Taiwania, **53**(2): 210-229, 2008

Additional Remarks on Ranunculaceae in Taiwan (8) —Revision of Ranunculaceae in Taiwan

T.Y. Aleck Yang[1,3] and Tseng-Chueng Huang[2]

(Manuscript received 25 March, 2008; accepted 15 May, 2008)

ABSTRACT: This is a taxonomic study of the genera of Ranunculaceae in Taiwan, including *Aconitum* L., *Anemone* L., *Calathodes* L., *Cimicifuga* Hook.f. & Thomson, *Coptis* L., *Dichocarpum* L., *Ranunculus* L., *Semiaquilegea* Makino, *Thalictrum* L. and *Trollius* L. *Anemone vitifolia* Buch.-Ham. ex DC. var. *matsudae* Yamam. is recognized in Taiwan; the concept of the genus *Cimicifuga* is still accepted, excluding genus *Actaea*. A key to the genera, keys to the taxa under each genus and synonyms of each taxon are provided. The taxonomic descriptions of taxa are only for those published after 1996. For easy understanding and checking of Taiwanese Ranunculaceae, phenology, distribution and specimens examined in each taxon are also presented. Totally, there are 11 genera and 51 taxa (including 41 species, 2 subspecies and 8 varieties) of family Ranunculaceae in Taiwan.

KEY WORDS: **Ranunculaceae, *Aconitum*, *Anemone*, *Calathodes*, *Cimicifuga*, *Coptis*, *Dichocarpum*, *Ranunculus*, *Semiaquilegea*, *Thalictrum*, *Trollius*, revision, taxonomy, Taiwan.**

INTRODUCTION

After the publication of "Flora of Taiwan" volume 2 (2nd ed.) in 1996 (Yang et al., 1996), some genera of Ranunculaceae, i.e. *Clematis*, *Ranunculus* and *Semiaquilegia* have been studied or published during the last ten years (Hsu et al., 2004; Kuo et al., 2005; Wang and Bartholomew, 2001; Yang and Moore, 1999), and some nomenclatural problems, e.g. *Actaea* versus *Cimicifuga* (Compton et al., 1998; Luferov, 2000) have also been reviewed. For the present study, most materials were dried herbarium specimens from the following herbaria: HAST, K, KYO, LE, NCKU (Department of Life Science, National Cheng-Kung University), PE, TAI, TAIE, TAIF, TCF (Department of Forest, National Chunghsing University), TI, TNM, TNS and TNU. Keys to the taxa of each genus and synonyms for each taxon (excluding genus *Clematis*) are presented according to the "Flora of Taiwan", 2nd edition, a key to the whole family. In order to avoid repeating previous studies (Yang and Huang, 1989, 1992, 1995, 1996; Yang and Compton, 1995; Yang et al., 1996), taxonomic descriptions are provided only for those taxa published after 1996. Moreover, for easy understanding and checking of Taiwanese Ranunculaceae, information about phenology, distribution and specimens examined for each taxon are also presented. The number of species in each genus follows Wang et al. (2001), and totally, there are 11 genera and 51 taxa (including 41 species, 2 subspecies and 8 varieties) within the family Ranunculaceae of Taiwan.

1. TNM Herbarium, Department of Botany, National Museum of Natural Science, 1, Kuan-Chien Road, Taichung 404, Taiwan.
2. Institute of Plant Biology, National Taiwan University, 1, Sect. 4, Roosevelt Road, Taipei 106, Taiwan.
3. Corresponding author. Email: aleck@mail.nmns.edu.tw

TAXONOMIC TREATMENTS

Ranunculaceae L. 毛茛科

Mainly annual or perennial herbs, sometimes small shrubs or woody climbers. Leaves simple or compound, radical or cauline, often divided, mostly alternate but opposite in *Clematis*; stipules mostly absent, or present and adnate to petiole, rarely free, deciduous few evergreen. Inflorescence cymose, ramose or single-flowered. Flowers monoecious (bisexual), rarely polygamous or dioecious; actinomorphic (regular), or zygomorphic (irregular). Petaloids hypogynous, free, imbricate or valvate in *Clematis*, deciduous. Sepals 4-5, or more or less, green or colourful when petal absent. Petals 4-5 or more, or absent, well developed or sometimes reduced to nectaries, spurs various usually at the base. Stamens hypogynous, numerous, free, in a spiral arrangement; anthers 2-celled, introrse, dehiscing longitudinally. Carpels few to many, rarely solitary, free, spiral or whorled, 1-celled; styles very short to long; ovules 1 to many, anatropous, erect or

臺灣大學學術期刊資料庫

pendulous. Fruits achene or follicle, sometimes capsule or berry; seeds 1 to many, small, albuminous, embryo minute.

About 58 genera with 1750 species, distributed in whole world, mainly in the Northern temperate and frigid areas; 11 genera and 51 taxa (including 41 species, 2 subspecies and 8 varieties) in Taiwan.

Key to the genera

1. Leaves opposite; fruits with plumose tails; scandent herbs or woody vines, few erect shrubs ..... 5. *Clematis*
1. Leaves radical or alternate; fruits without plumose tails; erect herbs or woody shrubs
  2. Fruits achenes
    3. Petals present ……..... 8. *Ranunculus*
    3. Petals absent
      4. Fruits with sulcate ……..... 10. *Thalictrum*
      4. Fruit without sulcate ……..... 2. *Anemone*
  2. Fruits follicles
    3. Flowers irregular; petals spurred ……..... 1. *Aconitum*
    3. Flowers regular; petals not spurred or absent
      4. Petals or staminodes absent ……..... 3. *Calathodes*
      4. Petals or staminodes present
        5. Staminodes absent
          6. Flowers yellowish-orange, ca. 30-50 mm in diam. …….. 11. *Trollius*
          6. Flowers white, ca. 6-15 mm in diam. .... 6. *Coptis*
        5. Staminodes present.
          6. Woody herbs, 100-150 cm tall; seeds compress with wings ……..…… 4. *Cimicifuga*
          6. Herbaceous, up to 30 cm tall; seeds global smooth
            7. Carpels 2, usually connate at base ……..... 7. *Dichocarpum*
            7. Carpels 3 to 5, free……..… 9. *Semiaquilegia*

1. Aconitum L. 烏頭屬

Perennial or annual erect or scandent herbs with underground tubers. Leaves simple, alternate or sometimes radical, palmately divided, usually 3 to 5-partite or more, rarely undivided; petiolate. Inflorescence a racemose or panicle; bracts usually 2. Flowers bisexual, zygomorphic, violet, purple, blue, yellow or sometimes cream-coloured, composed of an upper sepal, 2 lateral sepals and 2(-5) petals (nectaries). Sepals 5, petaloid, upper sepals galeate or boat-shaped, lateral sepals round or nearly and lower sepals elliptic smaller than the others; petals 2, sometimes 5, small, lobed, usually with labia and spurs, nectariferous, stalked; stamens numerous, spirally arrangement, anthers elliptic-global, filaments winged at the base; staminodes present or absent; carpels 3－5(-6-13), free, styles shorter than the ovaries. Follicles ellipsoid, styles persistent after anthesis, short. Seeds 10－20, quadrangular, winged along the ridges or sometimes with membranous wings on the surface.

About 400 species in temperate regions of the Northern Hemisphere, mainly distributed in Asia, next in Europe and North America; 210 species in Mainland China and 2 taxa (1 species and 1 variety) in Taiwan.

Key to the species

1. Plants erect; distributed at altitudes of 1,800-3,600 m ..... 1a. *A. fukutomei* var. *fukutomei*
1. Plants scandent; distributed at altitudes of 1,700-3,000 m ……..…..... 1b. *A. fukutomei* var. *formosanum*

1. *Aconitum fukutomei* Hayata, Icon. Pl. Formos. **4**:1. 1914; Sasaki, List Pl. Formos. 182. 1928; Yamamoto in Trans. Nat. Hist. Soc. Formos. **20**: 100. 1930; Kudo & Masamune in Ann. Rep. Taihoku Bot. Gard. **2**: 75. 1932; Suzuki, Short Fl. Formos. 64. 1936; Masamune, List Vasc. Pl. Taiwan 52. 1954; Tamura in Acta Phytotax. Geobot. **18**: 64. 1959; Yang & Huang in Taiwania **41(2)**: 118. 1996, Yang et al., Fl. Taiwan **2** (2nd ed.): 507. 1996; Li & Kadota, Fl. China **6**: 199. 2001. ― *Aconitum bartlettii* var. *fukutomei* (Hayata) T.S. Liu & C.F. Hsieh, Fl. Taiwan **2**: 478. 1976. **Type specimen**: Mt. Chilaichushan (Kirashuzan), *K. Fukutome s. n.* Oct. 1913 (holotype: TI).

1a. *Aconitum fukutomei* var. *fukutomei*

Aconitum bartlettii Yamam. in Trans. Nat. Hist. Soc. Formos. **20**: 98. 1930. **Type specimen**: Taiwan (Formosa): Hualien Co., Hsiulin, Mt. Nenkaoshan (in monte Noko), *ca.* 2,876-3,109 m alt. (9,437-10,200 ped. alt.); type of fruits, 5 Oct. 1926, *H.H. Bartlett 6225* (lectotype: TAI!), *ca.* 2,713 m alt. (8,900 ped. alt.); type of flowers, *S. Sasaki s.n.* 23 Aug 1929 (syntype: TAI!).

Aconitum yamamotoanum Ohwi in Fedd. Rep. Sp. Nov. **36**: 49. 1934. **Type specimen**: Taiwan (Formosa): Miaoli Co., Mt. Tapachienshan to Mt. Hsueshan, *K. Kojima s.n.* 12-19 Aug. 1933 (holotype: KYO!)

Aconitum kojimae Ohwi ex Tamura in Acta Phytotax. Geobot. **18**: 64. 1959; Li & Kadota, Fl. China **6**: 200. 2001. **Type specimen**: Taiwan (Formosa): Kaohsiung Co. (Prov. Takao), Taoyuan, Kuanshanyuei (Kwanzangoe), *K. Kojima s.n.* 28 Aug 1933 (holotype: KYO!); summit of Mt. Kuanshan (Mt. Kwanzan), *S. Okamoto s.n.* 7 Oct 1937 (paratype: KYO!); Liukuei (Rokki), Mt. Peinanchushan (Mt. Pinanshu), *S. Okamoto s.n.* 27 Sept. 1937 (paratypes: KYO!)

Aconitum kojimae var. *ramosum* Tamura in Acta Phytotax. Geobot. **18**: 65. 1959; Li & Kadota, Fl. China **6**: 200. 2001. **Type specimen**: Taiwan (Formosa): Kaohsiung Co. (Prov. Takao), Mt. Kuanshan (Mt. Kwanzan), *S. Okamoto s.n.* 7 Oct 1937 (holotype: KYO!)

Distribution: Endemic to Taiwan, in woods or on the slopes at over 1,800 m altitude of the Central Mountain Ranges.

臺灣大學學術期刊資料庫

Phenology: Flowering season (June-) July to September; fruiting season (July-) August to December.

Specimens examined: **TAIWAN: Ilan Co.**: Nanau: Nanhu Camp to Mt. Nanhutashan, *W.L. Wagner 6523* (HAST); Mt. Nanhutashan, *T. Suzuki et al. 17446* (TAI), *T. Yamazaki & Yamazaki s.n.* 21 Sept. 1969 (TAI). **Hsinchu Co.**: Chienshih: Mt. Tapachienshan, *C.F. Hsieh 1323* (TAI), *M.T. Kao 8509* (TAI), *H.Y. Liu 3721* (TNM). Wufong: on the way of Mt. Tapachienshan, *C.L. Huang et al. 112* (HAST). **Miaoli Co.**: Taian: Kuanwu, *C.H. Ou et al. s.n.* 15 Jul 1990 (TNM); base of the Mt. Tapachienshan, *C.I. Huang et al. 83* (TNM), *T.Y.A. Yang et al. 3175* (TNM). **Taichung Co.**: Hoping: Mt. Chungyangchienshan, *M. Tamura & Koyama 23623* (KYO); 369 Lodge to Mt. Hsuehshan, *T.Y.A. Yang et al. 6176* (TNM); Huanshan to Mt. Hsuehshan, *H. Koyama 24010* (KYO), *24011* (KYO), *24031* (KYO), *24036* (KYO); Mt. Lingmingshan, *C.K. Yang 681* (TNM); Nanhu Lodge to Mt. Nanhutashan, *D.S. Hsu et al. 774* (HAST); Wuling Farm, 369 Lodge to Hsueshan peak, *D.S. Hsu & Moore 737* (HAST). **Nantou Co.**: Hsinyi: Entrance of Mt. Yushan to Tungpu Lodge, *C.M. Wang 7121* (TNM); Mt. Yushan, *M. Tamura et al. 22111* (TAI). Renai: Mt. Chilainanfong, *T.Y.A. Yang et al. 13914* (TNM); Mt. Hohuanshan, *C.C. Hsu 3830* (TAI); Tienchih, *M. Tamura & Koyama 23335* (KYO), *23337* (KYO); Tienchih to Boundary stone tablet, *T.Y.A. Yang et al. 13913* (TNM); Mt. Nenkaotashan, *T. Suzuki et al. 17446* (TAI), *17483* (TAI), *S. Suzuki 2142* (TAI); Wuling, *H.F. Yen 5257* (TNM). **Chiayi Co.**: Alishan: Tataka to Mt. Alishan, *M. Tamura et al. 22175* (TAI); Tungpu to Mt. Alishan, *H. Koyama 23971* (KYO); Mt. Yushan, *H. Simada 890* (TAI). **Kaohsiung Co.**: Taoyuan: Prov. #20 Hwy 145.1 km, *T.Y.A. Yang et al. 14050* (TNM); 3026 Lodge to Mt. Kuanshan, *K.F. Chung et al. 1043* (HAST, TNM); Mt. Kuanshan, *C.H. Chen & Liang 7876* (TNM); Yiakou logging track, *C.S. Kuoh 11686* (NCKU). **Pingtung Co.**: Taiwu: Kuaigu, *C.F. Chen et al. 2943* (TNM). **Hualien Co.**: Hsiulin: Mt. Hohuanshan, *M.T. Kao 7804* (TAI), *C.S. Kuoh et al. 7034* (TAI); Hoping logging track, 43-38 km. *W.H. Hu et al. 2194* (HAST, TNM); Mt. Nenkaoshan, *E. Matuda s.n.* 7 Aug. 1919 (TAI), *S. Sasaki s.n.* 23 Aug. 1929 (TAI). **Taitung Co.**: Haituan: Mt. Kuanshanlingshan, *S.T. Chiu 1423* (TNM).

1b. ***Aconitum fukutomei*** var. ***formosanum*** (Tamura) T.Y.A. Yang & T.C. Huang in Taiwania **41(2)**: 119. 1996, Yang et al. Fl. Taiwan **2**: 507. 1996. ― *Aconitum formosanum* Tamura in Acta Phytotax. Geobot. **18**: 64. 1959; Li & Kadota, Fl. China **6**: 200. 2001. ― *Aconitum bartlettii* var. *formosanum* (Tamura) T.S. Liu & C.F. Hsieh, Fl. Taiwan **2**: 477. 1976. **Type specimen**: Taiwan: Ilan Co. (Taihoku), Inter Mimotenghsi (Ekizyu-kei) and Ssuyuan-yako (Piyanan-anbu), 27 Jul. 1934, *M. Takawa 107* (holotype; KYO!: isotypes: KYO!); Mt. Taipingshan (Taiheizan), Inter Hsulawa (Kyanrawa) & Ssuchitsun (Sikikum), 27 May 1933, *J. Ohwi 2449* (paratype: KYO!); Ssuchitsun to Ssuyuan-yako, 5 Jun. 1933, *J. Ohwi 2751* (paratype: KYO!); Mt. Nanhutashan (Nankotaisan), Inter Mimotenghsi & Jiliting (Krittoi), 17 Jul. 1933, *J. Ohwi 3921* (paratype: KYO!). 蔓烏頭（臺灣烏頭）

Distribution: Endemic to Taiwan, in woods or on the slopes at altitudes between 1,700 to 3,000 m of the Central Mountain Range.

Phenology: Flowering season June to August; fruiting season July to September.

Specimens examined: **TAIWAN: Ilan Co.**: Loutung: on the way of Mt. Nanhutashan, *G. Masamune 2974* (TAI). Nanau: Hsulawa, *T. Suzuki 6998* (TAI); Mt. Taipingshan, *R. Kanehira s.n.* Jul 1924 (TAIF), *S. Suzuki s.n.* 21 Jul. 1929 (TAI). Tatung: Ssuyuan Saddle, *C.H. Chen et al. 5052* (TNM), *C.S. Kuoh 1785* (TAI), *Y.K. Lin 11* (TNM), *J. Ohwi 2908* (KYO), *K.C. Yang 2072* (TAI); Prov. #7A Hwy 41-42 km, *T.Y.A. Yang & Chen 7569* (TNM), 42.5-42 km, *T.Y.A. Yang & Kadota 14032* (TNM), 45-43 km, *T.Y.A. Yang et al. 16740* (TNM). **Taichung Co.**: Hoping: Mt. Hsuehshan, *C.C. Chen 339* (TNM); 710 logging tract, *Y.C. Lu 117* (HAST); on the way of Mt. Nanhutashan, *S. Sasaki s.n.* 22 Jul. 1922 (TAI), *J.C. Wang et al. 3855* (TAI), *T.Y.A. Yang et al. 16709* (TNM); Shengkuang to Ssuyuan, Prov. #7A Hwy 46-42 km, *T.Y.A. Yang et al. 8414* (TNM), *8444* (TNM). **Nantou Co.**: Renai: Tienchih to Kuailin, *H.L. Ho et al. 628* (HAST); Tienchih to Boundary stone tablet, *T.Y.A. Yang 11299* (TNM). **Hualien Co.**: Hsuilin: Hoping logging track, 41-46 km, *J.C. Wang et al. 8536* (TAIF, TNM), 65 km, *S.Y. Lu 12690* (TAIF); Tausai (Tawusaishe), *T. Suzuki et al. 17702* (TAI).

2. Anemone L. 銀蓮花屬

Perennial erect herbs with underground tubers. Leaves simple or ternate, alternate, or/and radical, few to many, palmately divided; nerves palmate; petiolate. Scapes erect or upwardly ascending; inflorescence a cyme or umbel, or a single flower; bracts 2 to 3, or more, alternate or whorled and forming an involucre, palmately divided or unlobed, sessile or petiolate. Flowers bisexual, actinomorphic, white, purplish-blue or pale pink; sepals 5 or more, petaloid, imbricate, deciduous; petals absent; stamens numerous, anthers elliptic-globose or oblong-globose, filaments linear; carpels numerous or rather few, styles short or lacking, pilose or glabrous, ovaries pubescent or glabrous, each with 1 pendulous ovule. Achenes ovate-globose or nearly globose, rarely compressed, sessile, short or long stalked, pubescent.

About 150 species, almost cosmopolitan, mainly distributed in Asia and Europe; 53 species in Mainland China and 2 taxa (1 species and 1 variety) in Taiwan.

Key to the species

1. Subshrubs; leaves ternate, terminal leaflets more than 50 mm long; flowers more than 20 mm in diam. ……..... 2. *A. vitifolia* var. *matsudae*
1. Herbs; leaves bipinnate; terminal leaflets less than 30 mm long; flowers less than 15 mm in diam……..... 1. *A. stolonifera*

1. ***Anemone stolonifera*** Maxim. in Bull. Acad. Imp. Sci. St. Petersb. **22**: 225. 1876; Hayata, Icon. Pl.

臺灣大學學術期刊資料庫

Formos. **3**: 6. 1913; Sasaki, List Pl. Formos. 182. 1928; Kudo & Masamune in Ann. Rep. Taihoku Bot. Gard. **2**: 76. 1932; Suzuki, Short Fl. Formos. 64. 1936; Masamune, List Vasc. Pl. Taiwan 52. 1954; Huang in Bull. Taiwan Norm. Univ. **5**: 10. 1960; Liu & Hsieh, Fl. Taiwan **2**: 480. 1976; Wang, Fl. Reip. Pop. Sin. **28**: 10. 1980; Yang & Huang in Taiwania **41(2)**: 121. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 511. 1996; Wanget al., Fl. China **6**: 312. 2001. **Type specimen**: Japan: Prov. Nambu, *Tschonoski s. n.* 1865 (lectotype: LE!; isolectotype: LE!) 匍枝銀蓮花(三花銀蓮花)

Anemone takasagomontana Masam. in Not. Syst. **6**: 37. 1937.

Distribution: Distributed in Mainland China (Provs. Heilongjiang, Hubei and Sichuan) and Taiwan, Korea and Japan. In Taiwan, it grows in shady places under forests at high altitudes between 3,000-3,900 m in the northern part of the island.

Phenology: In Taiwan, the flowering season April to June (-July); fruiting season June to August (-September).

Specimens examined: **TAIWAN: Taichung Co.**: Hoping: Mt. Hsueshan, *T.H. Hsieh 1429* (TAI), *S.P. Li 173* (TNM); from 369 Lodge to the cirque, in *Abies* forests, *C.I. Peng 9670* (HAST); to Pond Tsueichi, *J.C. Wang et al. 4425* (TAI, TNU). **Nantou Co.**: Renai: Tienchi to Peak Nenkaopeifong, *S.T. Chiu et al. 3408* (TNM). **Hualien Co.**: Wanlong: Luentaiwenshan (Rontabunsan), *U. Mori s.n.* 14 Apr. 1910 (TAIF).

2. ***Anemone vitifolia*** Buch.-Ham. ex DC. var. ***matsudae*** Yamam. in Suppl. Icon. Pl. Formos. **3**: 27. 1927. — *Ericapetilla vitifolia* var. *matsudai* (Yamam.) Nakai in Journ. Jap. Bot. **17(1)**: 270. 1941. — *Anemone matsudai* (Yamam.) Tamura ex Hsieh & Yang, Nom. Pl. Taiwan 440. 1969. **Type specimen**: Taiwan: Pingtung Co., Taiwu Township (Byumasha), *E. Matsuda s. n.* May 1918 (holotype). Nantou Co., Hsinyi, Patungkuan to Mt. Yushan (Niitaka), *G. Nakahara s. n.* Jan. 1905 (paratype), *T. Kawakami & U. Mori s. n.* Dec. 1906 (paratype). 小白頭翁(野棉花)

Anemone hupehensis Lem. Catalogue 176: 40. 1910; *syn. nov.*
Anemone vitifolia Hayata in Icon. Pl. Formos. **1**: 26. 1911; Wang et al., Fl. China **6**: 317. 2001; *non* Buch.-Ham. ex DC. — *Ericapetilla vitifolia* Nakai in Journ. Jap. Bot. **17(1)**: 269. 1941, *pro parte minore.*
Anemone hupehensis Lem. form. *alba* W.T. Wang in Acta Phytotax. Sin. **12(2)**: 180. 1974; Yang & Huang in Taiwania **41(2)**: 123. 1996.

Distribution: Distributed in northern Burma, Bhutan, Nepal, northern India, Sikkim, mainland China (Provs. Yunnan, southwestern Sichuan and southeastern and southern Xizang) and Taiwan. In Taiwan, widely distributed in open places between 800 and 3,200 m.

Phenology: In Taiwan, the flowering season May to October (-November); fruiting season (May-) June to December.

Specimens examined: **TAIWAN**: *S. Sasaki s.n. 1929* (TAI). **Ilan Co.**: Nanau: Mt. Taipingshan, *C.C. Chuang et al. 4635* (HAST), *4741* (HAST), *S. Suzuki 637* (TAI), *4105* (TAI). Tatung: Prov. #7 Hwy, *C.M. Kuo 8523* (TAI); Mt. Chilanshan, *Y.C. Liu et al. 588* (TCF); Rentse to Mt. Taipingshan, *C.H. Chen 4799* (TNM); Ssuyuan Saddle, *H.Y. Chen et al. 186* (TAI); Tuchang, *C.H. Ou et al. 9538* (TCF). **Taoyuan Co.**: Fuhsing: Mt. Lalashan, *T.Y.A. Yang et al. 6251* (TNM); Tahan logging track, *C.H. Ou et al. 8797* (TCF). **Miaoli Co.**: Taian: Kuanwu, *C.H. Ou et al. s.n.* Sept 1990 (TNM); Kuanwu, Dalu logging track, *C.H. Yu 818* (TAI), *J.C. Wang et al. 8290* (HAST, TNU). **Hsinchu Co.**: Chienshih: Lake Yuanyanghu, *Y.F. Wang 698* (TAI). Wufong: *Kuanwu, S.S. Li 253* (TAIF, TNM). **Taichung Co.**: Mt. Shuanshan, *T.T. Lin & Hsieh s.n.* Jul 1983 (TAIF). Hoping: Prov. # 7A Hwy, Ssuyuan, *H.Y. Shen et al. 472* (HAST); Tahsuehshan 200 logging track, *T.Y.A. Yang et al. 19070* (TNM), 42.5 Km, *C.M. Wang & Li 4682* (TNM); 320 logging track, *T.Y.A. Yang & Cheng 6363* (TNM). **Nantou Co.**: Chushan: *Shanlinksea, C.H. Chen et al. 4745* (TNM), *S.H. Lin 17* (TAI), *C.I. Peng 6992* (HAST), *W.S. Tang 489* (TAI). Hsinyi: Stream Cheniulanhsi, *S.L. Deng 636* (TAI), *J.W. Hsu 2177* (TAI); Paiyun Lodge to Tataka Saddle, *T.Y.A. Yang 3628* (TNM); Patungkuan to Hsitou, via Mt. Alishan, *S. Sasaki s.n.* 2 Dec. 1933 (TAI); Stream Salihsienhsi, *W.H. Hu 527* (TAI), *J.W. Hu 2407* (TAI); Tungpu, *C.S. Kuoh 11896* (coll. by H.Y. Chang, NCKU); Wanhsiang, *C.H. Ou et al. s.n.* Jun 1989 (TNM); on the way of Mt. Yushan, *T.C. Huang et al. 14308* (TAI). Renai: Prov. #8 Hwy 141 Km, *T.Y.A. Yang 3040* (W.S. Tang coll.; TNM); Chiyuanchuang, *S.H. Hwang & Your 26* (TNM); Kunyang, *C.Hui Chen 1039* (HAST, TNM); Meifong Watershed, *T.G. Lammers 8459* (HAST); Meifong, *C.I. Peng 9120* (HAST); Sonchiuangan, *C.H. Ou 5644* (TCF); Tsuefong, *Y.S. Kuo s.n.* Nov 1975 (TCF), *F.Y. Lu & Ou 1512* (TCF), *H.Y. Shen s.n.* Nov 1975 (TCF); Tsuefong to Meifong, *T.Y.A. Yang 129* (TAI, TNM); Tunyuan to Yunhai, *T.Y.A. Yang 11109* (TNM); Yunhai to Tienchih, *T.Y.A. Yang 11168* (TNM); Yuenfong to Tsuefong, *G.S. Wang 80* (TNM). Luku: Mt. Fonghuangshan, Hsitou, *T.Y.A. Yang 152* (TAI); Hsitou to Shanlinksea, *C.I. Peng 5330* (HAST). **Chiayi Co.**: Alishan: Mt. Alishan, *Y.F. Chen 5050* (TAI), *C.H. Ou et al. 5080* (TNM), *C.H. Ou & Kao 9185* (TAI), *S. Saito s.n.* 24 Oct. 1929 (TI), *T.Y.A. Yang 2548* (TNM); Mt. Alishan to Mienyue, *C.H. Ou 9473* (TCF); Mt. Lukuchienshan, *Y.H. Tsai s.n.* 22 Jun. 2007 (TNM); Mt. Yushan, *T. Kawakami & Sasaki s.n.* Oct 1909 (TAIF). **Kaohsiung Co.**: Taoyuan: Prov. # 20 Hwy, *C.S. Kuoh 11893* (NCKU), 111-112 Km, *C.S. Kuoh 11603* (NCKU), 120-121 Km, *C.S. Kuoh 11791* (NCKU), *11798* (NCKU), 154.5 Km, S.T. *Chiu & Chu 2710* (TNM); Bridge Chinchingchiao to Mt. Kuanshan, *K.Y. Wang et al. 1141* (HAST); Bridge Chinchingchiao to Mt. Takuanshan, *S.F. Huang et al. 3599* (TAI); Bridge Likuangchiao, *C.S. Kuoh 12721* (NCKU); Meilan logging track 22-24 Km, *T.Y. Liu et al. 480* (HAST, TNM); Paoshan (Tyusinron), *S. Sasaki s.n.* 10 Jun. 1938 (TAI); Tienchih, *T.C. Huang & Yang 1852* (TAI), *F.Y. Lu & Ou 705* (TCF); Tienchi to Kuaigu, *C.S. Kuoh 13729* (NCKU); Tienchih to Yakou, *T.C. Huang et al. 8845* (TAI). **Pingtung Co.**: Chunrih: Chingshueying, *S.F. Huang 337* (TAI). Taiwu: Kuaigu, *F.Y. Lu & Ou 3300* (TCF). Wutai: Mt. Wutoushan Natural Protected Area to Chipen, *K.Y. Wang et al. 1005* (HAST). **Hualien Co.**: Hualien: *R. Kanehira & Sasaki s.n.* May 1919 (TAIF). Hsiulin: Prov. #8 Hwy 138. 5 km, *T.Y.A. Yang & Chou1 4937*

臺灣大學學術期刊資料庫

(TNM); Mt. Chilaishan, Chenggong Lodge, *H.Y. Shen & Liu 43* (HAST, TNM); Hoping logging track, *C.H. Chen 6496* (TNM); Taroko National Park, Tali to Tatung: *C.Hui Chen & Hung 1116* (HAST); Tienchang, *S. Sasaki s.n.* 21 Aug. 1929 (TAI); Tayulin to Tzuen, *W.S. Tang 105* (TAI). **Taitung Co.**: *S. Sasaki s.n.* May 1916 (TAIF). Haituan: Hsiangyang to Hsiangyang Lodge, *C.Hui Chen 631* (HAST); Mt. Hsiangyangshan, *S.T. Chiu & Chu 2687* (TNM); Prov. #20 Hwy, *C.H. Ou 1358* (TCF); Mt. Kuanshanlinshan, *S.T. Chiu 1419* (TNM), *C.S. Kuoh 11999* (NCKU), *12959* (coll. by *J.P. Wang*, NCKU). Yenping: Changpan, *Y. Yamamoto & K. Mori 303* (TAI).

CHINA: **GUIZHOU**: **Xiuwen Co.**: Sanyuan: Tashan, *M.Z. An 11* (TAIF). **HUNAN**: **Xingning Co.**: Jiyunshan, *s. leg. 1378* (TAIF). **SICHUAN**: **Tianquan Co.**: Mt. Erhlangshan, *T.Y.A. Yang et al. 12938* (TNM). **YUNNAN**: **Kunming City**: Western Hills, *Alipine China Expedition 1039* (TAIF). **Lijiang Co.**: Mt. Tiehjiashan, *T.Y.A. Yang & Lu 9083* (TNM). **Zhongdian Co.**: Jingxing, Country #214 Hwy 2118 Km, *T.Y.A. Yang et al. 12475* (TNM).

Note: The complex taxa, *Anemone vitifolia* and *A. hupehensis* are very similar to each other. In general, the type of basal leaf blade is the major character to distinguish them; the former one, *A. vitifolia* has simple basal leaves, while the latter one is ternately compound. Other characters, e.g. flower colour, flower size and hair patterns on abaxial leaf surfaces are very close to each other. In almost all Taiwanese species the basal leaf blade is ternately compound; obviously it is not *A. vitifolia*. That is why now we do agree with Wang's treatment in 1980 of this Taiwanese anemone as *A. hupehensis*, instead of our previous one in 1996 (Yang and Huang, 1996; Yang et al., 1996). After the first author checked hundreds of Taiwanese specimens and also compared some materials of *A. hupehensis* collected in China, he found that some of the individuals have simple basal leaf blades both in Taiwan and the Mainland, e.g. *S. Saito s.n.* Oct. 1929 (Mt. Arisan; TI), *T.Y.A. Yang 2548* (S37119; TNM), *T.Y.A. Yang & Chou 14937* (S84300; TNM), *T.Y.A. Yang et al. 19070* (S125730-1/2; TNM), and *T.Y.A. Yang et al. 12475* (S73961; TNM). We could point out that the basal leaf blade of this taxon is mainly ternately compound, but it also presents simple ones occasionally. Therefore, we would like to treat this taxon as a variety of *A. vitifolia*. Moreover, there is a varietal taxon, *i.e. A. vitifolia* var. *matsudai* Yamam. that has been published by Dr. Y. Yamamoto in 1927. According to the priority of varietal rank in this taxon, we will treat *A. hupehensis* as a synonmy of *A. vitifolia* var. *matsudai*. Also we are going to make an orthographic correction. According to the International Code of Botanical Nomenclature (McNeill et al., 2006; Huang, 2007), a termination contrary to Recommendation 60C1 is an error to be corrected (Article 60.11), and if the person's name ends in 'a' then an 'e' should be added (Recommendation 60C1(a)), so the epithet "matsudae" could be the correct one instead of the original publication "matsudai". However, there are still some Asian adjacent taxa, e.g. *A. japonica* (Thunb.) Siebold & Zucc., *A. tomentosa* (Maxim.) C. P'ei etc. and we do believe that more investigations are needed for this complex group in the future.

3. Calathodes Hook.f. & Thomson 雞爪草屬

Perennial erect herbs with fibrous roots. Leaves simple, radical and cauline, ternately or palmately divided, usually 5-partite; petiolate. Flowers solitary, terminal, bisexual, actinomorphic, coloured; sepals 5, petaloid, yellow or white, imbricate, deciduous; petals absent; stamens numerous, anthers elliptic-global, filaments narrowly linear; carpels 5-70, sessile or short-stipitate, ovules 8-10, 2-seriate at the base of the carpel. Follicles subcoriaceous, styles persistent after anthesis. Seeds many, obovated-global, smooth.

Four species distributed in Himalayan Areas (*i.e.* Bhutan, Sikkim, and Tibet), Mainland China and Taiwan; 3 species in Mainland China and one species in Taiwan.

1. *Calathodes polycarpa* Ohwi in Acta Phytotax. Geobot. **2(3)**: 153. 1933; Wang in Acta Phytotax. Sin. **12(2)**: 156. 1974, Fl. Reip. Pop. Sinicae **27**: 67. 1979; Yang & Huang in Taiwania **41(2)**: 125. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 513. 1996; Li & Tamura, Fl. China **6**: 137. 2001. **Type specimen**: Taiwan (Formosa): Ilan Co., Mt. Nanhutashan (monte Nankotaisan), 21 Jul. 1933, *J. Ohwi 4211* (holotype: KYO!; isotypes: TAI!, TI!). 多果雞爪草

Calathodes palmata Masam. in Bot. Mag. Tokyo **51**: 234. 1937; *non* Hook.f. & Thoms.

Distribution: Endemic to Taiwan found on open slopes at altitudes above 3,000 m in the northern part of this island.

Phenology: Flowering season May to July; fruiting season June to August.

Specimens examined: **TAIWAN**: **Nantou Co.**: Renai: near Tienchih Lodge, Mt. Nenkaoshan, *T.W. Hsu 9178* (TAIE); Tienchih to Nengkao Pass, Mt. Nenkaoshan, *T.C. Huang et al. 5814* (TAI), *M. Tamura & Koyama 23333* (TI). **Hualien Co.**: Hsiulin: Mt. Chungyangchienshan, *N. Fukuyama & T. Suzuki 15224* (TAI).

4. Cimicifuga L. ex Wernisch. 升麻屬

Perennial deciduous woody herbs or shrubs with underground tubers. Stems erect, round, usually

臺灣大學學術期刊資料庫

simple or with branches at upper parts. Leaves ternate to triternate, chartaceous; petioles long, usually with an extended membrane sheathing the base; leaflets ovate, rhombate or narrowly elliptic; margin serrate or coarsely serrate; petiolulate. Inflorescence racemose or a panicle consisting of 2 to 30 racemes, terminal or axillary; bracts chartaceous, glabrous; bracteoles 2 to 3, very small, narrowly deltoid or subulate. Flowers small, bisexual, actinomorphic, rarely single-sexual and dioecious; sepals 4 ─ 5, petaloid, obovate or ovate-elliptic, glabrous; petals absent; stamens numerous, glabrous, anthers yellow, elliptic-global or oblong, with lateral longitudinal dehiscence, filaments linear, with 1 central nerve; staminodes present, elliptic to round, glabrous, apex entire, lightly retuse or bilobed, nectary absent or present at the base; carpels 1─8, stipitate. Follicles oblong to obovate-elliptic, nerves elevated, reticulate. Seeds not many, elliptic to narrowly elliptic, yellowish-brown, with / without extended membranous scales from the sides.

About 18 species distributed the temperate regions of Northern Hemisphere, 8 species in Mainland China and only 1 species in Taiwan.

1. *Cimicifuga taiwanensis* (J. Compton, Hedd. & T.Y.A. Yang) Luferov in Bull. Mos. Soc. Nat. (Biol. Ser.) **105(3)**: 57. 2000. ─ *Actaea taiwanensis* J. Compton, Hedd. & T.Y.A. Yang in Taxon **47(3)**: 624. 1998. **Type specimen**: Taiwan: Miaoli Co., Taian, Mt. Chunghueishan, 28 Sept. 1984, *T.Y.A. Yang & T.C. Huang 416* (holotype: K!; isotypes: TAI!, TNM!).

臺灣升麻（新擬）

Actaea cimicifuga L. var. *simplex* DC., Prodr. **1**: 64. 1824. ─ *Cimicifuga simplex* (DC.) Wormsk. ex Turcz. in Bull. Soc. Imp. Nat. Moscow **15(1)**: 87. 1842; Li & Brach, Fl. China **6**: 145. 2001. ─ *Cimicifuga foetida* L. var. *simplex* (DC.) Regel, Tent. Fl.-Ussur. 13. 1861.─ *Actaea simplex* (DC.) Prantl in Bot. Jahrb. Syst. **9**: 246. 1887. ─ *Thalictrodes simplex* (DC.) Kuntze, Revis. Gen. Pl. **1**: 4. 1891.
Cimicifuga simplex (DC.) Wormsk. ex Turcz. var. *ramosa* Maxim. ex Franch. & Sav., Enum. Pl. Jap. **1**: 13. 1875. ─ *Cimicifuga ramosa* Nakai, Cat. Sem. Spor. Hort. Bot. Univ. Imp. Tokyo **1932**: 15. 1932.
Cimicifuga simplex (DC.) Wormsk. ex Turcz. var. *typica* Nakai in Bot. Mag. (Tokyo) **30**: 145. 1916.

Distribution: Endemic to Taiwan, found around the Central Mountains at altitudes of 2,200-3,200 m, in open lands or forest margins.

Phenology: Flowering season (August-) September October; fruiting season October to November.

Specimens examined: **TAIWAN: Miaoli Co.**: Taian: Mt. Chunghsueshan, *T.Y.A. Yang & Cheng 6400* (TNM); Tahsuehshan logging track 49 Km, *T.Y.A. Yang & Yang 5878* (TAI, TNM). **Taichung Co.**: Hoping: on the way of Mt. Chunghsueshan, *T.C. Huang 10286* (TAI). **Nantou Co.**: Renai: Mt. Nenkaochushan: *Y. Saito & Kikuchi s.n.* Nov 1925 (TCF). **Kaohsiung Co.**: Taoyuan: Prov. #20 Hwy, *B. & S. Wynn-Jones 3413* (TNM), 145.1 Km, *T.Y.A. Yang et al. 14051* (TNM). **Pingtung Co.**: Taiwu: Kuaigu, *C.F. Chen et al. 2942* (TNM). **Hualien Co.**: Hsiulin: on the way of Mt Chilaishan, *C.H. Chen et al. 6605* (TNM), *K.F. Chung 46* (TNM).

6. Coptis Salisb. 黃連屬

Perennial erect herbs with creeping yellowish rhizomes. Leaves radical, ternately to palmately divided, 3 to 5-partite, sometimes ternate to triternate; petioles long. Scapes 1 ─ 2, erect; inflorescence a monochasium, dichasium to pleiochasium, or sometimes a single flower; bracts lanceolate, usually pinnately divided. Flowers small, bisexual, sometimes unisexual, actinomorphic, white or yellowish-green; sepals 5─6, petaloid, elliptic, deciduous; petals 5 ─ 6, shorter than sepals, oblanceolate or spathulate, clawed, nectariferous with or without; stamens numerous, anthers elliptic, filaments linear; carpels 5─14, stipitate. Follicles, several, in an umbel on the receptacle, chartaceous, stipitate, stalks pubescent. Seeds few, oblong-glabol, brown, nitidus, with a crustaceous testa.

About 15 species distributed in the temperate regions of Northern Hemisphere, 5 species in Mainland China and only 1 species in Taiwan.

1. *Coptis quinquefolia* Miq. in Ann. Mus. Bot. Lugd.-Bat. **3**: 7. 1867; Yamamoto, Suppl. Icon. Pl. Formos. **3**: 25. 1927; Sasaki, List Pl. Formos. 184. 1928; Kudo & Masamune in Ann. Rep. Taihoku Bot. Gard. **2**: 75. 1932; Suzuki, Short Fl. Formos. 65. 1936; Masamune, List Vasc. Pl. Taiwan 52. 1954; Huang in Bull. Natl. Taiwan Norml. Univ. **5**: 32. 1960; Liu & Hsieh, Fl. Taiwan **2**: 494. 1976; T.I. Yang, List Pl. Taiwan 605. 1982; Yang & Huang in Taiwania **41(2)**: 126. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 546. 1996; Fu & Robinson, Fl. China **6**: 307. 2001. 五葉黃連（臺灣黃連）

Coptis quinquefolia Miq. form. *ramosa* Makino in Bot. Mag. Tokyo **25**: 227. 1911. ─ *Coptis quinquefolia* Miq. var. *ramosa* (Makino) Ohwi, Fl. Japan 457. 1956.
Coptis morii Hayata, Icon. Pl. Formos. **3**: 9. *t. 2.* 1913. **Type specimen**: Taiwan (Formosa): Hualien Co., Wangrong, Mt. Lundawenshan (monte Rontabunzan), *U. Mori s.n.* Apr. 1910 (holotype: TI!).
Coptis quinquefolia Miq. var. *pedatoquinquefolia* Koidz. in Bot. Mag. Tokyo **27**: 39. 1928.

臺灣大學學術期刊資料庫

Distribution: Distributed in Japan and Taiwan; in Taiwan growing in wet places under forests at altitudes between 900 and 1,500 m.

Phenology: In Taiwan, the flowering season March to April (-May); fruiting season April to June.

Specimens examined: **TAIWAN: Ilan Co.**: Nanau: Lake Shenmihu, *Y.M. Hsu 594* (TAI); Mt. Taipingshan, *C.C. Chuang & Kao 4089* (TAI, TI), *C.C. Wu et al. 364* (TNM), *T.Y.A. Yang & Yen 8320* (TNM); Lake Tsuefonghu, *T.Y.A. Yang et al. 11954* (TNM). Tatung: Chilan logging track 8 Km, *C.F. Chen et al. 2486* (TNM); Mt. Chilanshan, *C.M. Kou 7864* (TAI); Ssuchi logging track to Pool Chialohu, *C.H. Lin et al. 374* (HAST, TNM). **Taipei Co.**: Sanhsia: Mt. Peichatienshan, *T.Y.A. Yang et al. 2925* (TNM); Mt. Lopeishan, *Y.B. Cheng & Hsieh 1204* (TAI). Wulai: *T. Suzuki 7151* (TAI). **Taoyuan Co.**: Fuhsing: Mt. Lalashan, *T.Y.A. Yang et al. 2916* (TNM), *6285* (TAI, TNM); Mt. Tamanshan, *W.C. Leong et al. 2805* (HAST, TNM). **Hsinchu Co.**: Chienshih: Lake Yuenyanghu, *T.C. Huang et al. 10751* (TAI), *T.Y. Liu et al. 906* (HAST, TNM). **Nantou Co.**: Hsinyi: Wanghsiang, *C.S Kuoh B0186* (NCKU). **Chiayi Co.**: Alishan: Mt. Alishan, Erhwanping, *Y. Yamamoto & Mori s.n.* Nov 1932 (TAI). **Hualien Co.**: Hsiulin: Mt. Chinshueishan, *T.C. Huang et al. 12935* (TAI), *T.Y.A. Yang et al. 13273* (TNM).

7. **Dichocarpum** W.T. Wang & Hsiao 人字果屬

Perennial erect herbs with rhizomes. Leaves radical and cauline or radical only, alternate, ternately or pedately compound, terminal segments simple, unlobed or lightly lobed; petiolate. Inflorescence a monochasium to cyme; bracts 3-lobed or ternately divided. Flowers bisexual, actinomorphic, white, rarely pale yellow or pale pink; sepals 5, petaloid, elliptic or obovate, white or pale yellow,deciduous; petals 5, much smaller than sepals, round or obovate with a slender claw, tip entire or retuse, sometimes slightly 3－4-lobed; stamens 5－25, anthers obovate-global or widely elliptic-global, yellow, filaments linear; carpels 2, ere,ct, oblong, connated at the base, sessile; ovules numerous. Follicles 2, obovate-linear or narrowly oblong with small beak at the top, divaricate or subhorizontally patens. Seeds many, round-global, rarely elliptic-global, brown, nitidus, usually smooth, sometimes verruculose or scaberulous.

About 15 species distributed in the Himalaya and East Asia; 10 species in Mainland China and only one species in Taiwan.

1. *Dichocarpum arisanensis* (Hayata) W.T. Wang & P.K. Hsiao in Acta Phytotax. Sin. **9(4)**: 329. 1964; Fu & Robinson, Fl. China **6**: 305. 2001. ― *Isopyrum adiantifolium* Hook.f. & Thoms. var. *arisanense* Hayata in Jour. Coll. Sci. Univ. Tokyo **30(1)**: 21. 1911. ― *Isopyrum arisanense* (Hayata) Ohwi in Acta Phytotax. Geobot. **1**: 141. 1932.

Type specimen: Taiwan (Formosa): Chiayi Co., Alishan, Mt. Alishan (Arisan), *T. Kawakami & Mori s.n.* Mar. 1908 (holotype: TI!).

臺灣人字果（鐵線蕨葉人字果）

Isopyrum adiantifolium Hook. f. & Thoms., Fl. Ind. **I**: 42. 1855. ― *Dichocarpum adiantifolium* (Hook. f. & Thoms.) W.T. Wang & P.K. Hsiao in Acta Phytotax. Sin. **9(4)**: 329. 1964; Fu in Acta Phytotax. Sin. **26(4)**: 256. 1988; Yang & Huang in Taiwania **41(2)**: 128. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 546. 1996.

Distribution: Endemic to Taiwan, found in forests around the mountainous areas of central to northern parts at altitudes of 1,200-2,600 m.

Phenology: Flowering season January to April; fruiting season January to June.

Specimens examined: **TAIWAN**: **Ilan Co.**: Nanau: Mt. Taipingshan, *J. Ohwi 2431* (KYO), *S. Suzuki 836* (TAI). Tatung: Mt. Chialoshan, *T. Suzuki 7139* (TAI), *7247* (TAI); Ssuchi logging track to Pool Chialohu, *C.H. Lin et al. 364* (HAST, TNM); Lake Yuanyanghu, *T.H. Hsieh 1387* (TAI). **Taipei Co.**: Wulai: Mt. Lalashan, *T. Suzuki 18169* (TAI); Mt. Tamanshan, *T. Suzuki & Nakamura 18237* (TAI). **Miaoli Co.**: Taian: Kuangwu, *C.I. Peng et al. 14919* (HAST, TNM), *C.M. Wang et al. 5290* (TNM), *J.C. Wang & Yang 4784* (TAI); Kuaishan Giant tree, *J.C. Wang et al. 8353* (TAIF, TNM, TNU); Loshan logging track *C.H. Chen 5473* (TNM). **Hsinchu Co.**: Chienshih: Lake Yuanyanghu Natural Preserved Area, *H.Y. Shen et al. 795* (HAST), *Y.F. Wang 931* (TAI). Wufong: Kuanwu, *Y.P. Cheng 1694* (TNM). **Nantou Co.**: Renai: Mt. Hohuanshan, in *Abeis* forest, *T. Fukuhara & Shibaike s.n.* Jun. 1991 (KYO). **Chiayi Co.**: Alishan: Mt. Alishan, *C.C. Chuang & Kao 4225* (TAI), *B. Hayata & S. Sasaki s.n.* Jan. 1912 (TAIF), *Tokutaro Ito s.n.* 4 Apr. 1914 (TAIF), *T. Kawakami & U. Mori 3615* (TAIF), *C.H. Ou & Kao 9188* (TAI), *T.Y.A. Yang 7835A* (TNM); Pool Chiemeitan, Mt. Alishan, *T.Y.A. Yang et al. 4512* (TNM), *5562* (TNM); Chushan, Alishan, *J.J. Chen et al. 687* (HAST, TNM).

8. **Ranunculus L.** 毛茛屬

Annual or perennial herbs, some aquatics or semi-aquatics; upright, spreading or sometimes creeping. Roots fibrous and/or with stoloniferous rhizomes. Leaves bimorphic or monomorphic, simple, ternate, pinnate, biternate or bipinnate; unlobed, 3-lobed to 3-partited, or more lobed; chartaceous or subcoriaceous; margin entire, or serrate; alternate or radical ones forming a basal rosette with long petioles sheathing, cauline ones short-petiolate, subsessile to sessile; stipules absent. Inflorescence a cyme or flowers solitary, terminal or axillary. Flowers bisexual, actinomorphic, yellow, white, or red; sepals 5, green, deciduous; petals larger than sepals, usually 5, sometimes 6 or upto 10, with a nectariferous spot, cup-shaped or poculiform, or covered by a scale, claw at base; stamens numerous, glabrous, anthers oblong or narrowly ovate, filaments linear; carpels many, with an ascending ovule, spirally arranged on glabrous or pubescent

臺灣大學學術期刊資料庫

receptacle. Fruits aggregated forming a globose or ellipsoidal head; achenes ovate, orbicular, obovate or elliptic, compressed or convex in lateral view; glabrous or hairy, scabrous or papillate; style persistent or not, or lengthening to become beaklike after anthesis.

About 550 species in the temperate and frigid regions in whole world, mainly distributed in Asia and Europe; about 125 species in Mainland China and 13 species in Taiwan.

Key to the species

1. Leaves dimorphic
   2. Carpels and achenes pubescent ..... 8. *R. nankotaizanus*
   2. Carpels and achenes glabrous
      3. Plants glabrous or nearly so; fruits compressed in lateral view ..... 9. *R. sceleratus*
      3. Plants pubescent or sparsely pubescent; fruits convex in lateral view
         4. Leaves glabrous or nearly so; margin entire ……..... 6. *R. junipericolus*
         4. Leaves pubescent; margin coarsely serrate or serrate
            5. Radical leaves 27-59 mm wide; achenes ca. 1.5-4.0 mm long ..... 5. *R. japonicus*
            5. Radical leaves 12－22 mm wide; achenes ca. 1.0-1.5 mm long ..... 13. *R. ternatus*
1. Leaves monomorphic
   6. Leaves glabrous or nearly so
      7. Leaves simple; flowers *ca*. 8.0-10.0 mm in diam. ……..... 2. *R. cheirophyllus*
      7. Leaves biternate or bipinnate; flowers *ca*. 20-25 mm in diam. ..... 7. *R. morii*
   6. Leaves pubescent or sparsely pubescent
      8. Gynoecium or aggregate fruit ovoid-cylindric to cylindric ……..… 3. *R. chinensis*
      8. Gynoecium or aggregate fruit globose to subglobose
         9. Fruits convex in lateral view; achenes < 3.0 mm long; plants usually under 10.0 cm tall
            10. Flowers > 12 mm in diam. …….. 4. *R. formosa-montanus*
            10. Flowers < 12 mm in diam. ……..... 12. *R. taisanensis*
         9. Fruits compressed in lateral view; achenes > 3.0 mm long; plants usually over 15.0 cm tall
            11. Plants repent, creeping stem present; flowers leaf-opposite .....……. 10. *R. sieboldii*
            11. Plants erect or ascending, creeping stem wanting; flowers terminal
               12. Plants glabrous or sparsely pubescent, persistent stigma hooked at apex ..... 11. *R. silerifolius*
               12. Plants hirsute, persistent stigma straight or uncinate at apex ...……..... 1. *R. cantoniensis*

1. *Ranunculus cantoniensis* DC., Prod. Syst. Nat. **1**: 43. 1824; Ohwi, Fl. Jap. 526. 1953; Masamune, List Vasc. Pl. Taiwan 53. 1954; Liou, Fl. Reip. Pop. Sin. **28**: 321. 1980; Yang & Huang in Taiwania **41(2)**: 131. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 550. 1996; Wang & Gilbert, Fl. China **6**: 428. 2001; Kuo et al. in Taiwania **50(3)**: 211. 2005. 禺毛茛（水辣菜）

Ranunculus sieboldii auct. non. Miq.: Liu & Hsieh, Fl. Taiwan **2**: 506. 1976.

Distribution: Widely distributed around India, Southwestern, Southern and Southeastern Mainland China (Provs. Yunnan, Sichuan, Guezhou, Hubei, Hunan, Guangxi, Guangdong, Fujiang, Jiangxi, Zhejiang and Jiangxu), Vietnam, Hongkong, Taiwan, Japan and South Korea. In Taiwan, it is widely distribued in semi-wet places, stream-side areas, or forest margins at altitudes below 2,500 m, but sometimes it grows up to 3,000 m altitude.

Phenology: In Taiwan, the flowering season (March-) April to August (-September); fruiting season May to October (-February in next year).

Specimen examinated: **TAIWAN**: **Taipei City**: Hsinyi Distrct: Mt. Mutzushan, *T.Y.A. Yang et al. 1621* (TNM). Shihlin District: Yangmingshan N.P., *Y.R. Chang s.n.* 9 Mar. 2001 (TNM); Mt. Tatunshan, *T. Suzuki 6807* (TAI), *T.Y.A. Yang et al. 6447* (TNM). Taan District: National Taiwan Univ. Campus, *W.T. Cheng 604* (TAI), *T.Y.A. Yang 2876* (TNM). Wenshan District: Branch of Nat. Taiwan Norm. Univ. Campus, *S.M. Kuo 590* (TNM, TNU). **Taipei Co.**: Gongliao: Auoti, *S.M. Kuo et al. 188* (TNM, TNU), *T.Y.A. Yang 2031* (TNM); Auoti to Yenliao, *T.Y.A. Yang 1872* (TNM). Hsintien: Hsiaogetou, *J.G. Liu s.n.* 2 Jun. 1991 (TNM); Hualin Experimental Forest Plantation of Chinese Cult. Univ., *T.Y. Liu et al. 194* (TNM); Tachichiao, *J.G. Liu s.n.* May 1991 (TNM). Rueifang: Shumeiping, *T.Y.A. Yang et al. 14800* (TNM). Sanhsia: Loloku to Mt. Peichatienshan, *T.Y.A. Yang 1918* (TNM). Shihting: Temple Huangtitien, *T.Y.A. Yang 2113* (TNM), *2130* (TNM); Nanbanliao to Ganyuan, *T.Y.A. Yang 1860* (TNM). Shihmen: Shihmendong, *T.Y.A. Yang et al. 1976* (TNM). Shuanghsi: Pool Hupaotan, *C.T. Lu 133* (TNM, TNU). Tanshui: Hsiunghuatien to Peihsinchuang, *S.M. Kou & Chang 217* (TNM, TNU); Tanhai, *T.Y.A. Yang & Wang 4465* (TAI, TNM). Wulai: Fushan, *S.T. Chiu 1074* (TNM). **Keelung City**: Keelung: *T. Kawakami & Sasaki s.n.* Apr 1910 (TAI). **Ilan Co.**: Nanau: Lake Shenmihu, *S.M. Kuo & Liu 312* (TNM, TNU); Mt. Taipingshan, *S. Suzuki s.n.* Jun 1927 (TAI), *C.C. Wu et al. 355* (TNM); Tsuifong logging track, *S.M. Kuo et al. 145* (TNM, YNU); Lake Tsuifonghu, *C.L. Huang 274* (TNM, TNU). Tatung: Prov. #7A Hwy 44 Km, *T.Y.A. Yang et al. 17662* (TNM); Chilan 100 logging track, *C.F. Chen et al. 2487* (TNM). Wuchieh: Hsiehhe Road, *C.M. Wang & Li 9852* (TNM). **Taoyuan Co.**: Fuhsing: Hsuanyuan to Sziling, *C.M. Wang 5443* (TNM). **Hsinchu Co.**: Chienshih: Chengsipo, *K.C. Yang et al. 2775* (TNM), *5551* (TNM); Niaotsui, *C.M. Wang & Li 6401* (TNM); Lake Yuanyanghu, *H.Y. Shen et al. 624* (HAST). Hengshan: Peiwuo, *C.M. Wang 770* (TNM). Wufong: Kuanwu, *S.M. Kuo 647* (TNM, TNU); Shihlu Community, *Y.Y. Huang et al. 904* (HAST, TNM). **Miaoli Co.**: Taian: Talu logging track, 4-6 Km, *C.M. Wang 2864* (TNM). **Taichung City**: Situn District: Tunghai University Campus, *T.Y.A. Yang 1329* (TNM), *T.Y.A. Yang & Song 3860* (TNM), *T.Y.A. Yang & C.C. Wang 5400* (TNM). **Taichung Co.**: Hoping: 710 logging track, *S.M. Kuo et al. 441* (TNM, TNU); Hsiaohsueh Lodge to Mt. Hsiaohsuehshan, *C.M. Wang & Li 8383* (TNM); Lishan, *C.S. Kuoh 6981* (TAI), *T.Y.A. Yang 1189* (TNM), *T.Y.A. Yang et al. 7601* (TNM); Tahsuehshan 200 logging track, *C.M. Wang et al. 6796* (TNM), *T.Y.A. Yang et al. 19072* (TNM); Tahsuehshan 210 logging rack, *T.Y.A. Yang et al. 19161* (TNM); Tahsuehshan 230 logging track, *T.Y.A. Yang & Cheng 6358* (TNM); Wushihken, *C.M. Wang & Lin 6568* (TNM). **Nantou Co.**: Chushan: Chingshuikou, *T.C. Huang et al. 828* (TAI). Hsinyi: Prov. #21 Hwy 134 Km, *T.Y.A. Yang et al. 19732* (TNM); Tungpu

臺灣大學學術期刊資料庫

Lodge, *T.Y.A. Yang 4182* (*G.S. Wang* coll.; TNM). Luku: Hsitou to Mt. Fonghuangshan, *T.Y.A. Yang et al. 4037* (TNM); Hsitou, the logging track to the Giant tree, *T.Y.A. Yang & Hsu 2979* (TNM); Hsitou to Hsiti, *T. Sasaki 691* (TI). Renai: Meifong Farm, *S.M. Kuo & Chang 253* (TNM, TNU), *S.M. Kuo & Chang 242* (TNM, TNU), *W.P. Leu s.n.* 19 May 1990 (TNM); Stream Nanshanhsi, *Y.R. Chang s.n.* 17 Mar. 2001 (TNM), *C.C. Lu 210* (TNM, TNU); Mt. Peitungyenshan, *C.M. Wang 5556* (TNM); Songkang, *C.L. Huang 192* (TNM, TNU), *T.Y.A. Yang et al. 8350* (TNM); Wusheh, *T.Y.A. Yang 3836* (TNM). Yuchih: Lienhuachih, *C.Y. Tsai 297* (TNM). **Chiayi Co.**: Alishan: Mt. Alishan, *J. Murata & Huang 17595* (TI), *T. Shimizu 10718* (TAI); Pool Chiemeitan, Mt. Alishan, *S.M. Kuo 313* (TNM, TNU), *S.M. Kuo et al. 548* (TNM, TNU), *T.Y.A. Yang et al. 5557* (TNM); Paiyun Lodge to Tataka, *S.T. Chiu 1852* (TNM); Tataka Saddle, *T.Y.A. Yang 3606* (TNM), *T.Y.A. Yang et al. 5301* (TNM). Fanlu: Kuolongtzu, *C.M. Wang & Li 4879* (TNM). Meishan: County #154 Hwy, *Y.S. Liang 1007* (TNM). **Yunlin Co.**: Peichiang: Wind-break Institution Campus, *T. Shimizu 11540* (TAI). **Kaohsiung Co.**: Taoyuan: Chuyunshan logging track, *C.M. Wang et al. 8911* (TNM); Shihshan logging track, *C.I. Huang et al. 311* (TNM); Tienchih lodging area to Shihshan, *Y.R. Lin et al. 394* (TNM); Tenchih, *C.M. Wang 4389* (TNM). **Hualien Co.**: Hsiulin: Hoping logging track, 19.5 Km, *S.T. Chiu et al. 6149* (TNM), 27-39.5 Km, *S.M. Kuo et al. 653* (TNM, TNU); Tzuen Lodge, *S.M. Kuo et al. 458* (TNM, TNU); Yenhai logging track, *T.Y.A. Yang et al. 5448* (TNM). Nanshan: *F.Y. Lu & Ou 1797* (TCF).

2. ***Ranunculus cheirophyllus*** Hayata, Icon. Pl. Formos. **3**: 7. 1913; Sasaki, List Pl. Formos. 184. 1928; Kudo & Masamune in Ann. Rep. Taihoku Bot. Gard. **2**: 78. 1932; Suzuki, Short Fl. Formos. 66. 1936; Masamune, List Vasc. Pl. Taiwan 53. 1954; Huang in Bull. Natl. Taiwan Norml. Univ. **5**: 40. 1960; Liu & Hsieh, Fl. Taiwan **2**: 500. 1976; T.I. Yang, List Pl. Taiwan 606. 1982; Yang & Huang in Taiwania **41(2)**: 132. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 550. 1996; Wang & Gilbert, Fl. China **6**: 422. 2001. ― *Ranunculus kawakamii* Hayata in Journ. Coll. Sci. Imp. Univ. Tokyo **30**: 19. 1911, Icon. Pl. Formos. **1**: 27. 1911; *non* Makino (1904). **Type specimen**: Taiwan: Chiayi Co. (Kagi), Mt. Alishan (Arizan), 2134 m (ad 7,000 ped.) alt., *T. Kawakami & U. Mori 3646* (holotype: TI!). 掌葉毛茛

Distribution: Endemic to Taiwan; distributed in wet places at altitudes between 1,000 and 2,600 m of the Central Mountain Range.

Phenology: Flowering season (November-) January to May; fruiting season (March-) April to June (-July).

Specimen examined: **TAIWAN**: **Ilan Co.**: Nanau: Mt. Taipingshan, *S. Sasaki s.n.* May 1932 (TAI). Tatung: between Ponds Chialohu to Chialanchih, *C.I. Huang et al. 906* (HAST, TNM); Mt. Duochiatunshan to Yunlin Lodge, *S.M. Kuo et al. 311* (TNM, TNU). **Taichung Co.**: Hoping: Mt. Bilushan, *M.J. Chung 31901* (TNM); Mt. Chichiayangtashan, *S. Suzuki s.n.* Jul 1930 (TAI); Hsinta camp to Mt. Pintienshan, *J.C. Wang et al. 4032* (TAI); Mukan Saddle to Mt. Duochiatunshan, *S.M. Kuo et al. 440* (TNM, TNU). **Nantou Co.**: Renai: Mt. Chilaichunanshan, *S. Suzuki 2259* (TAI). **Chiayi Co.**: Alishan: Mt. Alishan, *C.H. Ou et al. s.n.* 13 May 1988 (TNM), *T.Y.A. Yang et al. 6535* (TNM); Pool Chiemeitan, *T.Y.A. Yang 4510* (TNM), *T.Y.A. Yang et al. 5556* (TNM), *6536* (TNM). **Pingtung Co.**: Chunrih: Jingshuehyin logging track to Mt. Gutzulunshan, *C.K. Yang 1019* (TNM); Tahan logging track, *K.F. Chung et al. 1362* (HAST, TNM). **Hualien Co.**: Hsiulin: Mt. Chungyangchienshan, *N. Fukuyama & Suzuki 15095* (TAI); Tayuling, *S.T. Chiu 1912* (TNM). **Taitung Co.**: Daren: *Amentotaxus formosana* Natural Conservatory, *C.M. Wang 644* (TNM). Peinan: Chipenyue, *J. Ohwi 1458* (TI).

3. ***Ranunculus chinensis*** Bunge, Enum. Pl. China Bor. 3. 1833; Wang & Gilbert, Fl. China **6**: 429. 2001; Kuo et al. in Taiwania **50(3)**: 215. 2005. 茴茴蒜

Annual pubescent herbs, upright, *ca.* 20-50 cm tall. Roots fibrous. Leaves monomorphic, ternate or simple and 3-partited; terminal ones (45.0-)49.3―65.5(-70.0) mm long, (34.0-)34.9―49.1(-55.0) mm wide, rhombic or broadly rhombic, 3-lobed, apex acute, base acute, margin serrulate, sparsely pubescent on adaxial surface, pubescent on abaxial surface; petioles *ca.* 40-250 mm long. Inflorescence in a compound monochasium, terminal; pedicels *ca.* 18-70 mm long, pubescent. Flowers *ca.* 7.0-12.0 mm in diam., yellow; sepals 5, *ca.* 3.0-5.0 mm long, 1.0 mm wide, reflexed, narrowly ovate or elliptic-ovate, strigose outside, glabrous inside; petals 5, *ca.* 5.0-6.0 mm long, 2.8-3.0 mm wide, obovate or ovate, glabrous on both sides, nectary pit covered by a scale, apex round; stamens numerous, *ca.* 2.2-4.5 mm long, anthers oblong, *ca.* 1.0-1.4 mm long, filaments linear; carpels many, glabrous; receptacles pubescent. Fruit an aggregate of achenes ovoid-cylindric or ovoid, *ca.* 6.0-15.0 mm long, 5.0-10.0 mm in diam.; achenes *ca.* 3.5-4.0 mm long, obliquely obovate, glabrous, compressed in lateral view; styles persistent, triangular.

Distribution: Widely distributed in Asia, e.g., India, Bhutan, Pakistan, Mainland China (Provs. Anhui, Fujiang, Gansu, Guangdong, Guangxi, Guizhou, Hebei, Henan, Heilongjiang, Hubei, Hunan, Jiangsu, Jilin, Nei Mongol, Ningxia, Qinghai, Shaanxi, Shandong, Shanxi, Sichuan, Yunnan, Xizang, Xinjiang and Zhejiang), Thailand, Taiwan, Japan, South Korea, Russia (Siberia) and Kazakhstan. In Taiwan, it is distributed in semi-wet places, stream-side areas or forest margins at altitudes below 1,000 m in the central part of this island.

Phenology: In Taiwan, the flowering season March to April; fruiting season March to May.

Specimen examined: **TAIWAN**: **Nantou Co.**: Chushan: Chingshuikou, *T.Y.A. Yang 1314* (TAI). **Changhua Co.**: Hsichou: Shueiwei Farm, *T.Y.A. Yang & Wang 7921* (TAIF, TNM). **Chiayi Co.**: *T. Kawakami s.n.* Oct. 1912 (TI).

臺灣大學學術期刊資料庫

4. ***Ranunculus formosa-montanus*** Ohwi in Acta Phytotax. Geobot. **2(3)**: 154. 1933; Masamune, List Vasc. Pl. Taiwan 53. 1954; Huang in Bull. Natl. Taiwan Norml. Univ. **5**: 39. 1960; Liu & Hsieh, Fl. Taiwan **2**: 501. 1976; Liou, Fl. Reip. Pop. Sin. **28**: 299. 1980; Yang & Huang in Taiwania **41(2)**: 134. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 553. 1996; Wang & Gilbert, Fl. China **6**: 407. 2001. **Type specimen**: Taiwan (Formosa): Taichung Co. (Taihokushu), Mt. Nanhutashan (monte Nankotaisan), *J. Ohwi 4027* (holotype: KYO!; isotypes: TI!, TNS!)

蓬萊毛茛（疏花毛茛，南湖毛茛）

Ranunculus matsudai Hayata ex Masamune in Journ. Soc. Trop. Agr. **6**: 570. 1934; Wang & Gilbert, Fl. China **6**: 408. 2001.— *Ranunculus japonicus* Thunb. var. *yakushimensis* (*non* Makino) Yamam., Suppl. Icon. Pl. Formos. **3**: 30. *fig. 10*. 1927. **Type specimen**: Taiwan (Formosa): Nantou Co., Mt. Nengkaoshan (monte Nonkozan), *E. Matuda s.n.* Aug 1919 (lectotype: TI!); Taichung Co., Mt. Nanhutashan (monte Nankotaizan), ca. 3,048-3,353 m alt. (10,000-11,000 ped. alt.), *S. Sasaki s.n.* Jul 1922 (syntype: TI!).

Distribution: Endemic to Taiwan; in open places or on sunny slopes at altitudes above 2,600 m of the Central Mountain Range.

Phenology: Flowering season May to August (-September); fruiting season June to September (-October).

Specimen examinated: **TAIWAN**: **Ilan Co.**: Tatung: Mt. Nanhutashan, *C.C. Hsu 6036* (TAI), *S.M. Kuo et al. 295* (TNM, TNU); Peak Wuyenfong, Mt. Nanhutashan, *S.M. Kuo et al. 437* (TNM). **Taichung Co.**: Hoping: Chika Lodge, Mt. Hsuehshan, *S.T. Chiu 2023* (TNM); Chika Lodge to 369 Lodge, Mt. Hsuehshan, *S.M. Kuo et al. 360* (TNM, TNU), *T.Y.A. Yang et al. 5616* (TNM), *5617* (TNM); 369 Lodge to Mt. Hsuehshan, *S.M. Kuo et al. 384* (TNM, TNU), *T.Y.A. Yang et al. 5644* (TNM), *6173* (TNM); Mt. Chichiayangtashan, *S. Suzuki s.n.* Jul 1930 (TAI); Hsinta Campus to Shancha Shelter, *J.C. Wang et al. 4559* (TAI); Mt. Hsuehshantungfong, *S.M. Kuo et al. 373* (TNM, TNU); Mt. Nanhutashan, *R.S. Lin s.n.* 5 Jul. 1993 (TNM), *C.M. Wang 879* (TNM). **Nantou Co.**: Hsinyi: Paiyun Lodge, *T.Y.A. Yang & Wang 4109* (TNM). Renai: Prov. #14A Hwy 32.5 Km, *T.Y.A. Yang et al. 19488* (TNM); Hohuan Lodge, *G.P. Hsieh & Yang 53* (TNM); Mt. Chilaichunanshan, *S. Suzuki 2259* (TAI); Mt. Hohuanshan, *Y.P. Cheng 3230* (TAIF, TNM); Hohuan Lodge, *C.L. Huang & Fang 217* (TNM, TNU); Kenankuan, *C.M. Wang 2759* (TNM); Kunyang, *T.Y.A. Yang et al. 19469* (TNM); Kunyang to Wuling, *S.T. Chiu & Yang 4638* (TNM), *C.M. Wang 5089* (TNM); Mt. Shihmenshan, *Y.P. Cheng 3192* (TAIF, TNM), *S.T. Chiu et al. 2955* (TNM); Tayulin, *C.S. Kuoh 2875* (TAI); Tienchih to Peak Nengkaopeifong, *S.T. Chiu et al. 3410* (TNM); Wuling, *C.I. Huang 14* (TNM), *S.M. Kuo et al. 478* (TNM, TNU); Wuling to Mt. Hohuanshan, *C.Hui Chen 1116* (HAST, TNM); Yuenfong to Mt. Hohuanshan, *C.M. Wang et al. 3291* (TNM); Yunhai, *T.Y.A. Yang et al. 16462* (TNM). **Kaohsiung Co.**: Taoyuan: Prov. #20 Hwy, Mt. Kuanshanlinshan, *C.S. Kuoh 11956* (NCKU); Tienchi to Yiakou, *T.C. Huang et al. 8943* (TAI). **Hualien Co.**: Hsiulin: Chilai Lodge, Mt. Chilaishan, *C.H. Liu et al. 450* (HAST, TNM), *T.Y.A. Yang et al. 6077* (TNM); Mt. Hohuanshan, *C.H. Chen & Liang 7383* (TNM); Mt. Nanhutashan, *T.Y.A. Yang et al. 5053* (TNM), *5068* (TNM); Tayuling to Songhsueh Lodge, *C.I. Huang 12* (TNM), *T.Y.A. Yang 2165* (TNM); Songhsueh Lodge, *C.M. Wang s.n.* 31 Jun. 1992 (TNM). **Taitung Co.**: Haituan: Mt. Hsiangyangshan, *S.T. Chiu et al. 2896* (TNM).

5. ***Ranunculus japonicus*** Thunb. in Trans. Linn. Soc. **2**: 337. 1794; Hayata, Icon. Pl. Formos. **1**: 28. 1911; Sasaki, List Pl. Formos. 184. 1928; Suzuki, Short Fl. Formos. 66. 1936; Masamune, List Vasc. Pl.. Taiwan 53. 1954; Huang in Bull. Natl. Taiwan Norml. Univ. **5**: 40. 1960; Liu & Hsieh, Fl. Taiwan **2**: 501. 1976; Liou, Fl. Reip. Pop. Sin. **28**: 312.1980; Yang & Huang in Taiwania **41(2)**: 136. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 553. 1996; Shimabuku, Check list Vasc. Fl. Ryukyu Isl. (Rev. ed.), 184. 1997; Wang & Gilbert, Fl. China **6**: 423. 2001.

毛茛

Ranunculus acris L. var. *japonicus* (Thunb.) Maxim. ex Makino et al., New Ill. Fl. Jap. 181. *f.722*. 1961.

Distribution: Wildly distributed in Mainland China (except Xizang), Japan, South Korea, Taiwan and Russia. Taiwan has only limited distribution in open places or forest margins at altitudes below 800 m of northern part.

Phenology: In Taiwan, the flowering season March to May; fruiting season April to June.

Specimen examinated: **TAIWAN**: **Taipei Co.**: Shimen: *T.Y.A. Yang et al. 6250* (HAST, TAI, TNM): Fukueichiao, *T. Kawakami s.n.* May 1915 (TAIF). **Keelung City**: Anlo Distrct: *S.M. Kuo & Lu 222* (TNM, TNU), *S. Sasaki s.n.* May 1923 (TAI, TAIF); Auoti, *S.M. Kuo 264* (TNM, TNU); Tawulun, *T. Kawakami & Simada 4315* (TAIF). Chungshan District: Cave Hsientung, *S. Suzuki 4684* (TAI); Paimiweng Fort, *S.M. Kuo 265* (TNM, TNU), *C.C. Wang & Chen 963* (HAST).

6. ***Ranunculus junipericola*** Ohwi Acta Phytotax. Geobot. **2(3)**: 154. 1933; Suzuki, Short Fl. Formos. 66. 1936; Masamune, List Vasc. Pl. Taiwan 53. 1954; Huang in Bull. Natl. Taiwan Norml. Univ. **5**: 41. 1960; Liu & Hsieh, Fl. Taiwan **2**: 502. 1976; Liou, Fl. Reip. Pop. Sin. **28**: 273. 1980; Yang & Huang in Taiwania **41(2)**: 136. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 556. 1996; Wang & Gilbert, Fl. China **6**: 402. 2001. **Type specimen**: Taiwan (Formosa): Nantou Co. (Taichushu), Mt. Chilaichunanfeng (Kiraishu-nampo), *J. Ohwi 3307* (holotype: KYO!; isotypes: TAI!, TNS!), Mt. Yushan (in monte Niitaka), *J. Ohwi 3655* (paratype: KYO!), Mt. Tashuikushan (in monte Daisuikutsu), *J. Ohwi 3786* (paratype: KYO!); Taichung Co. (Taihokushu), Mt. Nanhutashan (in monte Nankotaisan), *J. Ohwi 4019* (paratype: KYO!).

高山毛茛（檜林毛茛）

臺灣大學學術期刊資料庫

Distribution: Endemic to Taiwan; distributed in wet place or coniferous woods at altitudes above 2,700 m of the Central Mountain Range.

Phenology: Flowering season May to July; fruiting season June to September.

Specimen examinated: **TAIWAN**: **Ilan Co.**: Tatung: Wuyenfong, Mt. Nanhutashan, *S.M. Kuo et al. 297* (TNM, TNU). **Hsinchu Co.**: Chienshih: Mt. Tapachienshan, *S. Sasaki s.n.* Jul 1932 (TAI). Wufong: 99 Lodge to Mt. Tapachienshan, *T.Y.A. Yang 2357* (TNM). **Miaoli Co.**: Taian: Mt. Yitseshan to Mt. Tapachienshan, *Z.W. Lee 157* (TNM, TNU). **Taichung Co.**: Hoping: 369 Lodge to Mt. Hsuehshan, *S.M. Kuo et al. 383* (TNM, TNU), *T.Y.A. Yang et al. 5643* (TNM), *5645* (TNM); 369 Lodge to Pool Tsueichi, *J.C. Wang et al. 4421* (TAI); Mt. Hsuehshan, *S.T. Chiu 1998* (TNM), *S.M. Kuo et al. 406* (TNM, TNU), *S.P. Li 171* (TNM), *T.Y.A. Yang et al. 6154* (TNM); Yunling Lodge to Mt. Shengmachengshan, Mt. Nanhutashan, *C.M. Wang 982* (TNM). **Nantou Co.**: Renai: Prov. #14A Hwy 32.5 Km, *T.Y.A. Yang et al. 19489* (TNM). **Chiayi Co.**: Alishan: Mt. Yushan, *T. Yamazaki & Yamazaki 1074* (TAI). **Kaohsiung Co.**: Taoyuan: Mt. Kuanshan, *T.Y.A. Yang et al. 7475* (TNM). **Hualien Co.**: Hsiulin: Mt. Hohuanshan to Tayuling, *T.T. Lin s.n.* Jun 1983 (TAIF).

7. *Ranunculus morii* (Yamam.) Ohwi in Journ. Jap. Bot. **12**: 333. 1936; Masamune, List Vasc. Pl. Taiwan 53. 1954; Liu & Hsieh, Fl Taiwan **2**: 502. 1976; Yang & Huang in Taiwania **41(2)**: 140. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 556. 1996; Wang & Gilbert, Fl. China **6**: 408. 2001. ― *Anemone taraoi* (Makino) Takeda var. *morii* Yamam. in Suppl. Icon. Pl. Formos. **3**: 26. 1927. ― *Pulsatilla morii* (Yamam.) Masam. in Trans. Nat. Hist. Soc. Formos. **22**: 232. 1932. **Type specimen**: Taiwan: Nantou Co., Central mountains (montibus centralibus), *U. Mori s.n.* s.d. 森氏毛茛（長柄毛茛）

Ranunculus taizanensis Yamam. in Journ. Soc. Trop. Agr. **4**: 188. 1932. **Type specimen**: Taiwan: Taichung Co., Mt. Nanhutashan (monte Nankotaizan), alt. 3,353-3,658 m (11,000-12,000 ped. alt.), *S. Sasaki s.n.* 24 Jul. 1922 (holotype: TAI!; isotype: TI!). ― *Ranunculus biternatus* Yamam. Suppl. Icon. Pl. Formos. **3**: 29. 1927; *non* Smith (1824).
Ranunculus taiwanensis Y.C. Liu & F.Y. Lu in Quart. Journ. Chin. Forest. **11(3)**: 108. 1978. **Type specimen**: Taiwan: Miaoli Co., Taian, Mt. Hsueshan, *S. Sasaki s.n.* 21 Jul. 1932 (holotype: TAI!); *syn.nov.*

Distribution: Endemic to Taiwan narrowly distributed at altitudes above 3,000 m of Hsueshan Mountain Range and Nanhutashan Mountain Range.

Phenology: Flowering season (April-) May to June (-July); fruiting season (May-) June to July (-August).

Specimen examinated: **TAIWAN**: **Ilan Co.**: Nanau: Mt. Nanhutashan, *T.C. Huang 7814* (TAI), *G. Masamune & Mori s.n.* 15 Jul. 1931 (TAI); Nanhu cirque, Mt. Nanhutashan, *S.M. Kuo et al. 294* (TNM, TNU). **Miaoli Co.**: Taian: Mt. Hsuehshan, *S.P. Li 172* (TNM); Peak Hsuehshanchufong, Mt. Hsuehshan, *S.T. Chiu 2007* (TNM). **Taichung Co.**: Hoping: Mt. Nanhutashan, *C.M. Wang 890* (HAST, TNM). **Hualien Co.**: Hsiulin: Mt. Nanhutashan, *S. Suzuki s.n.* Jul 1922 (TAI), *T. Suzuki et al. 17393* (TAI), *18083* (TAI).

Note: The scientific names of species *Ranunculus taisanensis* Hayata (1911) and *R. taizanensis* Yamam. (1932) have been noted by a graduate student, Miss S.M. Kuo, in her Mater's degree thesis at the Department of Life Science, National Taiwan Normal University, Taipei in 2002. According to the priority of publishing scientific names, we should use the scientific name for this species as *R. taizanensis* instead of *R. morii* (Yamam.) Ohwi (1936). However, in both editions of "Flora of Taiwan" vol. 2 (Liu and Hsieh, 1976; Yang et al., 1996) the scientific name *R. taizanensis* was not used just because Dr. Ohwi pointed out that the names *R. taisanensis* and *R. taizanensis* could easily be confused (1936). The first author sent the request about this case to the Nomenclature Committee, and the Committee's recommendation was that these names should be treated as homonyms (Brummitt, 2007). One of the Committee members, Prof. H. Ohashi, indicated that "taisan" and "taizan" were both the same in Japanese, meaning "big mountain"; therefore, he suggested *taisanensis* and *taizanensis* should be regarded as homonyms, as pointed out by Ohwi (on page 335, 1936). So then the correct scientific name of this taxon could be the current one, *i.e. R. morii* (Yamam.) Ohwi.

8. *Ranunculus nankotaizanus* Ohwi in Acta Phytotax. Geobot. **2(3)**: 155. 1933; Suzuki, Short Fl. Formos. 66. 1936; Masamune, List Vasc. Pl. Taiwan 53. 1954; Huang in Bull. Natl. Taiwan Norml. Univ. **5**: 43. 1960; Liu & Hsieh, Fl. Taiwan **2**: 504. 1976; Yang & Huang in Taiwania **41(2)**: 141. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 556. 1996; Wang & Gilbert, Fl. China **6**: 402. 2001. **Type specimen**: Taiwan (Formosa): Taichung Co. (Taichushu), Mt. Nanhutashan (Nankotaisan), *J. Ohwi 4179* (holotype: KYO!; isotype: TAI!) 南湖毛茛

Distribution: Endemic to Taiwan, restrictedly distributed at altitudes above 2,600 m of Mt. Nanhutashan.

Phenology: Flowering season during summer in June to July (-August); fruiting season July to August.

臺灣大學學術期刊資料庫

Specimen examinated: **TAIWAN**: **Ilan Co.**: Tatung: Mt. Nanhutashan, *M. Tamura et al. 20868* (TI); Nanhu cirque, Mt. Nanhutashan, *S.M. Kuo et al. 296* (TNM, TNU); Wuyenfong, Mt. Nanhutashan, *S.M. Kuo et al. 438* (TNM, TNU). **Hualien Co.**: Hsiulin: Mt. Nanhutashan, *T. Suzuki et al. 17622* (TAI), *T.Y.A. Yang et al. 5051* (TNM).

9. *Ranunculus sceleratus* L. Sp., Pl. **1**: 551. 1753; Henry, List Pl. Formos. 14. 1896; Hayata, Icon. Pl. Formos. **3**: 3. 1913; Sasaki, List Pl. Formos. 185. 1928; Handel-Mazzeti, Symb. Sin. **7**: 298. 1931; Kudo & Masamune in Ann. Rep. Taihoku Bot. Gard. **2**: 78. 1932; Suzuki, Short Fl. Formos. 66. 1936; Ovchinnikov, Fl. USSR. **7**: 408. 1937; Handel-Mazzetti in Act. Hort. Gotob. **13**: 162. 1939; Masamune, List Vasc. Pl. Taiwan 54. 1954; Huang in Bull. Natl. Taiwan Norml. Univ. **5**: 44. 1960; Liu & Hsieh, Fl. Taiwan 2: 504. 1976; Liou, Fl. Reip. Pop. Sin. **28**: 310. 1980; Yang & Huang in Taiwania **41(2)**: 143. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 560. 1996; Shimabuku, Check list Vasc. Fl. Ryukyu Isl. (Rev. ed.), 185. 1997; Wang & Gilbert, Fl. China **6**: 421. 2001. 石龍芮

Distribution: Widely distributed in temperate and subtropical places of the world; in Taiwan growing in open places, stream-side or forest margins of the whole island.

Phenology: In Taiwan, the flowering season (January-) Feburary to May; fruiting season (Feburary-) March to June or to summer.

Specimen examinated: **TAIWAN**: **Taipei City**: Hsinyi District: Yungchi Road, *C.C. Hsu 4345* (TAI). **Keelung City**: Keelung, *T. Kawakami & Sasaki s.n.* Apr 1911 (TI). **Ilan Co.**: Wucheh: Hsiehhe Road, *C.M. Wang & Li 9863* (TNM). **Taipei Co.**: Hsintien: *H.Y. Chen 1385* (TAI, TNM). Kongliao: Auoti, *S.F. Huang 3517* (TAI), *S.M. Kuo & Lu 221* (TNM, TNU). Shihmen: *S.M. Kuo & Chang 220* (TNM, TNU). **Hsinchu City**: Lake Chintsaohu, *T.C. Huang & Huang 13024* (TAI); Hsiangshan, *S.P. Li 420* (TNM). **Hsinchu Co.**: Chupei: Hsienchiaoshihi, *T.Y.A. Yang et al. 6232* (TNM). **Miaoli Co.**: Tsaochiao: County #14 Hwy, Mt. Shuangershan, *T.Y.A. Yang & Chiu 14622* (TNM). Tunghsiao: Hsinpu, *C.M. Wang & Li 5335* (TNM). **Taichung City**: Peitun District: near Sect. 2, Songchu Road, *C.M. Wang 5322* (TNM). **Taichung Co.**: Longching: Shueiligang to entrance of Stream Tatuhsi, *S.T. Chiu 8772* (TNM). Salu: *C.S. Kuoh 10740* (TAI). Tachia: *S.M. Kuo 551* (TNM, TNU). Waipu: Tieshan, *H.Y. Chen et al. 1294* (TAI, TNM). Wufong: Tingtai, *C.N. Chen 38* (TNM). **Taitung Co.**: Haituan: Prov. #20 Hwy, Hsianyang, *C.S. Kuoh 11276* (NCKU).
FUJIAN: **Machu**: **Lienchiang Co.**: Nankan, *C.M. Wang 10173* (TNM), *T.Y.A. Yang et al. 5399* (TNM).

10. *Ranunculus sieboldii* Miq**.** in Ann. Mus. Bot. Lugd.-Bat. **3**: 5. 1876; Handel-Mazzetti in Symb. Sin. **7**: 302. 1931; Ohwi, Fl. Jap. 449. 1965; Liu, Fl. Reip. Pop. Sin. **28**: 321. 1980; Yang & Huang in Taiwania **41(2)**: 144. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 560. 1996; Shimabuku, Check list Vasc. Fl. Ryukyu Isl. (Rev. ed.), 185. 1997; Wang & Gilbert, Fl. China **6**: 428. 2001; Kuo et al. in Taiwania **50(3)**: 215. 2005. 揚子毛茛（辣子草）

Ranunculus pensylvanicus L. var. *sieboldii* (Miq.) Ito in Journ. Coll. Sci. Univ. Tokyo **12**: 276. 1899.
Ranunculus cantoniensis DC. var. *sieboldii* (Miq.) Kitamura ex Hatusima, Fl. Ryukyus 279. 1971.

Distribution: Distributed in Southwestern, Southern and Southeastern Mainland China (Provs. Yunnan, Sichuan, Guezhou, Hubei, Hunan, Guangxi, Jiangxi, Jiangxu, Zhejiang, Fujiang, Shaanxi, Gansu), Taiwan and Japan. In Taiwan narrowly distributed in semi-wet places or forest margins at altitudes between 1,000 and 3,000 m in the central and northern parts of this island.

Phenology: In Taiwan, the flowering season September to April in next year; fruiting season late September to June(-August) in next year.

Specimen examinated: **TAIWAN**: **Taipei City**: Taan District: Nat. Taiwan Univ. Campus, *T.Y.A. Yang 2875* (TNM). **Ilan Co.**: Tatung: Mingchih Forest Recreation Area, *T.Y.A. Yang et al. 6775* (TNM). **Hsinchu Co.**: Chienshih: Nalou to Yulao, *C.F. Chen & Lo 2724* (TNM). **Miaoli Co.**: Taian: Kuanwu, Talu loggingtrack, *C.H. Chen et al. 5323* (TNM). **Nantou Co.**: Luku: Hsitou, *R.C. Chen s.n.* 2 Apr. 1976 (TNM), *T. Chen 10104* (TAI), *Y.H. Hwang s.n.* 25 Nov. 1992 (TNM), *S.M. Kuo 552* (TNM, TNU), *632* (TNM, TNU), *K.H. Tsen s.n.* 4 May 1986 (TNM), *T.Y.A. Yang 998* (TNM), *999* (TNM), *2521* (TNM), *T.Y.A. Yang et al. 16051* (TNM); Pond Tahsuehchih, Hsitou, *S.M. Kuo 223B* (TNM, TNU). Renai: Meifong Farm, *S.M. Kuo 127* (TNM, TNU), *S.M. Kuo & Chang 241* (TNM, TNU).

11. *Ranunculus silerifolius* H. Lév., Repert. Spec. Nov. Regni Veg. **7**: 257. 1909; Wang & Gilbert, Fl. China **6**: 428. 2001; Kuo et al. in Taiwania **50(3)**: 218. 2005. 鉤柱毛茛

Ranunculus silerifolius H. Lév. var. *glaber* (H. Boissieu) M. Tamura in Acta Phytotax. Geobot. **39**: 93. 1988.

Perennial sparsely pubescent or subglabrous herbs, ascending or erect upright, *ca.* 12-50 cm tall. Roots fibrous, sometimes with adventitious roots. Leaves monomorphic, ternate or simple and 3-partited; terminal ones (26.0-)35.7 ─ 56.6(-69.0) mm long, (20.0-)25.7 ─ 43.8(-52.0) mm wide, broadly rhombic or broadly ovate, 3-lobed, apex acute, base obtuse, turncate or sometimes acute, margin serrulate, sparsely pubescent on both surfaces; petioles *ca.* 100.0-180.0 mm long. Inflorescence in a compound monochasium, terminal; pedicels *ca.* 10.0-59.0 mm long, sparsely pubescent. Flowers *ca.* 10.0-12.0 mm in diam.,

臺灣大學學術期刊資料庫

yellow; sepals 5, *ca.* 3.0-4.0 mm long, 1.5-2.0 mm wide, reflexed, narrowly obovate, strigose outside; petals 5-7, *ca.* 4.5-5.0 mm long, 2.0-2.8 mm wide, narrowly obovate or oblong, glabrous on both sides, nectary pit covered by a scale, apex round; stamens numerous, *ca.* 1.5-4.0 mm long, anthers oblong, *ca.* 0.8-1.5 mm long, filaments linear; carpels many, glabrous; receptacles pubescent. Fruit an aggregate of achenes subglobose, 8.0-9.0 mm in diam.; achenes *ca.* 3.5-4.0 mm long, obliquely obovate, glabrous, compressed in lateral view, narrowly marginate; styles persistent triangular, *ca.* 1.2 mm long, hooked at apex.

Distribution: Widely distributed around India, Bhutan, Southwestern, Southern and Southeastern Mainland China (Provs. Yunnan, Sichuan, Guizhou, Hubei, Hunan, Guangxi, Guangdong, Fujiang and Jiangxi), Taiwan, Indonesia, Japan and South Korea. In Taiwan, it is distribued in semi-wet places, stream-side areas, or forest margins between 900-2,200 m in the northern part of this island.

Phenology: In Taiwan, the flowering season February to May; fruiting season March to July.

Specimen examinated: **TAIWAN**: **Taipei City**: Shihlin District: Pond Siangtienchih, Yangmingshan N.P., *T.Y.A. Yang et al. 19410* (TNM); Yangmingshan N.P., *Y.R. Chang s.n.* 9 Mar. 2001 (TNM); Prov. #2A Hwy (Yang-Ching Hwy), *C.F. Chen & Chu 2792* (TNM). **Taipei Co.**: Wulai: Hsiaoyi, *Z.W. Li 22* (TNM, TNU). **Ilan Co.**: Tatung: Mingchih Forest Recreation Area, *T.Y.A. Yang et al. 6775* (TNM). **Taoyuan Co.**: Fuhsing: Hsueiwunao, *Z.W. Li 385* (TNM, TNU); Kueihuei, *C.C. Chen 101* (TNM, TNU); Mt. Lalashan, *T.Y.A. Yang et al. 6286* (TNM); Lofu to Palin, *J.C. Wang et al. 10779* (TNM, TNU); Sikotai, *C.C. Chen 90* (TNM, TNU); Takuanshan Forest Recreation Area, *C.L. Huang 602* (TNM, TNU), *S.M. Kuo & Huang 203* (TNM, TNU), *S.M. Kuo & Li 547* (TNM, TNU). **Hsinchu Co.**: Chienshih: *C.H. Chen 8223* (TNM); Taikang to Hsinkuang, *Y.Y. Huang et al. 870* (HAST, TNM). Wufong: Kuanwu, *S.M. Kuo 633* (TNM, TNU). **Nantou Co.**: Chushan: Sunlinksea Forest Recreation Area, *C.H. Chen 7925* (TNM). Luku: Hsitou, *C.H. Chen 5413* (TNM), *T.Y.A. Yang 153* (TAI), *3332* (TNM), *3333* (TNM); Entrance of Hsitou, *S.M. Kuo & Chang 223A* (TNM, TNU); near the nursery, Hsitou, *T.Y.A. Yang 2237* (TNM); Fonghuangshan logging track, *T.Y.A. Yang 4205* (*G.S. Wang* coll.; TNM), *T.Y.A. Yang & Song 4205* (TNM), *4209* (TNM). **Yunlin Co.**: Kukeng: Shihpi, *C.M. Wang et al. 8733* (TNM). **Chiayi Co.**: Alishan: Pool Chiemeitan, Mt. Alishan, *T.Y.A. Yang et al. 5315* (TNM); Mt. Datashan, *S.M. Kuo et al. 123* (TNM, TNU).

12. *Ranunculus taisanensis* Hayata in Journ. Coll. Sci. Univ. Tokyo **30**: 20. 1911, Icon. Pl. Formos. **1**: 27. 1911; Sasaki, List Pl. Formos. 185. 1928; Kudo & Masamune in Ann. Rep. Taihoku Bot. Gard. **2**: 78. 1932; Ohwi in Acta Phytotax. Geobot. **2**: 155. 1933; Suzuki, Short Fl. Formos. 66. 1936; Huang in Bull. Natl. Taiwan Norml. Univ. **5**: 44. 1960; Liu & Hsieh, Fl. Taiwan **2**: 506. 1976; Liou, Fl. Reip. Pop. Sin. **28**: 314. 1980; Yang & Huang in Taiwania **41(2)**: 145. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 562. 1996; Wang & Gilbert, Fl. China **6**: 423. 2001. **Type specimen**: Taiwan: Miaoli Co., Bioritsu, Rokujio-taisan, *T. Kawakami & U. Mori s. n.* s.d. (holotype: TI!) 鹿場毛茛（臺灣毛茛）

Ranunculus geranifolium Hayata, Icon. Pl. Formos. **3**: 7. 1913. **Type specimen**: Taiwan: Nantou Co., Mt. Yushan (Mt. Morrison), 3,353 m (11,000 ped.) alt., *T. Kawakami & S. Sasaki s.n.* Oct 1909 (holotype: TI!)
Ranunculus taisanensis var. *tripartitus* Ohwi in Acta Phyto. Geobot. **2(3)**: 156. 1933. **Type specimen**: Taiwan (Formosa): Pingtung Co. (Takaoshu), Mt. Tawushan (monte Daibu), *J. Ohwi 1807* (holotype: KYO!)

Distribution: Endemic to Taiwan, widely distributed in whole island at altitudes between 1,500 and 3,500 m of high mountains.

Phenology: Flowering season April to September (-October); fruiting season May to October (-December).

Specimen examinated: **TAIWAN**: **Ilan Co.**: Nanau: Mt. Taipingshan, *S.F. Huang 4773* (TAI). Tatung: Mt. Taipingshan, *C.H. Chen 4793* (TNM), *T.Y.A. Yang & Yen 8319* (TNM). **Hsinchu Co.**: Chienshih: Mt. Tapachienshan, *N. Fukuyama s.n.* Jul 1932 (TAI). **Miaoli Co.**: Taian: Mt. Hsuehshan, *Y.C. Jeng 1492* (TAI); Tahsueshan 230 logging track, *C.M. Wang 1118* (TNM), *C.M. Wang et al. 6825* (TNM), *T.Y.A. Yang & Cheng 6401* (TNM). **Taichung Co.**: Hoping: Prov. #8 Hwy 101 Km, *T.Y.A. Yang et al. 17680* (TNM); Mt. Hsueshan, *T. Hosokawa 2355* (TAI), *T.C. Huang & Hsieh 7197* (TAI), *T.Y.A. Yang et al. 6155* (TNM); Lishan, *T.Y.A. Yang & Wang 4228* (TNM); Shengkuan to Suyuan, *T.Y.A. Yang et al. 8443* (TNM). **Nantou Co.**: Hsinyi: Loloku to Kuankao, *S.F. Huang et al. 5277* (TAI); Lulin Lodge, *C.H. Chen & Wu 4218* (TNM); Paiyun Lodge, *T.Y.A. Yang 3601* (TNM), *T.Y.A. Yang & Wang 4109* (TNM); Patungkuan to Kuankao, *T.Y.A. Yang 3409* (TNM); Tungpu Lodge to Tataka Saddle, *W.P. Leu et al. 1092* (HAST, TNM). Luku: Hsitou to Hsiti, *M.T. Kao 7187* (TAI). Renai: Prov. #14A 28.3 Km, *T.Y.A. Yang et al. 19463* (TNM); Kunyang to Wuling, *C.M. Wang 5092* (TNM); Mt. Nengkaoshan, *Y. Kudo & Mori s.n.* Jul 1930 (TAI); Tayulin to Ronghsing village, *T.Y.A. Yang 2625* (TNM); Yuanfong, *C.M. Wang 9025* (TNM); Yunhai to Tienchih, *T.Y.A. Yang 11173* (TNM), *T.Y.A. Yang et al. 13968* (TNM). **Chiayi Co.**: Alishan: Mt. Alishan, *J.M. Chao & Kao 6189* (TAI); Tataka, *S.M. Kuo & Huang 266* (TNM, TNU). **Kaohsiung Co.**: Maolin: Mt. Chuyunshan, *Y. Yamamoto & Mori 519* (TAI). Taoyuan: Mt. Kuanshan, *T.Y.A. Yang et al. 7474* (TNM); Mt. Takuanshan, *T.Y. Liu et al. 524* (HAST, TNM). **Hualien Co.**: Hsiulin: Prov. #8 Hwy, Kuanyuan, *T.Y.A. Yang et al. 13798* (TNM); Stream Chilaihsi, *E. Matuda s.n.* Aug 1919 (TAIF); Hoping logging track, *C.H. Chen 6502* (TNM); Tayuling, *C.I. Peng 9147* (HAST), *T.Y.A. Yang 2150* (TNM); Tienchang cliff, *C.H. Chen 7042* (TNM). **Taitung Co.**: Haituan: Prov. #20 Hwy, Hsiangyang, *T.Y.A. Yang et al. 6453* (TNM); Mt. Kuanshanlingshan, *S.T. Chiu 1418* (TNM), *C.H. Liu et al. 104* (HAST, TNM), *C.C. Wu et al. 409* (TNM); Yako Lodge, *C.F. Chen et al. 2965* (TNM). Yenping: Yenping logging track, *J.S. Wu 1956-3* (TNM).

13. *Ranunculus ternatus* Thunb., Fl. Jap. 241. 1784, Trans. Linn. Soc. **2**: 336. 1794; Maxim., Fl. Asia

臺灣大學學術期刊資料庫

Or. Fragn. 3. 1879; Hemsl. in Journ. Linn. Soc. Bot. **26**: 16. 1886; Henry, List Pl. Formos. 14. 1896; Hayata, Icon. Pl. Formos. 29. 1911; Yamamoto, Suppl. Icon. Pl. Formos. 3: 32. 1927; Sasaki, List Pl. Formos. 185. 1928; Kudo & Masamune in Ann. Rep. Taihoku Bot. Gard. **2**: 78. 1932; Huang in Bull. Natl. Taiwan Norml. Univ. **5**: 44. 1960; Liu & Hsieh, Fl. Taiwan **2**: 508. 1976; Liou, Fl. Reip. Pop. Sin. **28**: 302. 1980; Yang & Huang in Taiwania **41(2)**: 148. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 562. 1996; Wang & Gilbert, Fl. China **6**: 421. 2001. 小毛茛（貓爪草）

Ranunculus zuccarinii Miq. in Ann. Mus. Bot.-Lugd. Bat. **3**: 5. 1867.
Ranunculus leiocladus Hayata, Icon. Pl. Formos. **3**: 7. 1913. **Type specimen**: Taiwan: Taoyuan Co. (Toyen), Chungli (Chureki), *T. Kawakami & Y. Simada s.n*. Mar 1909 (holotype: TI!).
Ranunculus formosanus Masam. in Journ. Soc. Trop. Agr. **2(1)**: 48. 1930. **Type specimen**: Taiwan (Formosa): Taipei Co., Danshui (Tansui), *G. Masamune s.n.* 11 Feb 1930 (holotype: TAI!).

Distribution: Distributed in Southeastern, Central and Eastern Mainland China (Provs. Guangxi, Jiangxu, Zhejiang, Jiangxi, Hunan, Anhuei, Hubei and Henan), Taiwan and Japan. Taiwan growing in semi-wet places or open places at altitudes below 500 m of northern part.

Phenology: In Taiwan, the flowering season (January-) Feburary to April (-May); fruiting season March to May (-June).

Specimen examinated: **TAIWAN**: **Taipei City**: Shihlin District: Pool Hsiangtienchih, Yangminshan N.P., *S.M. Kuo & Li 561* (TNM, TNU); Mt. Tatunshan, *S. Suzuki s.n.* Apr 1932 (TAI). **Taipei Co.**: Pali: Mt. Kuanyingshan, *C.C. Chuang 2557* (TAI). Tanshui: *T. Kawakami & Simada 9266* (TAI), *R. Oldham 4* (K). **Taoyuan Co.**: Chungli: *H. Simada s.n*. Mar 1909 (TAIF). Hsutsukang: *S. Sasaki s.n*. May 1909 (TAIF).
FUJIEN: **Machu**: **Lienchiang Co.**: Peikan, Biyuan, *C.M. Wang 10152* (TNM); Tachiu, *C.M. Wang 10087* (TNM).

9. *Semiaquilegia* Makino 天葵屬

Perennial erect herbs with blackish brown tubers. Stems usually 1 to 5 branched, 10-32 cm tall, sparsely white hairy. Leaves radical and cauline, ternately compound; basal leaves numerous, segments 2-3-lobed, leaflets flabellated-rhombic to obovated-rhombic, *ca*. 6-25 mm long, 10-28 mm wide, glabrous, petioles *ca*. 30-120 mm long, sheathed; cauline leaves similar to basal leaves but smaller, petioles *ca*. 3-7 mm long. Inflorescences monochasial straight or scorpioid cymes; bracts small, 3-parted or undivided, segments oblanceolate to obovate. Flowers actinomorphic, 4-6 mm in diam., pedicels slender, *ca.* 10-25 mm long, spreading, white, pubescent; sepals 5, petaloid, white usually tinged with purple, narrowly elliptic, *ca.* 4-6 mm long, 1.0-2.5 mm wide, apex acute; petals 5, spatulate, basally gibbous, *ca.* 2.5-3.5 mm long, 1.0-1.5 mm wide, apex subtruncate; stamens 8-14, glabrous, filaments filiform, white, 2.0-2.5 mm long, basally slightly thickened, anthers yellow, broadly ellipsoid; staminodes 2, as long as filaments, white, linear-lanceolate, membranous, glabrous; carpels 3 to 5. Follicles 3-5, ovoid-ellipsoid, 6-9 mm long, *ca.* 2.0 mm in diam., striate, widely divergent, glabrous, apically with a small beak. Seeds many, brown to black-brown, ovoid-ellipsoid, *ca.* 1.0 mm long, 0.8 mm in diam., densely rugose.

One species distributed in Mainland China, Japan, South Korea and Taiwan.

1. ***Semiaquilegia adoxoides*** (DC.) Makino in Bot. Mag. Tokyo **16**: 119. 1902; Hsu et al. in Taiwania **49(1)**: 44. 2004. 天葵

Description same as genus.

Distribution: Distributed in Southwestern, Southeastern, Central and Eastern Mainland China (Provs. E. Yunnan, Guizhou, Sichuan, Hubei, Shaanxi, Hunan, Guangxi, Anhuei, Jiangxi, Henan, Zhejiang and Fujian), Taiwan, western Japan and South Korea. Introduced to Taiwan and only found in semi-wet places or open places at altitudes below 500 m of Yunlin County.

Phenology: In Taiwan, the flowering season March to April; fruiting season April to May.

Specimen examinated: **TAIWAN**: **Yunlin Co.**: Kukeng, *T.W. Hsu & J.J. Peng 11199* (TAIE).

10. *Thalictrum* L. 唐松草屬

Erect perennial herbs, the root system usually fibrous, rarely tuberiferous. Stem usually branching, cylindric or sulcate. Leaves priternately to pentaternately compound; leaflets palmatilobate, few dentate, rarely unlobed; petiole base widely sheathed, often stipulate and stipellate. Inflorescences usually monochasia, when more flowers, paniculate, corymbose, few racemose, terminal or axillary. Flowers small, bisexual or unisexual (dioecious), rarely polygamous. Sepals 4-6 or more, greenish or white, sometimes rose-colored and petaloid, caducous or deciduous; petals absent; stamens numerous, prominent, with or without connective, filaments filiform, linear or clavate, more or less

臺灣大學學術期刊資料庫

thickened or/and dilate at apex, anthers small; carpels few to many, free, stipitate or sessile, with one pendulous ovule, styles beak-like, short or long bearing a deltoid to linear stigma on inner side; receptacles minute. Fruits a small head of achenes; achenes stipitate or not, elongate, commonly laterally flattened, sometimes narrowly winged, usually nerved.

About 150 species, widely distributed in the temperate and frigid zones of Northern Hemisphere, few extending to South America and South Africa; about 76 species in Mainland China, and 6 taxa (4 species and 2 varieties) in Taiwan.

Key to the species

1. Achenes stipitate or subsessile; leaflets less than 27
   2. Achenes more than 30 …… 3. *T. rubescens*
   2. Achenes less than 25
      3. Flower smaller than 2 cm wide; sepals usually 4 ……..…… 5a. *T. urbaini* var. *urbaini*
      3. Flower large, 2-3 cm wide; sepals usually 6 ……..…..… 5b. *T. urbaini* var. m*ajus*
1. Achenes sessile; leaflets more than 27
   4. Leaflets more than 81, small, less than 0.7 cm ……...……. 2. *T. myriophyllum*
   4. Leaflets 27-81, more than 1.0 cm
      5. Plant glabrous; sepals acute or obtuse at apex; achenes with shallowly striate, the nerves not elevated on adaxial surface and the margin not thicken on abaxial surface ……...……. 4. *T. sessile*
      5. Plant pubescent; sepals retuse at apex; achenes with deeply striate, the nerves elevated on adaxial surface and the margin thicken atabaxial surface ...…….. 1. *T. javanicum* var. *puberulum*

1. *Thalictrum javanicum* Bl. var. **puberulum** W.T. Wang, Fl. Reip. Pop. Sinicae **27**: 617. 1979; Yang & Huang in Taiwania **34(1)**: 59. 1989, Yang et al., Fl. Taiwan **2** (2nd ed.): 565. 1996. **Type Specimen**: Yunnan: Erhyuen Co., 2,600 m. alt., 25 Jul. 1963, *Jingshajiang Exp. 6188* (holotype: PE!) 微毛瓜哇唐松草

Thalictrum sessile sensu Wang & Wang in Fl. Reip. Pop. Sin. **27**: 521. 1979; Fu & Zhu, Fl. China **6**: 292. 2001; *non* Hayata.

Distribution: Ranging from Yunnan, western of Guizhou, westsouthern of Sizhuan to Taiwan. In Taiwan, found in grassy places or under the forests around the Central Mountains and Yushan Mountains at altitudes between 2,000 m and 3,500m.

Phenology: In Taiwan, the flowering season June to August (-September); fruiting season July to September (-October).

Specimen examinated: **TAIWAN**: **Ilan Co.**: Nanau: Mt. Chungyangchienshan to Nanshan, *M. Tamura & Koyama 23709* (KYO), *23785* (KYO); Mt. Nanhutashan, *S. Sasaki s.n.* 23 Jul. 1922 (TAIF); Mt. Nanhupeishan to Yunlin Lodge, *T.Y.A. Yang et al. 5099* (TNM). **Miaoli Co.**: Taian: Tunnel Sishihshansueidao to Mt. Huoshihshan, *C.M. Wang 1735* (TNM). **Taichung Co.**: Hoping: Tahsuehshan 230 logging track, *T.Y.A. Yang et al. 9474* (TNM); Hsiaohsueh Lodge, *C.M. Wang 1774* (TNM); on the way of Mt. Duochiatunshan, *T.W. Hsu 3804* (TAIE); 369 Lodge to Mt. Hsuehshan, *T.Y.A. Yang et al. 6175* (TNM); on the way of Mt. Hsuehshan, *C.C. Chen 313* (TNM, TNU). **Nantou Co.**: Hsinyi: along the stream Shalihsienhsi, *C.C. Chen 4282* (TAI); Tungpu to Paiyun Lodge, *F.Y. Lu & Ou 3648* (TCF), *M. Tamura et al. 22011* (TAI). Renai: Tenchih to Yunhai, *T.C. Huang et al. 5862* (TAI), *T.Y.A. Yang 11184* (TNM), *T.Y.A. Yang et al. 13906* (TNM); Tienchih to Boundary stone tablet, *T.Y.A. Yang 11298* (TNM), *T.Y.A. Yang et al. 13935* (TNM); Mt. Nengkaoshan, *S. Sasaki s.n.* 25 Aug. 1929 (TAIF), *M. Tamura & Koyama 23332* (KYO, TI); Songhsueh Lodge to Tsuefong, *T.Y.A. Yang 2199* (TNM). **Chiayi Co.**: Alishan: Tataka, *T.Y.A. Yang 3608* (TNM), *4198* (*G.S. Wang* coll.; TNM), *T.Y.A. Yang & G.S. Wang 4113* (TNM); Tataka to Mt. Alishan, *M. Tagawa 328* (KYO, TI), *M. Tamura et al. 22183* (TAI); Tataka to Mt. Yushan, *G. Masamune & Mori s.n.* 1 Jul. 1931 (TAI); Tataka to Paiyun Lodge, *W.P. Leu & Hu 196* (HAST, TNM), *T. Yamazaki & Yamazaki 764* (TI); entrance of Mt. Yushan, *C.H. Chen et al. 5141* (TNM). **Kaohsiung Co.**: Taoyuen: Prov. #20 Hwy 145.1 Km, *T.Y.A. Yang et al. 14052* (TNM), *14066* (TNM); on the way of Mt. Kuanshan, *K.F. Chung et al. 1051* (HAST, TNM), *C.K. Liu et al. 347* (TAIF, TNM); Kuaiku, Mt. Kuanshan, *S. Okamoto s.n.* 25 Jul. 1938 (KYO); Kuanshan pass, *S. Okamoto s.n.* 26 Jul. 1938 (TAI). **Hualien Co.**: Mt. Muhkwashan, *M.T. Kao 4154* (TAI).

2. *Thalictrum myriophyllum* Ohwi in Acta Phytotax. Geobot. **2**: 156. 1933; Suzuki, Short Fl. Formos. 67. 1936; S.S. Huang in Biol. Bull. Nat. Taiwan Norm. Univ. **5**: 50. 1960; Liu & Hsieh, Fl. Taiwan **2**: 510. 1976; T.C. Huang, Fl. Taiwan **6**: 49. 1979; Wang & Wang, Fl. Reip. Pop. Sin. **27**: 524. 1979; T.I Yang, List Pl. Taiwan 608. 1982; Yang & Huang in Taiwania **34(1)**: 61. 1989, Yang et al., Fl. Taiwan **2** (2nd ed.): 567. 1996; Fu & Zhu, Fl. China **6**: 294. 2001. **Type specimen**: Taiwan (Formosa): Taichung Co. (Taihokushu), Mt. Nanhutashan (monte Nankotaisan), 20 Jul. 1933, *J. Ohwi 4188* (holotype: KYO!), 18 Jul. 1933, *J. Ohwi 3997* (paratype: KYO!).
密葉唐松草

Distribution: Endemic to Taiwan, distributed in the forests, forest margins or in the open lands along the Central Mountain Range, Hsuehshan Mountain Range and Yushan Mountain Range above 3,000 m altitude.

Phenology: Flowering season June to August (-September); fruiting season July to October.

Specimen examinated: **TAIWAN**: **Ilan Co.**: Nanau: Mt. Nanhutashan, *T.W. Hsu 3687* (TAIE), *K. Kojima & Shiomi 2023* (KYO), *G. Masamune et al. 3122* (TAI), *S. Sasaki s.n.* 23 Jul. 1922 (TAIF), *S. Suzuki s.n.* 17 Jul. 1937 (TAI), *T. Suzuki et al. 17479* (TAI), *17789* (TAI), *T. Yamazaki & Yamazaki 251* (TAI, TI); Chiliting to Nanhu Camp, *C.C. Hsu 5982A* (TAI). **Hsinchu Co.**: Wufong, Mt. Tapachienshan, *J.T. Wu 1307* (TAI), *T.Y.A. Yang*

臺灣大學學術期刊資料庫

2355 (TAI). **Miaoli Co.**: on the way of Mt. Hsuehshan, *S. Sasaki s.n.* 21 Jul. 1932 (TAI). **Taichung Co.**: Hoping: 369 Lodge to Mt. Hsuehshan, *T.Y.A. Yang et al. 6174* (TNM); Mt. Hsuehshan, *K. Mori s.n.* 24 Oct. 1936 (TAI); Shancha Shelter to Peak Hsuehshanpeifeng, *J.C. Wang et al. 4580* (TAI); Shenmacheng Lodge to Nanhu Camp, *C.K. Yang 1168* (TNM); on the way of Mt. Nanhutashan, *C.M. Wang 901* (TNM). **Nantou Co.**: Hsinyi: Mt. Maborasushan, *T. Suzuki 13674* (TAI); Paiyun Lodge to Peak Yushanpeifong, *T.Y.A. Yang 3551* (TNM). Renai: Mt. Chilaichunanshan, *S. Sasaki s.n.* 24 Aug. 1929 (TAI), *S. Suzuki 2331* (TAI), *2386* (TAI); Mt. Chilailishan, *T.Y.A. Yang 11262* (TNM). **Chiayi Co.**: Alishan: on the way of Mt. Yushan, *K. Kojima & Shiomi s.n.* 31 Jul. 1933 (KYO). **Kaohsiung Co.**: Taoyuen: Mt. Kuanshan, *Okamoto s.n.* 24 Jul. 1938 (KYO). **Hualien Co.**: Hsiulin: Chilai Lodge to Mt. Chilaishan, *H.Y. Shen & Liu 104* (HAST, TNM); Peaks Nanhuchufong to Nanhutungfong, Mt. Nanhutashan, *T.Y.A. Yang et al. 5052* (TNM), *5074* (TNM). **Taitung Co.**: Luyeh: Luyeh to Yenping logging track, *C.H. Ou 1934* (TCF). **Uncertainly known place**: Karantatsukun, *S. Sasaki s.n.* 21 Jul. 1932 (TAI); Tugitaka, *G. Masamune 1252* (TAI), *Y. Simada 2573B* (TAI).

3. *Thalictrum rubescens* Ohwi in Acta Phytotax. Geobot. **2**: 156. 1933; Suzuki, Short Fl. Formos. 67. 1936; S.S. Huang in Biol. Bull. Nat. Taiwan Norm. Univ. **5**: 48. 1960; Liu & Hsieh, Fl. Taiwan **2**: 512. 1976; T.C. Huang, Fl. Taiwan **6**: 49. 1979; Wang & Wang, Fl. Reip. Pop. Sin. **27**: 526. 1979; T.I Yang, List Pl. Taiwan 609. 1982; Yang & Huang in Taiwania **34(1)**: 62. 1989, Yang et al., Fl. Taiwan **2** (2nd ed.): 567. 1996; Fu & Zhu, Fl. China **6**: 297. 2001. **Type specimen**: Taiwan (Formosa): Taichung Co. (Taihokushu), Mt. Nanhutashan (monte Nankotaisan), 20 Jul. 1933, *J Ohwi 4152* (holotype: KYO!; isotype: TNS!).

南湖唐松草

Distribution: Endemic to Taiwan, found in wet places at altitudes between 2,500 m and 3,500 m along the Central Mountain Range and Hsuehshan Mountain Range.

Phenology: Flowering season May to July (-August); fruiting season (June-) July to September.

Specimen examinated: **TAIWAN: Ilan Co.**: Nanau: Mt. Nanhutashan, *C.M. Kuo 5158* (TAI), *T.C. Huang 7804* (TAI), *7816* (TAI), *T. Suzuki et al. 17637* (TAI), *17788* (TAI), *T. Yamazaki et al. 597* (TI). **Hsinchu Co.**: Wufong: on the way of Mt. Tapachienshan, *Do s.n.* 11 Jul. 1934 (TAI), *s. leg. s.n.* 3 Aug. 1927 (TAI). **Taichung Co.**: Hoping: Mt. Chunyangchienshan, *N. Fukuyama & Suzuki 15080* (TAI), *15190* (TAI), *T. Kano s.n.* 10 Aug. 1929 (TAI); Shancha Shelter to Peak Hsuehshanpeifong, *J.C. Wang et al. 4590* (TAI); 369 Lodge to Peak Hsuehshanchufong, *T.Y.A. Yang et al. 5642* (TNM); on the way of Mt. Hsuehshan, *S.T. Chiu 1994* (TNM), *S.P. Li 195* (TNM), *211* (TNM), *S. Sasaki s.n.* 21 Jul. 1932 (TAI), *T.Y.A. Yang et al. 6153* (TNM); Mt. Nanhutashan, *R.S. Lin s.n.* 5 Jul. 1993 (TNM). **Nantou Co.**: Renai: Mt. Chilaichushan: *S. Suzuki s.n.* 4 Aug. 1926 (TAI); Southern slope of Mt. Chilaichushan, *S. Suzuki 2346* (TAI); Mt. Chilailishan, *T.Y.A. Yang 11261* (TNM); Mt. Nanhutashan, *C.M. Wang 870* (TNM); Mt. Nengkaoshan, *E. Matuda R-39* (TAI), *s.n.* 1 Aug. 1919 (TAI). **Kaohsiung Co.**: Taoyuan: Mt. Kuanshan, *T.Y.A. Yang et al. 7479* (TNM). **Hualien Co.**: Hsiulin: Chila Lodge to Mt. Chilachushan, Mt. Chilaishan, *T.Y.A. Yang et al. 6073* (TNM); Peaks Nanhuchufong to Nanhutungfong, Mt. Nanhutashan, *T.Y.A. Yang et al. 5073* (TNM).

4. *Thalictrum sessile* Hayata, Icon. Pl. Formos. **3**: 6. *f. 2.* 1913, Gen. Index Fl. Formos. 2. 1917; Sasaki, List Pl. Formos. 185. 1928; Kudo & Masamune in Ann. Rep. Taihoku Bot. Gard. **2**: 79. 1932; Suzuki, Short Fl. Formos. 67. 1936; Masamune, List Vasc. Pl. Taiwan 54. 1954; S.S. Huang in Biol. Bull. Nat. Taiwan Norm. Univ. **5**: 49. 1960; Liu & Hsieh, Fl. Taiwan **2**: 512. 1976; T.C.Huang, Fl. Taiwan **6**: 49. 1979; T.I Yang, List Pl. Taiwan 609. 1982; Yang & Huang in Taiwania **34(1)**: 63. 1989, Yang et al., Fl. Taiwan **2** (2nd ed.): 570. 1996. **Type specimen**: Taiwan: Chiayi Co., Mt. Yushan (Mt. Morrison), *U. Mori s.n.* Dec. 1909 (**lectotype is designated here: TI!**); Tohozan, *S. Sasaki s.n.* Oct. 1909 (syntype: TI)

玉山唐松草

Distribution: Endemic to Taiwan, distributed beside streams, in wet places, or under forests in the Central Mountain Range, Hsuehshan Mountain Range, Yushan Mountain Range and Alishan Mountain Range at altitudes above 2,500m.

Phenology: Flowering season May to June July (-August); fruiting season June to October (-November).

Specimen examinated: **TAIWAN**: **Ilan Co.**: Nanau: Nanshan Village (Piyanan-anbu), *J. Ohwi 2832* (KYO), *2864* (KYO); Mt. Nanhutashan, *J. Ohwi 4214* (KYO), *T. Yamazaki et al. 426* (TI); Mt. Chungyangchienshan to Nanshan, *M. Tamura & Koyama 23776* (TI). **Miaoli Co.**: Taian: 99 Lodge, Mt. Tapachienshan, *C.I. Huang et al. 78* (TNM). **Taichung Co.**: Hoping: Streams Chungyangchienhsi to Nanhuhsi, *J.C. Wang et al. 3818* (TAI); Huanshan to Mt. Hsuehshan, *H. Koyama 24008* (KYO); Mt. Hsuehshan, *K. Mori s.n.* 24 Oct. 1936 (TAI), *T.Y.A. Yang et al. 6152* (TNM); Tausai, Mt. Nanhutashan, *T. Suzuki et al. 17589* (TAI). **Nantou Co.**: Hsinyi: Tungpu to Mt. Alishan, *T. Yamazaki & Yamazaki 1002* (TI); Tungpu to Mt. Yushan, *J. Hamaya s.n.* s.d. (TAI); Mt. Yushanchienshan, *Jan & Kao s.n.* 13 Jul. 1957 (TAI); Peak Yushanpeifong, *T.Y.A. Yang et al. 3769* (TNM), *3795* (TNM); Peak Yushantungfong, *T.Y.A. Yang et al. 3789* (TNM); Stream Salihsienhsi, *T.Y. Chiang 27335* (TAI), *J.W. Hsu 2384* (TAI). Renai: Mt. Hohuanshan, *M.T. Kao 8808* (TAI). **Chiayi Co.**: Alishan: Mt. Alishan to Tataka, *J. Ohwi 3595* (KYO); Lulin Lodge, *T.Y.A. Yang 4199* (*G.S. Wang* coll.; TNM). **Kaohsiung Co.**: Taoyuen: Prov. #20 Hwy, *C.S. Kuoh 10449-2* (NCKU); 3026 Lodge to Mt. Kuanshan, *S.W. Chung et al. 5873* (TAIF, TNM); Kuanshan pass, *S. Okamoto s.n.* 15 May 1939 (KYO); Mt. Kuanshan, *S. Sasaki s.n.* 19 Oct. 1933 (TAI); Kuanshan Saddle, *C.H. Ou 1338* (TCF); Mt. Kuanshanlinshan, *C.J. Chen et al. s.n.* 26 Jul. 1986 (NCKU), *Y.C. Tsen s.n.* 26 Jul. 1986 (NCKU), *C.S. Kuoh 11951A* (NCKU), *12486* (NCKU). **Huanlien Co.**: Tayulin, *M.T. Kao 7757* (TAI). **Taitung Co.**: Luyieh: Yienpin logging track, *C.H. Ou 1910* (TCF), *1934* (TCF).

臺灣大學學術期刊資料庫

5. ***Thalictrum urbaini*** Hayata, Icon. Pl. Formos. **1**: 25. 1911; Masamune in J. Soc. Trop. Agr. **3**: 21. 1931; Kudo & Masamune in Ann. Rep. Taihoku Bot. Gard. **2**: 79. 1932; Suzuki, Short Fl. Formos. 67. 1936; Masamune, List Vasc. Pl. Taiwan 54. 1954; Wang & Wang, Fl. Reip. Pop. Sin. **27**: 550. *pl. 125*. 1979; Yang & Huang in Taiwania **34(1)**: 65. 1989, Yang et al., Fl. Taiwan **2** (2nd ed.): 570. 1996; Fu & Zhu, Fl. China **6**: 301. 2001. — *Thalictrum fauriei* Hayata in J. Coll. Sci. Univ. Tokyo **22**: 7. *t. 1*. 1906, *l.c.* **25**: 44. 1908; Kawakami, List Pl. Formos. 3. 1910; Hayata, Gener. Index Fl. Formos. 2. 1917; S.S. Huang in Biol. Bull. Nat. Taiwan Norm. Univ. **5**: 50. 1960; Liu & Hsieh, Fl. Taiwan **2**: 510. 1976; T.C. Huang, Fl. Taiwan **6**: 49. 1979; T.I Yang, List Pl. Taiwan 608. 1982; *non* H. Lév. & Vnt. (1906) — *Thalictrum hayatanum* Koidz. in Bot. Mag. Tokyo **39**: 20. 1925; Sasaki, List Pl. Formos. 185. 1928; S.S. Huang in Biol. Bull. Nat. Taiwan Norm. Univ. **5**: 47. *pl. 1*. 1960. **Type specimen**: Taiwan: Taipei City, Mt. Tatunshan (in monte Taiton), 600 m, 8 May 1903, *U. Faurie 197* (**lectotype is designated here: TI!**), Chutzihu (Tikushiko), 27 Mar. 1904, *Y. Nagasawa 318* (syntypes: KYO!, TI!).

5a. var. **urbaini** 傅氏唐松草

Thalictrum micrandrum Hayata, Icon. Pl. Formos. **3**: 4. *pl. 1*. 1913. **Type specimen**: Taiwan: Taipei Co., Jinkuashih (Kinkwaseki), *T. Kawakami & Y. Simada s.n.* 14 May 1912 (holotype: TI!)
Thalictrum morii Hayata, Icon. Pl. Formos. **3**: 5. 1913. **Type specimen**: Taiwan: Hualien Co., Stream Hsiukuluanhsi (Tonkurankei), *U. Mori s.n.* 16 Apr. 1910 (holotype: TI!; Isotypes: TAIF!)

Distribution: Endemic to Taiwan, widely distributed over the whole island, especially in wet places under forests or near forest margins at altitudes above 900 m.

Phenology: *Thalictrum urbaini* is found in a broad range of habitats, both habit and phenology are also varied widely among populations. The flowering season is from Febuary to December and the fruiting season is from March to December or to January of the next year. Flowers and fruits of this species could be found almost throughout the year.

Specimen examinated: **TAIWAN**: **Taipei City**: Shihlin District: Mt. Chungchengshan, *C.M. Wang & Tsai 2974* (TNM); Mt. Tatunshan, *U. Faurie 1880* (KYO), *C.C. Hsu 5196* (TAI), *5555* (TAI), *T.C. Huang & Yang 10836* (TAI), *Inoue et al. s.n.* 22 Mar. 1977 (TI), *S.Y. Lu 15846* (TAIF), *G. Masamune, s.n.* 1 Dec. 1929, *J. Murata & Yang 17860* (TI), *I. Sasaki 838* (TAI), *R. Sho 24* (TAI), *39* (TAI), *40* (TAI), *H. Simada s.n.* 14 Nov. 1913 (TAIF), *T. Suzuki 6761* (TAI), *T.Y.A. Yang 2453* (*W.S. Tang* coll.; TAI), *T.Y.A. Yang & Tamura 2884* (TAI), *2886* (KYO, TNM), *T.Y.A. Yang et al. 4486* (TNM); Mt. Yangminshan (Tsaoshan), *C.C. Hsu 10405* (TAI), *Y. Kudo & S. Suzuki 3281* (TAI), *Y. Kudo et al. s.n.* 21 Apr. 1929 (TAI), *H. Shimizu 678* (TAI); Ertziping, *T.Y.A. Yang & C.C. Yen 8261* (TNM); Mt. Chishinshan, *T. Kawakami & Simada s.n.* 2 Apr. 1911 (TAIF, TI); Lake Chutzuhu, Mt. Chishinshan, *G. Masamune s.n.* Sept. 1943 (TAI), *H. Simada 346* (TAI), *1380* (TAI), *s.n.* 22 Mar. 1915 (TAIF); Liuhuangku, *W.S. Tang 1409* (TAI); Paikala Road, *C.M. Wang & Chung 9700* (TNM), *T.Y.A. Yang et al. 11829* (TNM). **Taipei Co.**: Reifang: Shumeiping, *T.Y.A. Yang et al. 18841* (TNM), *18847* (TNM), *18864* (TNM), *19134* (TNM). Shenkeng: Shenkeng to Temple Hsienkongmiao, *C.M. Kuo 9328* (TAI). Shihting: *T.C. Huang 10376* (TAI); Mt. Erkeshan, *C.Y. Hwang 54* (TNM), Mt. Pichashan, *K.C. Yang 1180* (TAI), Huangtitien, *T.Y.A. Yang 2074* (TNM), *2452* (*W.S. Tang* coll., TAI). Shantiaoling: *G. Masamune 2647* (TAI), *S. Sasaki s.n.* 26 Mar. 1918 (TAIF). **Keelung City**: Mutanken, *T. Kawakami 4238* (TAIF). **Ilan Co.**: Nanau: Mt. Taipingshan, *C.C. Hsu 15311* (TAI), *S. Suzuki 3787* (TAI). **Taoyuan Co.**: Fuhsing: Mt. Papokulushan to Mingchih, *W.C. Leong et al. 2924* (HAST, TNM). **Hsinchu Co.**: Wufong: Mt. Tapachienshan, *H.H. Hwang 3* (TNM), *T.Y.A. Yang 2378* (TAI). **Miaoli Co.**: Taian: 369 Lodge to Mt. Hsuehshan, *T.C. Huang 7215* (TAI), *H.W. Lin et al. 1362* (TNM, TNU). **Taichung Co.**: Hoping: Hsinta Campus to Shancha Shelter, *J.C. Wang et al. 4529* (TAI); Mt. Chichiayangtashan, *G. Masamune 1230* (TAI), *S. Suzuki 5243* (TAI). **Nantou Co.**: Hsinyi: Prov. #14A Hwy 32.5 Km, *T.Y.A. Yang et al. 19490* (TNM), Renlun; *L.H. Lee 277* (TAIE); Patungkuan to Kuankao, *T.Y.A. Yang et al. 3410* (TNM); Tungpu to Patungkuan, *M. Tamura et al. 21980* (TAI); Stream Chenyiulanhsi, *T.Y. Chiang 27018* (TAI), *J.W. Hsu 2137* (TAI); Paiyun Lodge, *T.Y.A. Yang et al. 3506* (TNM), *3556* (TNM); Tataka to Giant Tsuga, *C.M. Wang & Tsai 3154* (TNM); Tataka Saddle to Monroe Pavilion, *C.I. Huang et al. 1013* (HAST, TNM). Renai: Tunyuan to Yunhai, *Tunghai Univ. Coll. Team 9305017* (TNM). **Chiayi Co.**: Alishan: Mt. Alishan, *U. Faurie 580* (TAIF, TI), *F.Y. Lu & Ou 1450* (TCF), *C.H. Ou 5090* (TCF), *S. Sasaki s.n.* Mar. 1911 (TAI), *s.n.* May 1913 (TAIF), *T.Y.A. Yang et al. 3084* (TNM), *3090* (TNM); Shuikuan Road, Mt. Alishan, *C.M. Wang 5871* (TNM); Mt. Alishan to Tungpu, *C.C. Hsu & Kuoh 7518* (TAI); Mienyueh, *T.Y.A. Yang 3084* (TNM); Monroo Cliff to Tungpu, *C.C Hsu 5359* (TAI); Tataka Saddle, *Y.S. Tsen s.n.* 3 Jul. 1986 (TCF), *T.Y.A. Yang 4200* (*G.S. Wang* coll.; TNM), *T.Y.A. Yang & G.S. Wang 4110* (TNM), *4112* (TNM), *T.Y.A. Yang et al. 3607* (TNM); Tataka to Paiyun Lodge, *C.H. Chen & Wu 4245* (TNM), *T. Yamazaki & Yamazaki 777* (TI), *T.Y.A. Yang et al. 3491* (TNM); Tungpu to Chihchung, *C.C. Hsu & Kuoh 7409* (TAI); Mt. Yushanchenshan, *Y.F. Chen 9802* (TAI), *Y.C. Jan & Kao s.n.* 13 Jul. 1957 (TAI). **Kaohsuing Co.**: Taoyuan: Prov. #20 Hwy, *C.H. Chen 7067* (TNM), *C.S. Kuoh 10449-1* (NCKU), *11841* (NCKU), *11869* (NCKU); Mt. Kuanshanlinshan, *C.-Hui Chen 275* (HAST, TNM), *C.S. Kuoh 11951B* (NCKU), *Y.C. Tsen s.n.* 26 Jul. 1986 (NCKU). **Pingtung Co.**: Taiwu: Mt. Tawushan, *T.C. Huang et al. 13696* (TAI), *J. Ohwi 1779* (KYO); Kuaiku, *T. Namba et al. 719* (TI), *s.n.* 19 Jul. 1968 (TI); Kuaiku Lodge to Temple Tawutzi, *C.M. Wang et al. 9333* (TNM). **Hualien Co.**: Hsiulin: Hoping logging track, *S.T. Chiu et al. 6173* (TNM); Tienchang Cliff, *C.H. Chen 7026* (TNM); Stream Hsiukuluanhsi, *T. Kawakami & Mori s.n.* 16 Apr. 1910 (TAIF); Stream Taroyuhsi, *J. Ohwi 1139* (KYO); Mt. Chingshuishan, *W.L. Chiou & Mo s.n.* 27 Apr. 1983 (TAIF); Yienhai logging track, *W.L. Chiou s.n.* 4 Apr. 1983 (TAIF). Totokun-Midori, *M. Tagawa 3519* (KYO). **Taitung Co.**: Stream Chijakantohsi, *T. Kawakami & Mori 4557* (TAIF).

5b. var. **majus** T. Shimizu in J. Fac. Tex. Sci. Technol., Shinshu Univ. n. 36, ser. A. (Biol.), n. **12**: 27. *f. 4*. 1936; Wang & Wang, Fl. Reip. Pop.

臺灣大學學術期刊資料庫

Sin. **27**: 551. 1979; Yang & Huang in Taiwania **34(1)**: 67. 1989, Yang et al., Fl. Taiwan **2** (2nd ed.): 573. 1996; Fu & Zhu, Fl. China **6**: 301. 2001. **Type specimen**: Taiwan: Hualien Co., Tienchang cliff, *T. Shimizu 11271* (holotype: KYO!), *T. Shimizu 11301* (paratype: KYO!), Mt. Chinshuishan, *T. Shimizu & Kao 11802* (paratypes: KYO!, TNS!), *T. Shimizu & Kao 11776* (paratypes: KYO!, TAI!).

大花傅氏唐松草

Distribution: Endemic to Taiwan, only found in the eastern part of the Island on limestones at medium altitudes.

Phenology: Flowering season March to May (-June); fruiting season (March-) April to June.

Specimen examinated: **TAIWAN**: **Hualien Co.**: Hsiulin: Mt. Chinshuishan, *T. Shimizu & Kao 11963* (KYO, TAI); Hoping logging track, *S.T. Chiu et al. 6267* (TNM); Panpien to Tienchang, *T. Shimizu 11234* (TAI); Chilai to Panpien, *N. Fukuyama 4420* (TAI), *4421* (TAI), *4422* (TAI); Yenhai logging track, *S.P. Li 375* (TNM), *T.Y.A. Yang 5460* (TNM).

11. Trollius L. 金蓮花屬（金梅草屬）

Perennial erect herbs with thick short rhizomes. Leaves simple, radical and/or cauline, alternate, ternately or palmately divided, usually 5-partited, sharply serrate; petiolate. Flowers solitary or rarely a cyme, terminal, bisexual, actinomorphic, coloured; sepals 5, petaloid, yellow, rarely pale purple, imbricate, usually deciduous; petals 5 or more, linear, short-clawed, nectariferous at the base; stamens numerous, anthers elliptic or long-global, filaments narrowly linear; carpels 5 to many, sessile, ovules many, 2-seriate at the base of the carpel. Follicles subcoriaceous, nerves elevated, reticulate, styles persistent after anthesis. Seeds many, global or nearly so, smooth.

About 30 species distributed in temperate region of Northern Hemisphere; 15 species in Mainland China and only 1 species in Taiwan.

1. *Trollius taihasenzanensis* Masam. in Journ. Soc. Trop. Agr. **6**: 570. 1934; Wang, Fl. Reip. Pop. Sin. **27**: 70. 1979; Yang & Huang in Taiwania **41(2)**: 149. 1996; Yang et al., Fl. Taiwan **2** (2nd ed.): 573. 1996; Li & Tamura, Fl. China **6**: 141. 2001. **Type specimen**: Taiwan: Hsinchu Co., Chutung, Mt. Tapachienshan (Taihasenzan), *G. Masamune s.n.* 6 Jul. 1934.

臺灣金蓮花（金梅草）

Trollius asiaticus auct. non L.: Masamune in Bot. Mag. Tokyo **51**: 234. 1937.

Distribution: Endemic to Taiwan, narrowly distributed in northern part at altitudes above 3,000 m, e.g. Mts. Tapachienshan, Hohuanshan and Chilaishan.

Phenology: Flowering season May to July; fruiting season June to August.

Specimen examinated: **TAIWAN: Hsinchu Co.**: Chutong: Mt. Tapachienshan, *M.T. Kao 8496* (TAI), *S. Sasaki s.n.* 19 Jul. 1932 (TAI). **Taichung Co.**: Hoping: on the way of Mt. Chungyangchienshan, *N. Fukuyama & Susuki 15181* (TAI); Hohuanshan Highland Institution Station, *Y.S. Tseng 2111* (TAIE). **Nantou Co.**: Renai: Mt. Hohuanshan, *Y.P. Cheng 3226* (TAIF, TNM); Meifong (cultivated at Meifong Farm, original collected in Mt. Hohuanshan), *M.C. Tsai s.n.* 17 May 1985 (TAI); Tienchih to Peak Nenkaopeifong, *S.T. Chiu et al. 3409* (TNM). **Hualien Co.**: Hsiulin: Chila Lodge to Chengkung Lodge, *C.H. Liu et al. 474* (HAST, TNM); Mt. Chilaishan, *T.Y.A. Yang et al. 6078* (HAST, TAI, TNM).

Insufficiently known species

Aqulegia kozakii Masam. in Journ. Soc. Trop. Agr. **4**: 301. 1932; S.S. Huang in Biol. Bull. Nat. Taiwan Norm. Univ. **5**: 14. 1960. **Type Specimen**: Taiwan: Ilan Co., Mt. Taipingshan (Taiheizan), *Kozaki s. n.* (holotype) 臺灣樓斗菜

Dr. G. Masamune published this new species (also a newly recorded genus for Taiwan) in 1932 and the specimen collected by Mr. Kozaki in Mt. Taipingshan of Ilan County was selected as type material. The first author has checked all specimens of *Aquilegia* at TAI and TAIF, but neither the type material collected by Kozaki nor any other specimens of the same genus collected in Taiwan could be found. Even though Prof. S.S. Huang pointed out that this species existed in Taiwan in his publication (1960), we do believe that he has never seen that type specimen. More collections from northeastern Taiwan are needed to solve this question.

ACKNOWLEDGEMENTS

We would like to send our thanks to Mr. C.C. Chiang and Mr. & Mrs. T.S. and J.I. Allen to correcting grammar; thanks are also due to the curators of the following herbaria: HAST, K, KYO, LE, NCKU, PE, TAI, TAIE, TAIF, TCF, TI, TNM, TNS and TNU for the loan of specimens.

LITERATURE CITED

Brummitt, R. K. 2007. Report of nomenclature committee for vascular plants: 59. Taxon **56**: 1289-1296.

臺灣大學學術期刊資料庫

Compton, J. A., A. Culham and S. L. Jury. 1998. Reclassification of *Actaea* to include *Cimicifuga* and *Souliea* (Ranunculaceae): phylogeny inferred from morphology, nrDNA ITS, and cpDNA trnL-F sequence variation. Taxon **47**: 593-634.

Hayata, B. 1911. Ranunculaceae. Icon. Pl. Formos. **1**: 16-30, Pl. 1-7.

Hsu, T.-W, T.-Y. Chiang and J.-J. Peng. 2004. *Semiaquilegia adoxoides* (DC.) Makino (Ranunculaceae), a newly naturalized plant in Taiwan. Taiwania **49**: 44-48.

Huang, S.-S. 1960. Preliminare notes on the Ranunculaceae of Taiwan (Formosa), China. Biol. Bull. Nat. Taiwan Norm. Univ. **5**: 1-62. Pl. 1-2.

Huang, T.-C. 2007. Guide to Botanical Nomenclature, Forestry Bureau, Council of Agriculture, Executive Yuan, Taipei, Taiwan. pp. 164-165.

Kuo, S.-M. 2002. A taxonomic study of *Ranunculus* L. of Taiwan. Master Thesis of National Taiwan Normal University, Taipei, Taiwan. pp. 116-119.

Kuo, S.-M., T.-Y.A. Yang and J.-C. Wang. 2005. Revision of *Ranunculus cantoniensis* DC. and allied species (Ranunculaceae) in Taiwan. Taiwania **50**: 209-221.

Liu, T.-S. and C.-F. Hsieh. 1976. Ranunculaceae. In: Li, H.-L. et al. (eds.). Flora of Taiwan. Vol. **2.** Epoch Publ. Co., Taipei, Taiwania. pp. 476-513.

Luferov, A. N. 2000. Taxonomy of some Ranunculaceae from East Asia 55. Bull. Mos. Soc. Nat. (Biol. Ser.) **105**: 55-58.

McNeill, J., F. R. Barrie, H. M. Burdet, V. Demoulin, D. L. Hawksworth, K. Marhold, D. H. Nicolson, J. Prado, P. C. Silva, J. E. Skog, J. H. Wierema, and N. J. Turland. 2006. International Code of Botanical Nomenclature (Vienna Code). Koeltz Scientific Books D-61453 Konigstein, Germany. p. 568.

Masamune, G. 1932. Symbolae florae Australi-Japonicae II. Journ. Soc. Trop. Agr. **4**: 300-304.

Ohwi, J. 1936. Plantae novae Japonicae (I). Journ. Jap. Bot. **12**: 327-335.

Wang, W.-T. 1980. Ranunculaceae L. In: Wang, W.-T. et al. (eds.), Fl. Reip. Pop. Sin. **28**: 1-56, 255-331 (in Chinese).

Wang, W.-T. and B. Bartholomew. 2001. *Clematis* L. In: Wu, Z.-Y. and P. H. Raevn (eds.), Fl. China. **6**: 333-386.

Wang, W.-T., D.-Z. Fu, L.-Q. Li, B. Bartholomew, A. R. Brach, B. E. Dutton, M. G. Gilbert, Y. Kadota, O. R. Robinson, M. Tamura, M. J. Warnock, G. H. Zhu and S. N. Ziman. 2001. Ranunculaceae L. In: Wu, Z.-Y. and P. H. Raevn (eds.), Fl. China. **6**: 133-437.

Yamamoto, Y. 1927. Ranunculaceae. Suppl. Icon. Pl. Formos. **3**: 25-32.

Yamamoto, Y. 1932. Observationes ad floram Formosanam. III. Journ. Soc. Trop. Agric. **4**: 187-190.

Yang, T.-Y. A. and T.-C. Huang. 1989. Notes on the flora of Taiwan (5): The Thalictrum Tournef. ex L. (Ranunculaceae). Taiwania **34**: 58-73.

Yang, T.-Y. A. and T.-C. Huang. 1992. Additional remarks of Ranunculaceae in Taiwan (3) — *Clematis section Viorna* (Reichb.) Prantl. Taiwania **37**: 19-53.

Yang, T.-Y. A. and J.A. Compton. 1995. Additional remarks on Ranunculaceae in Taiwan (4) The genus *Cimicifuga* L. ex Wernisch. Bot. Bull. Acad. Sin. **36**: 253-257.

Yang, T.-Y. A. and T.-C. Huang. 1995. Additional remarks of Ranunculaceae in Taiwan (5) — The genus *Clematis* L. Taiwania **40**: 209-255.

Yang, T.-Y. A. and T.-C. Huang. 1996. Additional remarks on Ranunculaceae in Taiwan (6) Some genera in Taiwan. Taiwania **41**: 117-153.

Yang, T.-Y. A., T.-C. Huang and J. A. Compton. 1996. Ranunculaceae L. In: Huang, T.-C. et al. (eds.), Flora of Taiwan 2nd ed. **2**: 506-574, pls. 228-240. Editorial Committee, Dept. Bot., NTU, Taipei, Taiwan.

Yang, T.-Y. A. and D. M. Moore. 1999. A revision of the *Viorna* group of species (section *Viorna sensu* Prantl) in the genus *Clematis* (Ranunculaceae). Syst. Geogr. Pl. **68**: 281-303.

臺灣大學學術期刊資料庫

臺灣毛茛科植物之新見(8)－毛茛科植物之訂正

楊宗愈[1,3]、黃增泉[2]

(收稿日期：2008 年 3 月 25 日；接受日期：2008 年 5 月 15 日)

摘　　要

本篇是有關臺灣產毛茛科(Ranunculaceae)植物之分類學研究，除了鐵線蓮屬(*Clematis* L.)植物外，本文共處理烏頭屬(*Aconitum* L.)，銀蓮花屬(*Anemone* L.)，雞爪草屬(*Calathodes* L.)，升麻屬(*Cimicifuga* Hook.f. & Thomson)，黃連屬(*Coptis* L.)，人字果屬(*Dichocarpum* L.)，毛茛屬(*Ranunculus* L.)，天葵屬(*Semiaquilegia* Makino)，唐松草屬(*Thalictrum* L.)及金蓮花屬(*Trollius* L.)等 10 屬之物種。文中除了訂正小白頭翁之學名及升麻屬因瘦果此一重要特徵仍處理為獨立之屬，並包括各屬之檢索表及屬下各分類群之同物異名。為了避免描述與前文重複，故本文僅就新出現之分類群（1996 年以後）做分類學描述；為了方便瞭解與檢視各分類群，物候、分佈及驗證標本等資訊均保留之。目前臺灣產毛茛科植物共有 11 屬 51 分類群（包括 41 種、2 亞種及 8 變種）。

關鍵詞：毛茛科、烏頭屬、銀蓮花屬、雞爪草屬、升麻屬、黃連屬、人字果屬、毛茛屬、天葵屬、唐松草屬、金蓮花屬、訂正、分類學、臺灣。

1. 國立自然科學博物館植物學組，植物園暨 TNM 植物標本館，404 台中市館前路 1 號，臺灣。
2. 國立臺灣大學植物科學研究所，106 台北市羅斯福路 4 段 1 號，臺灣。
3. 通信作者。Email: aleck@mail.nmns.edu.tw

臺灣大學學術期刊資料庫