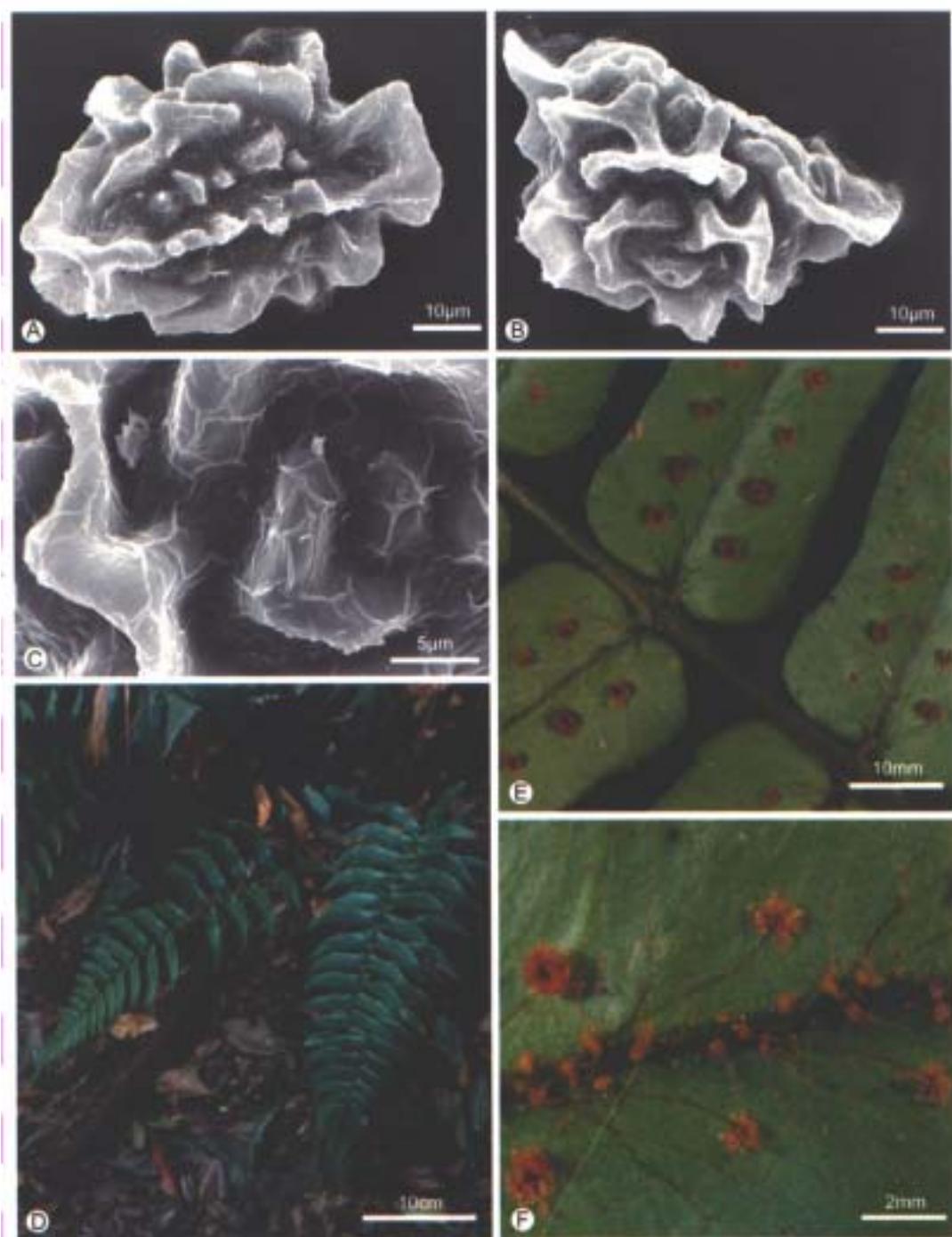


Fig. 2. *Dryopteris decipiens* (Hook.) Kuntze. A-C. SEM micrographs of spores. A. Proximal view. B. Lateral view. C. Surface structure of lateral view. D. Habit. E. Partial enlargement of frond, showing the single row of sori and cordate base of pinnae. F. Abaxial side of pinna, showing the saccate scales.

Chromosome number has been reported as $n=41$ (diploid) from China (Weng, 1989) and ' $n'=123$ (triploid agamosporous) from Japan (Iwatsuki, 1995). The Taiwan material has not been cytologically examined yet. However, the fact that 32 spores per each sporangium observed in Taiwan population might indicate the triploid nature with asexual reproduction.

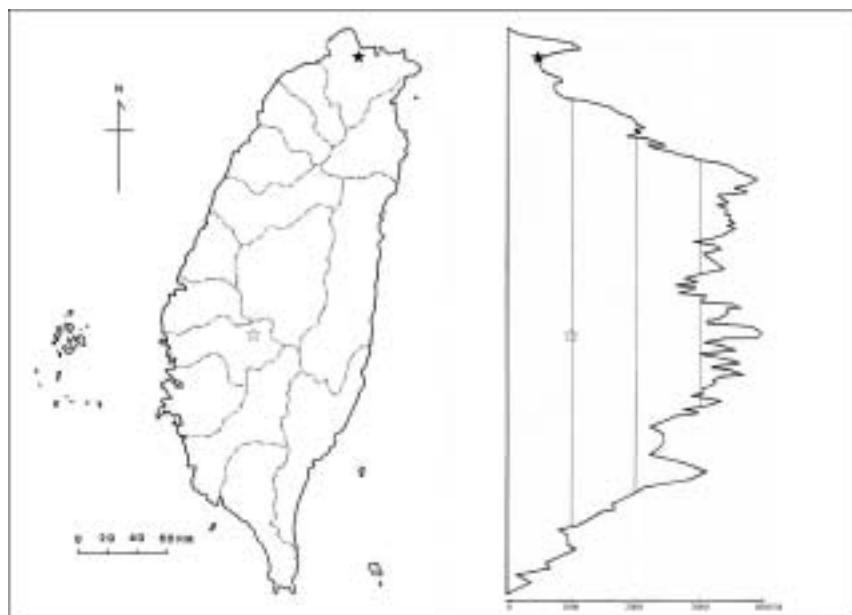


Fig. 3. Distribution of *Dryopteris decipiens* in Taiwan. Solid star: new population we collected; empty star: the locality reported by Ito (1928).

Distribution: Southern China and Japan. In Taiwan, only one population has been found in the northern part (Fig. 3) so far, very rare.

Specimens examined: Taipei county: Hsichih, Mt. Hsinshan, near mountain peak, 499 m, at the edge of the broad-leaved forest, H.-M. Chang 5588 (TAIF, TNU).

Notes: Except the report of Ito (1928), *Dryopteris decipiens* has never been recorded from Taiwan in other taxonomic studies. Ito (1928) had described the sole habitat at Alishan in Taiwan, but he did not cite any voucher specimen. Besides, we did not find any specimen of this species in Taiwanese herbaria. This may be the reasons why the later local botanists overlooked it in their revisions or floras (e.g., DeVol and Kuo, 1975; Jeng, 1978; DeVol, 1979; Shieh, 1975; Shieh, 1981; Kuo, 1985; Shieh *et al.*, 1994; Kuo, 1997; Boufford *et al.*, 2003).

This species can be distinguished from other congeners by its pinnate fronds with pinnatifid apex, costa on abaxial side covered by small saccate scales, and one row of sori on each side of costa. Because of bearing saccate scales, this species was classified into the subgenus *Erythrovariae*, one of the four subgenera of *Dryopteris* (Fraser-Jenkins, 1986).

Key to *Dryopteris decipiens* and its related species in Taiwan

1. Fronds pinnate, apex pinnatifid
2. Costa bearing saccate scales at abaxial side; sori usually in a single row on each side of costa *D. decipiens*
2. Costa without saccate scales on either side; sori usually in 2-4 irregular rows on each side of costa
 3. Upper part of rachis scale entire; sori exindusiate *D. scottii*
 3. Upper part of rachis scale toothed; sori indusiate
 4. Stipe scales black; rachis scales dense *D. atrata*
 4. Stipe scales brown; rachis scales very few *D. subatrata*
1. Fronds bipinnatifid to decompound, or pinnate with free terminal pinna Other *Dryopteris* in Taiwan



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台灣蕨類植物補遺(一)：迷人鱗毛蕨

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摘要

本文紀錄一種產於台灣北部之鱗毛蕨科植物 - 迷人鱗毛蕨(*Dryopteris decipiens* (Hook.) Kuntze)。本種可藉由一回羽狀複葉、葉片先端羽裂狀、羽軸遠軸面具囊狀鱗片及羽軸兩側各僅具一列孢子囊群等四項特徵與台灣產同屬其他種植物區分。本文提供其分類描述、手繪圖、照片、孢子形態與分布圖。

關鍵詞：迷人鱗毛蕨、鱗毛蕨科、蕨類、新紀錄、台灣。

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