



Correction to the misapplication of the name *Tectaria subsageniacea* (Tectariaceae) in China

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Abstract

The misapplication of the name *Tectaria subsageniacea* or *Ctenitopsis subsageniacea*, is corrected here. The nomenclature type of these names is an individual of *T. fuscipes* and the plants which have long been referred to as *C. subsageniacea* or *T. subsageniacea* in China should be named *T. austrosinensis*. A lectotype is designated for *T. austrosinensis*.

Key words: Morphology, lectotype, new synonym, taxonomy, *Tectaria austrosinensis*

Introduction

The fern genus *Tectaria* Cavanilles (1799: 115) was established to accommodate some species with scattered and indusiate sori, and in modern sense has been demonstrated to be a morphologically much diverse group in Tectariaceae (Ding *et al.* 2014, Moran *et al.* 2014, Wang *et al.* 2014, Zhang *et al.* 2016). It is estimated that there are about 250 extant species of *Tectaria* across the tropics and subtropics of the world (Zhao & Dong 2015). The rather variable morphology within species makes the taxonomy of this group very difficult and some misapplications of species names, as reported by Dong (2010) and Ding *et al.* (2013), cause further confusions in this group. *Tectaria subsageniacea* (Christ 1906: 240) Christenhusz (2010: 59) is one more case of such misapplication.

The misapplication of *Tectaria subsageniacea* dates back to 1938 when Ching transferred *Aspidium subsageniaceum* Christ (1906: 240) to the genus *Ctenitopsis* Ching ex Tardieu & Christensen (1938: 86) (= *Tectaria*). At that time he made a mistake on the morphology of the type of *A. subsageniaceum*. *Ctenitopsis subsageniacea* sensu Ching (1938: 311) is a species characterized by free veins, 2-pinnatifid frond, linear-lanceolate pinnae, “the basal pair of pinna similar to the upper ones”, and sori exindusiate as described by Ching and represented by the type of *T. austrosinensis* (Christ 1907: 145) C. Christensen (1934: 177) (Fig. 1) which was simultaneously synonymized by Ching under his *C. subsageniacea*. Such circumscription of *C. subsageniacea*, or *T. subsageniacea* when *Ctenitopsis* is submerged in *Tectaria* (Christenhusz 2010), was consistently followed by subsequent authors in local or national floras in China (e.g., Wang 1999, Wang & Wang 2002, Wu 2005, Xing *et al.* 2013). The type of *A. subsageniaceum*, however, distinctly differs from that of *T. austrosinensis* in having deltoid basal pinnae (its basal basisopic lobe produced, different from the upper pinnae of linear-lanceolate shape) and sori indusiate (Fig. 2), which was clearly stated in the protologue, i.e., “Pinnis oppositis patentibus, infimis e basi late semideltoidea postice valde auctis et bipinnatifidis, coeteris e basi antice altiori oblonga abrupte acuminatis” (pinna opposite, patent, the lowest pinna with its base broadly semi-deltoid, its lower side at base apparently produced and 2-pinnatifid, other pinnae with their basal acroscopic much longer, oblong, and abruptly acuminate at apex), and “Indusio parvi inconspicuo” (Indusia small, inconspicuous) (Christ 1906: 241). The type of *A. subsageniaceum* morphologically agrees well with *T. fuscipes* (Wallich ex Beddome 1876: 15) C. Christensen (1931: 290), a sympatric species. So *T. subsageniacea* based on *A. subsageniaceum* should be treated as a synonym of *T. fuscipes* and the material referred to as *C. subsageniacea* in the past 80 years or as *T. subsageniacea* in recent years should have the name *T. austrosinensis*.

Taxonomic treatment

Tectaria fuscipes (Wallich ex Beddome) C. Christensen (1931: 290). Fig. 2.

Basionym:—*Aspidium fuscipes* Wallich ex Beddome (1876: 15).

Type:—INDIA. Assam: Cachar, *Clarke 7050* (holotype K!).

= *Aspidium subsageniaceum* Christ (1906: 240), *Ctenitopsis subsageniacea* (Christ) Ching (1938: 311), err. “*subsageniaca*”, p.p., excl. syn. *Tectaria austrosinensis* (Christ 1907: 145) C. Christensen (1934: 177); *T. subsageniacea* (Christ) Christenhusz (2010: 59), **syn. nov.**

Type:—CHINA. Guizhou: Huishui, “Tien-Sen-Kiao”, near a river, Nov 1904, *Cavalerie 1916* (holotype not seen, isotype E-00417652 [photo!]).

Note:—*Tectaria fuscipes* is a common species in Guizhou, southwestern China and the type of *Aspidium subsageniaceum* was collected from Guizhou too. The diagnostic characters of *T. fuscipes* include stipe scales being blackish, fronds regularly bipinnatifid with its basal pinna deltoid (the basal basiscopic lobe or pinnules the longest), and veins free or those immediately beside costa non-stably connected. The type of *A. subsageniaceum* is exactly in agreement in morphology with *T. fuscipes*; apart from the characteristic blackish scales and the produced lobes on basal basiscopic side of basal pinnae, even the occasionally connected costal veins can be seen in the isotype of *A. subsageniaceum* kept at the herbarium E. The type of *A. subsageniaceum* is clearly an individual of *T. fuscipes*. Notably, just before submitting this account, I noticed that in 1931 Christensen had already made correct identification of *A. subsageniaceum* and treated the name as a synonym of *T. fuscipes* (Christensen 1931: 290).

Additional specimens examined:—BANGLADESH. Sylhet, *Clarke 17933* (K).

CHINA. Guangxi: Baise, *1955 Baise Exped. 1020* (IBK); Bama, *Li 1006* (IBK); Longzhou, *Morse 71 & 84* (K). Guizhou: Luodian (formerly as Lo-fou), *Cavalerie 3383* (K, P, SING); Xingyi, *Cavalerie 4218* (P). Hainan: Baisha, *Dong 3856* (IBSC); Changjiang, *Dong & Chen 188* (PE); Lingshui, *Fung 20226* (PE); Danzhou, *Tsang 676* (PE). Taiwan: Kaohsiung, *Kuoh 3989* (BM), *Tagawa 1461* (photo at K), *1517 & 2389* (K). Yunnan: Mengzi, *Wu 3971* (PE); Jinghong, *Dong 3557* (IBSC); Mengla, *Dong 4333* (IBSC).

INDIA. Assam, *Mann s.n.* (PE). Sikkim: Darjeeling, *Beddome s.n.* (K).

LAOS. Luang Prabang: Luangprabang, *Jana et al. 6237* (SING).

NEPAL. Gandaki: Tanahun, *Fraser-Jenkins 1462* (BM).

THAILAND. Chiang Mai: Payap, *Hennipman 3127* (P).

VIETNAM. Cao Bang: Tra Linh, *Nguyen 26* (HNU). Quang Binh: Minh Hao, *Hiep et al. 4030 & 5136* (HNU), *Averyanov et al., VH4587* (P); Quang Tri, *Chao 1553* (TAIF).

Tectaria austrosinensis (Christ) C. Christensen (1934: 177). Fig. 1.

Basionym:—*Dryopteris austrosinensis* Christ (1907: 145).

Type:—CHINA. Guizhou: Luodian (formerly Lo-fou), Nov 1905, *Cavalerie 2637* (lectotype E-00417653!, isolectotypes BM-001048645!, P-00644787 [photo!]; **designated here!**).

Note:—When Christ (1907: 145) originally described this species, he cited two collections, i.e. *Cavalerie 2637* from “Ouest Lo-fou” and “*Esq. s.i.l.*” from the same location. I have traced three sheets of *Cavalerie 2637*, each in a different herbarium (BM, E, and P), and two sheets of Esquirol’s collection (nos 759 & 3733) with “Type specimen” label at E. The sheet of *Cavalerie 2637* at E (E-00417653) is relatively better than others and is selected here as the lectotype of *T. austrosinensis*.

Tectaria austrosinensis is distinct in *Tectaria* by having linear-lanceolate basal pinnae, throughout scaly stipe, fully free venation (or occasionally with one basal veinlet connected), and exindusiate sori. Apart from these characters, the size of plant is also very helpful to distinguish most plants of *T. austrosinensis* from those of *T. fuscipes*. *Tectaria austrosinensis* is generally much larger than *T. fuscipes*, with the lateral pinnae mostly being 20–23 cm long in the former (e.g., Fig. 1) while 9–15 cm in the latter (Fig. 2). The main differences between *T. fuscipes* and *T. austrosinensis* in the size of pinnae and the shape of basal pinnae has also been pointed out by Christensen (1931: 290) when he transferred *Aspidium fuscipes* Wallich ex Beddome (1876: 15) to *T. fuscipes*.

Additional specimens examined:—CHINA. Guizhou: without special locality, *Cavalerie s.n.* (P-01439960), *Esquirol 2676* (PE). Yunnan: Maguan, *Dong 3617* (IBSC); Hekou, *Dong 3602* (IBSC). Guangxi: Huanjiang, *Wei 2069* (IBK); Longzhou, *Morse 70* (PE), *Guangxi Exped. 1206* (PE), *Su & Li 182* (IBK).

VIETNAM. Bac Kan: Chao Don, *Averyanov et al. HAL4718* (HNU); Na Ri, *Averyanov et al. HAL5396* (HNU). Dien Bien: Tua Chua, *Averyanov et al. CPC979* (HNU). Son La: Yen Chau, *Harder et al. 7248* (HNU).



FIGURE 1. Lectotype of *Tectaria austrosinensis* (Cavalerie 2637 at E).



FIGURE 2. Isotype of *Tectaria subsageniacea* (Cavalerie 1916 at E).

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