

# *Wijkia tanytricha* (Mont.) Crum (Musci, Sematophyllaceae), a new record to the moss flora of Taiwan

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(Received October 11, 1995; Accepted December 14, 1995)

**Abstract.** *Wijkia tanytricha* (Mont.) Crum is a new record to the moss flora of Taiwan. The species is distinguished from *W. deflexifolium* (Ren. & Card.) Crum, the other species of *Wijkia* in Taiwan, and characterized by having broadly ovate leaves with a long, filiform acumen and enlarged alar cells. *Wijkia tanytricha*, distributed in south-east Asia, is related to *W. carlottae*, a Canadian species, in sharing foliose pseudoparaphyllia and leaf shape. No qualitative characteristics can distinguish these two taxa, although the plants, leaves, and leaf cells of *Wijkia tanytricha* are larger than those of *W. carlottae*. I suppose that *W. carlottae* may be conspecific with *W. tanytricha*.

**Keywords:** New record; Taiwan; *Wijkia*; *Wijkia tanytricha*; *Wijkia carlottae*.

## Introduction

*Wijkia* Crum, a moss genus of the Sematophyllaceae, is distributed mainly in the Old World (25 species) and the Americas (one species in North America and three species in South America) (Buck, 1986). *Wijkia* is distinguished from other genera of the Sematophyllaceae and characterized by having unevenly thickened exothecial cells (vs. collenchymatous cells in other genera of Sematophyllaceae) with thick vertical walls and thin transverse ones (Buck, 1986) and differentiated stem- and branch-leaves. Three sections were classified (Buck, 1986): sect. *Wijkia* based on type *W. extenuata* (Brid.) Crum; sect. *Andoa* based on type *W. tanytricha* (Mont.) Crum; and the African sect. *Acanthocladiopsis*, based on type *W. trichocoleoides* (C. Muell.) Crum. Two species were previously known as *Acanthocladium* sensu Broth. (Natürl. Pflanzenfam. ed. 2, 11: 412. 1925, non *Acanthocladium* Mitt., Proc. Linn. Soc. N. S. Wales 7: 102. 1882; an illegitimate homonym of flowering plant genus replaced by *Wijkia*, cf. Crum, 1971) from Taiwan, i.e. *A. deflexifolium* (Mitt.) Ren. & Card. and *A. semitortipilum* (C. Muell.) Fleisch. (cf. Kuo and Chiang, 1987). Gangulee (1980) excluded *Hypnum semitortipilum* C. Muell. nom. nud. (the latter species). In my survey of bryoflora of Mt. Yushan (Chiang, 1989), the highest mountain in Taiwan, *Wijkia tanytricha* (Mont.) Crum, a new record, is found.

## Taxonomy of *Wijkia* in Taiwan

*Wijkia* is distinguished from its relative, *Brotherella*, by having unevenly thickened exothecial cells, thin-walled alar cells, and a contracted leaf-base. Two species of *Wijkia* are distributed in Taiwan.

*Wijkia* Crum, The Bryologist 74: 172. 1971.

Plants medium to robust; yellow-green, shiny. Stems creeping, irregularly bipinnately branched; pseudoparaphyllia foliose. Stem- and branch-leaves differentiated; stem leaves oblong-lanceolate to lanceolate, apex abruptly tapering; branch leaves lanceolate to ovate-lanceolate, gradually acuminate; costa double or absent; cells linear; alar cells inflated, colored. Dioicous. Setae long, smooth; capsules horizontal, cylindrical, asymmetric, exothecial cells unevenly thickened; operculum rostrate; peristomes double, exostome teeth cross-striolate below, papillose above, endostomes with a high basal membrane, segments keeled, cilia 2.

## Key to Species of *Wijkia* Crum in Taiwan

1. Leaf ovate-lanceolate with tips deflexed .....  
..... *W. deflexifolia*
1. Leaf broadly ovate with straight, abruptly narrowing tips .....  
..... *W. tanytricha*

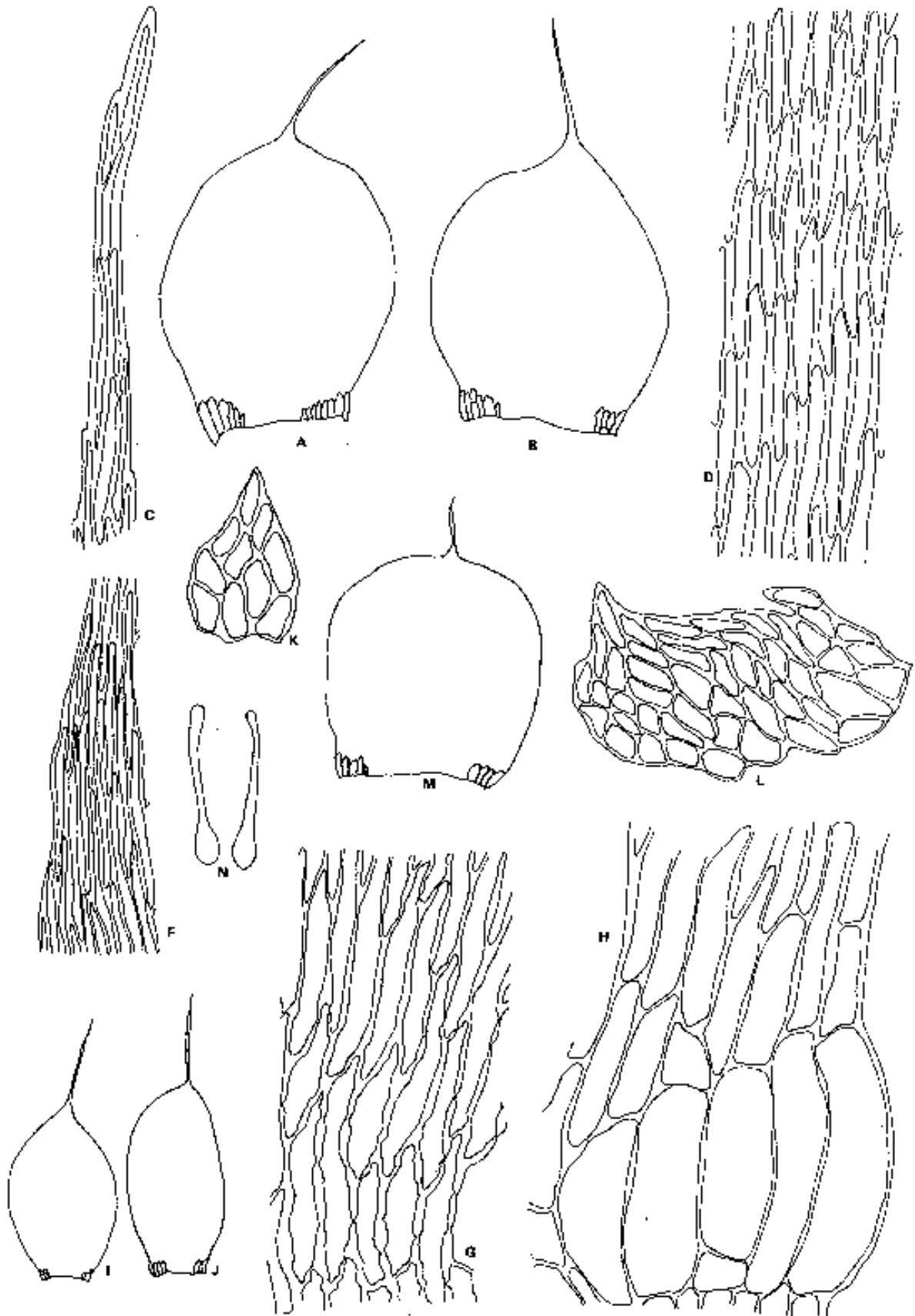
**1. *Wijkia tanytricha* (Mont.) Crum, The Bryologist 74: 174. 1971.** Figure 1

Illustrations: Gangulee (1980) f. 946; Brothorus (1925) f. 721.

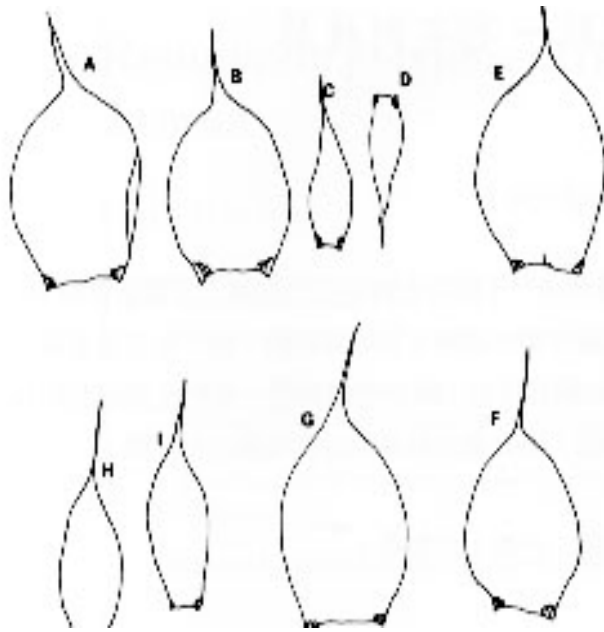
Stem-leaves ovate with an abruptly tapering, long acumen; cells linear, smooth; alar cells enlarged and inflated, 2 to 3 rows; branch-leaves oblong with a long acumen. Pseudoparaphyllia foliose.

*Specimen examined.* TAIWAN. CHIAYI HSIEN: upper Tung-Pu, in *Tsuga* forest, on fallen log, 2,500 m alt., 17 Jul 1987, T. Y. Chiang 20370 (MO).

*Additional specimen examined.* NEW GUINEA. 18 Jun 1968, W. A. Weber & D. McVean 34877 (MO).



**Figure 1.** *Wijkia tanytricha* (Mont.) Crum. A–B, Stem-leaves ( $\times 70$ ); C, Apical cells of stem-leaf ( $\times 330$ ); D, Laminal cells of stem-leaf ( $\times 330$ ); E, Marginal cells of stem-leaf ( $\times 330$ ); F, Basal cells of stem-leaf ( $\times 330$ ); G, Alar cells of stem-leaf ( $\times 330$ ); H–I, Branch leaves ( $\times 70$ ); J–L, Pseudoparaphyllia ( $\times 330$ ); M, Perichaetial leaf ( $\times 70$ ); N, Archegonia ( $\times 330$ ). Drawn from Chiang 20370.



**Figure 2.** *Wijkia carlottae* (Schof.) Crum. A–B & E–G, Stem-leaves ( $\times 70$ ); C–D & H–I, Branch leaves ( $\times 70$ ); A–D, Drawn from *B. Schofield & F. M. Boas 18733* (isotype); E–I, Drawn from *W. B. Schofield 31489*.

*Habitat.* Growing on wet rocks or tree trunks, elev. 1, 800–4,000 m.

*Distribution.* Taiwan, Tibet, Vietnam, Java, India, New Guinea.

*Specimens of related species examined:*

*Wijkia carlottae:* CANADA, Queen Charlotte Islands of British Columbia, 23 Jul 1966, *W. B. Schofield & F. M. Boas 18733* (isotype, MO), *W. B. Schofield 31489* (MO).

*Wijkia surcularis:* THAILAND, 21 Dec 1985, *Touw 10288* (MO).

*Notes.* *Wijkia tanytricha* is related to *W. carlottae* (Schof.) Crum (Figure 2), a species found in Queen Charlotte Islands of British Columbia (Schofield, 1966), in sharing ovate stem-leaves with a long acumen and foliose pseudoparaphyllia (Buck, 1986). Although plants, leaves, leaf cells, and alar cells of *Wijkia tanytricha* are larger than those of *W. carlottae*, no other qualitative characteristics can distinguish these two species. I suppose that plants of *W. carlottae* are conspecific with *W. tanytricha* (cf. Schofield, 1966) and represent the northernmost popu-

lations of the latter species. Nevertheless, more evidence on sexual structure and sporophytes of *W. carlottae* is needed before a conclusion can be made.

*Wijkia tanytricha* is also similar to *W. surcularis* (Mitt.) Crum of sect. *Andoa* in southeast Asia (Gangulee, 1980: f. 947) in having abruptly tapering leaf-acumens. Nevertheless, the former species owns larger plants, broader leaves with longer and filiform tips and cylindrical capsules (vs. ovate ones) compared to *W. surcularis*.

## 2. *Wijkia deflexifolia* (Ren. & Card.) Crum, *The Bryologist* 74: 171. 1971.

Illustration: Gangulee (1980): f. 945.

Leaves ovate-lanceolate with deflexed tips, ecostate; cells linear, smooth; alar cells enlarged, in one row.

*Specimen examined.* TAIWAN. CHIAYI HSIEN: Pai-yuen-shan-chuang, on rock in *Abies* forest, 3,200 m alt., Jul 1987, *T. Y. Chiang s.n.* (TAI).

*Distribution.* Taiwan, India.

*Notes.* *Wijkia deflexifolia*, belonging to sect. *Wijkia*, was recorded in Taiwan by Sasaoka (1928) and Sakurai (1932). This species is characterized and distinguished from *W. tanytricha* by having deflexed tips and one-rowed alar cells.

**Acknowledgments.** I am grateful to the curators of MO and TAI for access to the cited specimens. I am indebted to the reviewers, Drs. Zenoske Iwatsuki, S. H. Lin, Ching-I Peng, and Benito Tan, for their valuable comments.

## Literature Cited

- Brotherus, V. F. 1925. Musci in Engler & Prantl, *Die Natuerlichen Pflanzenfamilien*, Bd. 11, Leipzig.
- Buck, W. R. 1986. *Wijkia* (Sematophyllaceae) in the New World. *Hikobia* 9: 297–303.
- Chiang, T. Y. 1989. The Study on the Bryophytic Life-Forms of Mt. Yushan. Master Thesis, Graduate Institute of Botany, National Taiwan University, Taipei.
- Crum, H. 1971. Nomenclatural changes in the Musci. *The Bryologist* 74: 165–174.
- Kuo, C. M. and T. Y. Chiang. 1987. Index of Taiwan mosses. *Taiwania* 32: 119–207.
- Gangulee, H. C. 1980. Mosses of Eastern India and Adjacent Regions. Vol. III, Fasc. 8, Hymnabryales. Calcutta.
- Sakurai, K. 1932. Beobachtungen ueber Japanische Moosflora (I). *Bot. Mag. Tokyo* 46: 375–384.
- Sasaoka, H. 1928. A list of Taiwan mosses IV. *Trans. Nat. Hist. Soc. Formosa* 18: 414–423.
- Schofield, W. B. 1966. *Acanthocladium* (Sect. *Tanythrix*) in North America. *The Bryologist* 69: 334–338.

## 台灣產蘚類植物新紀錄—毛尖刺枝蘚

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毛尖刺枝蘚 (*Wijkia tanytricha* Mont.) 為台灣新紀錄植物，本種與台灣過去已記錄之反葉刺枝蘚 (*W. deflexifolium* Ren. & Card.) 差異在於具有卵圓形葉身及纖長葉先端與大型葉耳細胞。此一分布於東南亞之刺枝蘚與北美唯一種類，卡洛特刺枝蘚 (*W. carlottae*) 極其近似，除前者植物體、葉形及葉細胞較為大型外，並無其他特徵足以區分兩種，二者極可能為同種，而北美族群為毛尖刺枝蘚分布北限。

**關鍵詞：**刺枝蘚屬；毛尖刺枝蘚；卡洛特刺枝蘚；新紀錄；台灣；分類學。