

## 土茯苓屬(菝葜科)之學名修訂

# Nomenclatural Alterations in the Genus *Heterosmilax* (Smilacaceae)

許天銓\* 鐘詩文

Tian-Chuan Hsu\* and Shih-Wen Chung

行政院農業委員會林業試驗所植物園組 10055 台北市南海路 53 號

Division of Botanic Garden, Taiwan Forestry Research Institute, No. 53, Nanhai Rd., 10055 Taipei, Taiwan.

\* 通訊作者: lecanorchis@gmail.com

\* Corresponding author: lecanorchis@gmail.com

## 摘要

基於兩屬間甚小的形態差異及近年分子譜系學之研究結果，土茯苓屬 *Heterosmilax*(菝葜科 Smilacaceae)應處理為菝葜屬 *Smilax* 之異名。本文因此將土茯苓屬已知之 12 種轉移至菝葜屬，並提出必要之新分類處理，共計 2 新名(*S. duclouxii* 與 *S. vietnamensis*)及 7 新組合名(*S. chinensis*, *S. longiflora*, *S. longiflora*, *S. polyandra*, *S. seisuiensis*, *S. septemnervia* 與 *S. sumatrensis*)。

## Abstract

*Heterosmilax* (Smilacaceae) is treated as a synonym of *Smilax* based on their weak morphological divergence and recent molecular phylogenetic evidences. This paper transfers twelve known *Heterosmilax* species to *Smilax* with two necessary new names (*S. duclouxii* and *S. vietnamensis*) and seven new combinations (*S. chinensis*, *S. longiflora*, *S. longiflora*, *S. polyandra*, *S. seisuiensis*, *S. septemnervia* and *S. sumatrensis*).

**關鍵詞：**土茯苓屬，菝葜科，菝葜屬，命名學

**Key words:** *Heterosmilax*, Smilacaceae, *Smilax*, nomenclature

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## 緒 言

土茯苓屬 (*Heterosmilax*) 隸屬菝葜科 (Smilacaceae)，全世界約有 12 種，均分布於東亞及東南亞地區(Liang and Koyama 2000; Kong *et al.* 2007)，臺灣約有 4 種(Hsu *et al.* 2011)。形態上，土茯苓屬與菝葜屬(*Smilax*)十分接近，唯一鑑別特徵為前者之花被片幾近完全合生為瓶狀之花冠筒，而後者則具有 6 枚完全分離或僅部分合生之花被(Koyama 1984; Chen *et al.* 2006)。多數植物誌及分類文獻以一獨立屬的觀點處理這群具有近完全合生花被的物種(Koyama 1984; Koyama *et al.* 2000; Liang and Koyama 2000)，但亦有研究者對土茯苓屬之分類地位提出異議，認為應併入菝葜屬，視為菝葜屬下之一亞屬或一節(Judd 1998; Holmes 2002; Kong *et al.* 2007)。

近年的研究報告顯示，除花被特徵外，其他外部形態、細胞及花粉之特徵均無法作為區分兩屬之依據(Chen *et al.* 2006; Kong *et al.* 2007)；而中間型物種的存在，如花被約 1/2 合生的筒被菝葜(*Smilax synandra* Gagnep.)，亦使二屬形態上的區隔模糊。針對ITS序列之分子譜系研究(Cameron and Fu 2006)則顯示土茯苓屬本身並非單系群，且盡數歸於菝葜屬之譜系樹內。其中，華肖菝葜(*Hetero Smilax china* F.T.

Wang)與菝葜屬土茯苓節(Sect. *Coilanthus*)之筐條菝葜(*Smilax corbularia* Kunth)有十分密切的關聯；而其包含模式種*H. japonica* Kunth在內之其他土茯苓屬物種則與草本節(sect. *Nemexia*)形成姊妹群。

這些研究結果顯示，「花被近完全合生」為土茯苓屬與菝葜屬唯一鑑別特徵，但具有此特徵的物種並非單一起源；且若維持土茯苓屬的獨立，菝葜屬亦將成為側系群。基於上述原因，我們同意Judd(1998)及Holmes(2002)的看法，將土茯苓屬植物歸併入菝葜屬下；但因菝葜屬之屬內親緣關係仍未明朗(Cameron and Fu 2006)，本文暫不探討歸併後之屬下位階。依據近年土茯苓屬之分類處理(Koyama 1984; Liang and Koyama 2000)，本文重新整理現有 12 物種之學名，其中 3 種在菝葜屬已有合法學名，故另提出 7 新組合名及 2 新名。

依土茯苓類群獨特的花朵形態，我們推測此群植物已演化出有別於其他菝葜屬植物之特殊傳粉機制，惟目前仍尚未見到相關傳粉生物學之報導。傳粉機制及媒介的了解，更多微細形態研究及分子證據將有助於瞭解此一類群之親緣關係及演化。

## 分類處理

***Smilax* L.**, Sp. Pl. 2: 1028. Type species: *Smilax aspera* L.

*Heterosmilax* Kunth, Enum. Pl. 5: 270. Type species: *Heterosmilax japonica* Kunth.

**1. *Smilax bockii* Warb.**, Bot. Jahrb. Syst. 29(2): 259. 1900.

**Type:** CHINA, Sichuan, Nanchuan, *Bock & Rosthron 2375* (holotype: B!).

*Heterosmilax japonica* Kunth, Enum. Pl. 5: 250. 1850. Type: JAPAN, *Goering s.n.* (holotype: L!).

*Heterosmilax indica* A. DC., Monogr. Phaner. 1:43. 1878. Type: INDIA, Assam, *Hooker & Thomson 77* (lectotype: K, designated by Koyama, 1984).

*Smilax stemonifolia* H. Lév. & Vaniot, Liliac. etc. Chine 28. 1905. Type: CHINA, Hong Kong, *Bodinier 804* (holotype: E!).

*Smilax plenipedunculata* Hayata, J. Coll. Sci. Univ. Tokyo 36: 361. 1911. Type: TAIWAN, Pingtung, Kurarusha, *Nakahara 877* (holotype: TI; isotype: TAIF!).

*Smilax arisanensis* Hayata, Icon. Pl. Formosa 5:235, f. 83. 1915. Type: TAIWAN, Chiayi, Arisan, *Hayata & Ito s.n.* (holotype: TI).

*Smilax raishaensis* Hayata, Icon. Pl. Formosa 9: 138, f. 51. 1920. Type: TAIWAN, Pingtung, Raisha, *Matuda s.n.* (holotype: TI).

*Heterosmilax tsaii* F. T. Wang & Tang, Bull. Fan Mem. Inst. Biol., Bot. 7(2): 87. 1936. Type: CHINA, Yunnan, *Tsai 60416* (holotype: PE!).

**註記:** 由於 *Smilax japonica* A. Gray 及 *S.*

*indica* Burm f. 已將種小名占有，*S. bockii* 成爲同物異名(Liang and Koyama 2000)之中最早之合法名。

**Note:** Since *Smilax japonica* A. Gray and *S. indica* Burm f. have occupied the epithets, *S. bockii* becomes the earliest legitimate name among all synonyms (Liang and Koyama 2000).

**2. *Smilax chinensis* (F. T. Wang) T. C. Hsu & S. W. Chung, comb. nov.**

**Basionym:** *Heterosmilax chinensis* F. T. Wang, Bull. Fan Mem. Inst. Biol., Bot. 5: 121. 1934.

**Type:** CHINA, Sichuan, Mt. Omei, *Wang 23223* (lectotype: PE!, designated by Koyama, 1984).

**3. *Smilax duclouxii* T. C. Hsu & S. W. Chung, nom. nov.**

**Replaced basionym:** *Heterosmilax yunnanensis* Gagnep., Bull. Soc. Bot. France 81: 70. 1934.

**Type:** CHINA, Yunnan, Tataouan, *Ducloux 4545* (holotype: P!; isotype: P!).

**註記:** 原種小名已由 *Smilax yunnanensis* S. C. Chen 占有，故需另立新名。新名之種小名取自模式標本採集者 F. Ducloux。

**Note:** The new specific epithet, *duclouxii*, is derived from F. Ducloux, the collector of type specimens. The original specific epithet has been occupied by *Smilax yunnanensis* S. C. Chen.

**4. *Smilax gaudichaudiana* Kunth**, Enum. Pl. 5: 252. 1850.

**Type:** CHINA, Macao, *Gaudichaud 57*

(lectotype: P, designated by Koyama, 1983; isotype: NY!).

*Oligosmilax gaudichaudiana* (Kunth) Seemann, J. Bot. Brit. For. 6: 258, t. 83. 1868.

*Heterosmilax gaudichaudiana* (Kunth) Maxim, Bull. Acad. St. Petersb. 17: 176. 1872.

**5. *Smilax longiflora* (K. Y. Guan & Noltie) T. C. Hsu & S. W. Chung, *comb. nov.***

**Basionym:** *Heterosmilax longiflora* K.Y. Guan & Noltie, Edinburgh J. Bot. 50(1): 59. 1993.

**Type:** CHINA, Yunnan, Menglung, *Li 003287* (holotype: KUN!; isotype: YUN).

**6. *Smilax micrandra* (T. Koyama) T. C. Hsu & S. W. Chung, *comb. nov.***

**Basionym:** *Heterosmilax micrandra* T. Koyama, Brittonia 36: 201. 1984.

**Type:** CHINA, Hainan, Yaichow, *Liang 62275* (holotype: NY!).

**7. *Smilax pertenuis* T. Koyama, Quart. J. Taiwan Mus. 13: 38, t. 4. 1960.**

**Basionym:** *Heterosmilax pertenuis* (T. Koyama) T. Koyama, Fl. Thai. 2(3): 250. 1975.

**Type:** THAILAND, Nakhon Sawan, between Hua Hwai and Tam Fao, 29 Nov 1921, *Hayata s.n.* (holotype: TI).

**8. *Smilax polyandra* (Gagnep.) T. C. Hsu & S. W. Chung, *comb. nov.***

**Basionym:** *Heterosmilax polyandra* Gagnep., Bull. Soc. Bot. France 81: 70. 1934.

**Type:** LAOS, Paklai, *Thorell 3380* (holotype

: P!).

**9. *Smilax seisuiensis* (Hayata) T. C. Hsu & S. W. Chung, *comb. nov.***

**Basionym:** *Pseudosmilax seisuiensis* Hayata, Icon. Pl. Formosan. 9: 125, pl. 6. 1920.

**Type:** TAIWAN, Hualien, Seisui, 1917, *T. Ito s.n.* (holotype: TI).

*Pseudosmilax hogoensis* Hayata, Icon. Pl. Formosan. 9: 125. 1920. Type: TAIWAN, Taichung, Hogo, 1916, *Hayata s.n.* (holotype: TI; isotype: TAIF!).

*Heterosmilax seisuiensis* (Hayata) F. T. Wang & Tang, Sinesia 5(3-4): 427. 1934.

*Heterosmilax hogoensis* (Hayata) T. Koyama, Quart. J. Taiwan Mus. 10: 219. 1957.

**10. *Smilax septemnervia* (F. T. Wang & T. Tang) T. C. Hsu & S. W. Chung, *comb. nov.***

**Basionym:** *Heterosmilax septemnervia* F. T. Wang & T. Tang, Sinensia 5(3-4): 428. 1934.

**Type:** CHINA, Kueichow, Pinfa, *Tsiang 5570* (lectotype: PE!, designated by Koyama, 1984; isotype: NY!).

**11. *Smilax sumatrensis* (A. DC.) T. C. Hsu & S. W. Chung, *comb. nov.***

**Basionym:** *Heterosmilax sumatrensis* A. DC., Monogr. Phan. 1: 42. 1878.

**Type:** INDONESIA, Sumatra, Korthals 149 (holotype: L!).

*Heterosmilax borneensis* A. DC., Monogr. Phan. 1: 42. 1878. Type: INDONESIA, Borneo, Bangarmassing, *Motley 1211* (holotype: K!).

*Heterosmilax japonica* (Kunth) Maxim. var.

*javanica* A. DC., Monogr. Phaner. 1: 43. 1878. excl. syn. *Smilax micrantha*. Type: INDONESIA, Java, Zollinger 857 (holotype P; isotype L).

*Heterosmilax dalatensis* Gagnep., Bull. Soc. Bot. France 81: 69. 1934. Type: VIETNAM, Dalat, Hayata 768 (holotype P!; isotype TI).

**註記:** *Heterosmilax sumatrensis* 原被處理為 *H. borneensis* 之同物異名(Koyama 1984), 但由於後者種小名在 *Smilax* 中已由 *S. borneensis* A. DC. 占有, 故前者成爲最早可採用之基礎名。

**Note:** *Heterosmilax sumatrensis* had been treated as a synonym of *H. borneensis* (Koyama 1984). However, the former becomes the earliest legitimate basionym under *Smilax* because *S. borneensis* A. DC. has occupied the epithet.

## 12. *Smilax vietnamensis* T. C. Hsu & S. W. Chung, *nom. nov.*

**Replaced basionym:** *Heterosmilax paniculata* Gagnep., Bull. Soc. Bot. France 81: 69. 1934.

**Type:** VIETNAM, Tonkin, Chan-Mong, Chevalier 32134 (holotype: P!; isotype: NY!).

**註記:** 原種小名已由 *Smilax paniculata* M. Martens & Galeotti 占有, 故需另立新名。新名之種小名取自模式標本之採集地。

**Note:** The new specific epithet, *vietnamensis*, is derived from the type locality. The original specific epithet has been occupied by *Smilax paniculata* M. Martens & Galeotti.

## 引用文獻

Cameron, K. and C. Fu. 2006. A nuclear rDNA phylogeny of *Smilax* (Smilacaceae). pp.

598-605. *In:* Columbus, J. T. *et al.* (eds.). Monocots: comparative biology and evolution, 2 vols. Rancho Santa Ana Botanic Garden, Claremont.

Chen, S. C., Y. S. Qiu, A. L. Wang, K. M. Cameron and C. X. Fu. 2006. A phylogenetic analysis of the Smilacaceae based on morphological data. *Acta Phytotax. Sin.* 44(2): 113-125.

Holmes, W. C. 2002. Smilacaceae. pp. 468-477. *In:* Flora of North America Editorial Committee (eds.). *Flora of North America*. Vol. 26. Oxford University Press, New York.

Hsu, T. W., T. Y. Chiang and C. I. Peng. 2011. *Heterosmilax septemnervia* F. T. Wang & Tang (Smilacaceae) a newly recorded plant to Taiwan. *Taiwan J. Biodivers.* 13(2): 179-182.

Judd, W. S. 1998. The Smilacaceae in the southeastern United States. *Harvard Pap. Bot.* 3: 147-169.

Kong, H. H., A. L. Wang, J. Lee and C. X. Fu. 2007. Studies of systematic evolution and karyotypic variation in *Smilax* and *Heterosmilax* (Smilacaceae). *Acta Phytotax. Sin.* 45(3): 257-273. (In Chinese)

Koyama, T. 1983. Smilacaceae. pp. 69-124. *In:* Aubreville, A. *et al.* (eds.). *Fl. Canbodge, Laos et du Viêtnam* Vol. 20. *Museum National D'Histoire Naturelle*, Paris.

Koyama, T. 1984. A taxonomic revision of the genus *Heterosmilax* (Smilacaceae). *Brittonia* 36(2): 184-205.

Koyama, T., K. Y. Wang, F. Y. Lu and C. H. Ou. 2000. Smilacaceae. pp. 99-132. *In:* D. E. Boufford *et al.* (eds.). *Flora of Taiwan* ed.

2. Vol. 5. Editorial Committee of the Flora of Taiwan, 2nd. ed., Taipei.

Liang, S. and T. Koyama. 2000. *Heterosmilax*. pp. 115-117. *In*: Wu, Z. Y. and P. H. Raven (eds.). Flora of China. Vol. 24. Science Press, Beijing, and Missouri.