

## NOTES ON THE FLORA OF TAIWAN (1) — THE *Daiswa* (Trilliaceae) OF TAIWAN

TSENG-CHIENG HUANG<sup>1</sup> and KOUH-CHENG YANG<sup>2</sup>

**Abstract:** The genus, *Daiswa* Raf. was recently revised by Takhtajan (1983). A new variety, *D. fargesii* (Franch.) Takht. var. *brevipetalata* Huang & Yang is described here for a short petal type. A key to the Taiwan species is given.

### INTRODUCTION

The Asiatic species of *Paris* L. were revised by Hara (1969). Takhtajan (1983) accepted the separation of the genus *Paris* L. into three genera, i.e., *Paris* L. s. str., *Kinugasa* Tatewaki & Suto, and *Daiswa* Raf.. Takhtajan transferred some taxa of Hara's subspecies and varieties into specific level. Based on the generic concept of Takhtajan, the Taiwan species belong to the genus, *Daiswa*.

In April 3 and July 25 of 1986, we collected doubtful specimens of *Daiswa* plants from Taipingshan of Ilan county and Chingshuishan of Hualien county. From the available references, we identified them as *Paris fargesii* Franch.. We reconfirmed our identification after the senior author visited the Herbaria of Berlin, W. Germany, Kew Herbarium and British Museum of Natural History, England, during July and August 1987. However, two distinct populations were recognized by taxonomists Wang and Tang (1978). They described the plants with short petals as *P. fargesii* and those plants with long petals as *P. fargesii* var. *petiolata* (Baker ex Wright) Wang & Tang. Apparently the author was unable to examine the authentic specimens and mislead the specific concept of this taxon. The type specimens and concepts of *P. fargesii*, accepted by taxonomists (Hara, 1969; Takhtajan, 1983), are characterized by long petals. The basal name of *P. fargesii* var. *petiolata* was transferred to a synonymum of *D. chinensis* (Franch.) Takht. by Takhtajan (1983). However, we accepted that there are two distinct populations of *P. fargesii* in Mailand China, and therefore we propose a new variety as *D. fargesii* var. *brevipetalata* for the plants with short petals. We favour to use the broad generic concept of *Paris* L. (Hara, 1969), but we are not specialists in this genus and did not study them thoroughly. We follow the very recent taxonomic treatment of Takhtajan (1983) and use the *Daiswa* Raf. for our new taxon. In addition, we also provide a key for all Taiwan taxa except the type species of *D. fargesii* for the convenience of identification.

### TAXONOMIC TREATMENT

#### Key to the species

1. Leaves more than 3 cm wide.
  2. Petals longer than or as long as sepals, more than 3 cm long ..... 3a. *D. fargesii* var. *fargesii*

1. 黃增泉, Professor, Department of Botany, National Taiwan University, Taipei, Taiwan, ROC.

2. 楊國禎, Teaching assistant, Department of Botany, National Taiwan University, Taipei, Taiwan, ROC.

2. Petals shorter than sepals, less than 3 cm long.
  3. Stamens about or shorter than 1 cm long; anthers as long as filaments with free portion of connective carnose; leaf base cordate to subcordate . . . . . 3b. *D. fargesii* var. *brevipetalata*
  3. Stamens more than 1 cm long; anthers longer than filaments, with free portion of connective acute; leaf base cuneate to round . . . . . 2. *D. chinensis*
1. Leaves less than 3 cm wide.
  2. Leaves linear to lanceolate, almost as broad as sepals, the base acute or obtuse . . . . . 4. *D. lancifolia*
  2. Leaves lanceolate to oblong, broader than sepals, the base cuneate . . . . . 1. *D. bockiana*

1. **Daiswa bockiana** (Diels) Takht. in Brittonia 35(3): 269, 1983. 阿里山七葉一枝花

*Paris bockiana* Diels in Engl. Bot. Jahrb. Syst. 29: 253, 1901.

*P. arisanensis* Hay. Ic. Pl. Form. 9: 141, 1920.

*P. taitungensis* Ying in Quart. Journ. Chin. For. 8(4): 139, 1975; Ying, Fl. Taiwan 5: 70, 1978. (Holotype, *Ying 1037*, NTUF!).

Taichung Co.: Meifong, *Ou & Kao 9334*; Lishan, *T. C. Huang 10380*. Nantou Co.: Chiti-Yanshan, *M. T. Kao 7242*. Chiayi Co.: Mt. Ali, *J. M. Chao & M. T. Kao 6211*, *S. Sasaki s.n. May, 1912*; Funkihu, *S. F. Huang 2616*. Taitung Co.: Mt. Ramarani, *Kao 6831*; Sangyang, *Ying 1037*.

2. **D. chinensis** (Franch.) Takht. in Brittonia 35(3): 259-262, 1983. 華七葉一枝花

*P. chinensis* Franch. in Nouv. Arch. Mus. Hist. Nat. ser. 2, 10: 97, 1888.

*P. formosana* Hay. in J. Coll. Sci. Imp. Univ. Tokyo 30(1): 367, 1911.

*P. petiolata* Baker ex C. H. Wright in J. Linn. Soc. 36: 145, 1903.

*P. polyphylla* Smith var. *chinensis* (Franch.) Hara in J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. 10: 176, 1969.

Taipei Co.: Mt. Sevenstar-Peitou, *W. S. Tang 12*; Kwanyingshan, *Fukuyama s.n. June 16, 1941*; Lalashan-Fushan, *K. C. Yang 1331*. Miaoli Co.: Pakwali, *M. T. Kao 9580*. Ilan Co.: Mt. Taiping, *Chuang, Chao & Kao 4823*.

3. **D. fargesii** (Franch.) Takht. in Brittonia 35(3). 264, 1983. 球藥隔七葉一枝花

3a. var. **fargesii**

*P. fargesii* Franch. in J. Bot. (Morot.) 12: 190, 1898. (Holotype, *Farges 573*, P, photograph and line drawings seen bis in Hara's publication.)

*D. fargesii* (Franch.) Takht. in Brittonia 35(3): 264, 1983. *pro parte*

*P. polyphylla* Smith subsp. *fargesii* (Franch.) Hara in J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. 10: 177, 1969. *pro parte*

*P. petiolata* Baker ex C. H. Wright var. *membranacea* C. H. Wright in J. Linn. Soc., Bot. 36: 145, 1903. (Holotype, *Henry 5385*, K!) *pro parte*

*P. hookerii* Léveillé in Feddes Repert. 7: 231, 1909. (Type, *J. Cavalerie s. n.* Nov. 1907, K!)

*Daiswa fargesii* is easily distinguishable by its cordate leaf base, short stamens with a thick carnose connective. This type variety is still not found in Taiwan.

3b. var. *brevipetalata* Huang & Yang, *var. nov.* Fig. 1 短瓣球藥隔七葉一枝花

*P. fargesii sensu* Wang & Tang, Icon. Corm. Sin. Tomus 5: 516, f. 7862, 1976, *non* Franch.

*D. fargesii* (Franch.) Takht. in Brittonia 35(3): 264, 1983, *pro parte*.

*P. polyphylla* Smith subsp. *fargesii* (Franch.) Hara in J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. 36: 145, 1969, *pro parte*.

A varietate *fargesii* *brevipetalatis* differt.

A perennial herb; rhizomes short, thick, about 1.5 cm in diameter; stem simple, erect, 20-40 cm high, smooth. Leaves 4 or 3, terminal, whorled, 9-14 cm long, 4-9 cm wide, the widest portion at upper two third, sub- or cordate at base, short acuminate at apex; petioles 1-3 cm long, dark-purplish. Flower solitary, terminal; sepals 4 or 5, greenish, oblong-lanceolate, 3-6 cm long, 1.2-1.5 wide, acuminate at apex, subsessile; petals 4 or 3, linear, 0.8-1 cm long, 1 mm wide, dark-purplish; stamens 8 or 6, short, linear, 4-5 mm long, with a thick upper carnose connective, about 1 mm long, 2 mm wide; pistil one, dark-purple, consisting of 4 or 3 carpels, the ovary with parietal placentas, with many ovules, the style 4 or 3, thick, as the same length of ovary. Fruit with short wing at margin.

This variety differs from the type variety *fargesii* by the shorter petals.

**Distribution:** Mainland China, Provinces of Hupeh and Yunnan. Taiwan undergrowth of evergreen forest or *Cryptomeria* plantation forest at altitude of around 2000 m high.

Taiwan. Ilan Co.: Taipingshan, T. C. Huang & K. C. Yang 10803 (Holotype, TAI), K. C. Yang & T. I. Yang 3073 (Topotype, TAI). Hualien Co.: Chingshuishan, T. C. Huang et al 12803, 12903 (Paratype, TAI). Mainland China. Hupeh: A. Henry 5385A (K!). Yunnan: J. Cavalerie 2907 (K!).

**Note:** Additional distribution was reported by Wang and Tang (1978) as undergrowth of forest at the Kiangshu, Hupeh, Kuangtung, Kweichow, Szechwan and Kuangshii Provinces, and the rhizome is used for medicinal purpose.

4. *D. lancifolia* (Hay.) Takht. in Brittonia 35(3): 266, 1983. 高山七葉一枝花

*P. lancifolia* Hay. in Bot. Mag. Tokyo 20: 52, 1906.

*P. polyphylla* Smith var. *stenophylla* Franch. in Nouv. Arch. Mus. Hist. Nat. ser. 2, 10: 97, 1888.

*P. polyphylla* Smith var. *branchystemon* Franch. in J. de Bot. 12: 191, 1898.

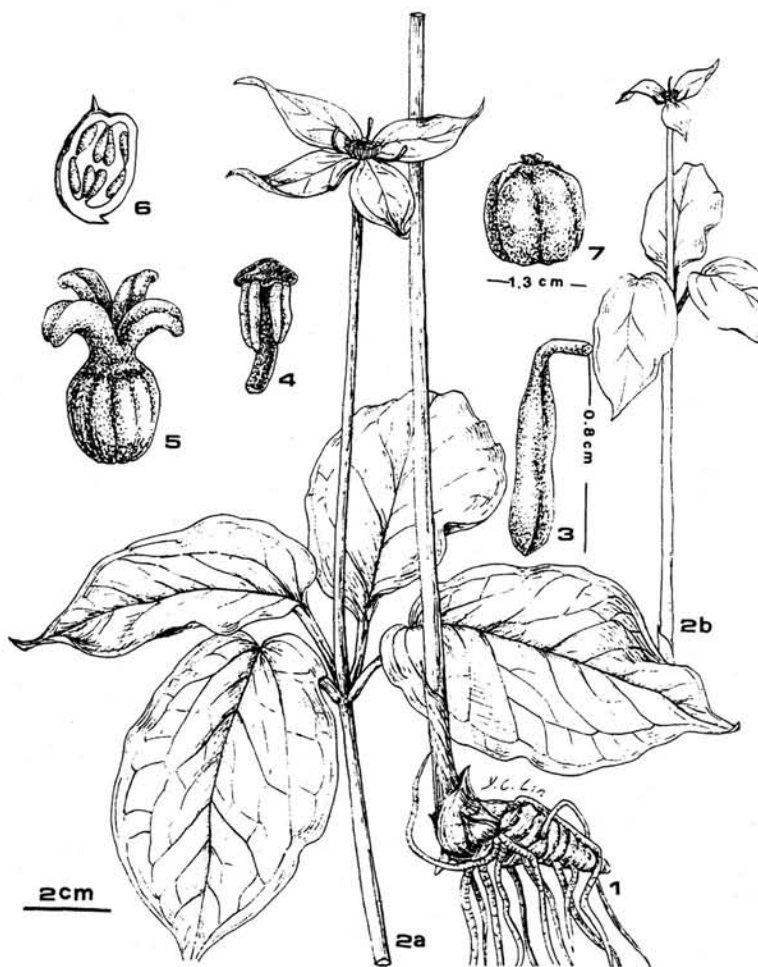


Fig. 1. *Daiswa fargesii* (Franch.) Takht. var. *brevipetalata* Huang & Yang. 1. Rhizome and portion of stem. 2. Flowering stalks. 3. Petal. 4. Stamen. 5. Pistil. 6. x-section of Ovary. 7. Immature fruit. 1, 2b (Yang & Yang 3073); 2a, 3, 4, 5, 6 (Huang & Yang 10803); 7 (Huang & Yang 12903).

Taichung Co.: Chiyuanshanchuang-#11 rainfall station, *W. S. Tang* 874. Nantou Co.: Kwankao-Patungkwan, *T. C. Huang* 8517. Ilan Co.: Mt. Taiping, *C. C. Chuang*, *J. M. Chao* & *M. T. Kao* 4764; Chiliehting Ridge, *T. C. Huang* 7716; Nanhutashan, *Y. C. Jeng* 1950. Hualien Co.: Mt. Chingshui, *T. Shimizu* 12482.

#### ACKNOWLEDGEMENTS

This study was supported in part by grant NSC-75-0201-B002-15 of the National Science Council, ROC. The authors also thanks directors or curators of K, BM, B and G for their type specimens, Prof. H. Ohashi for suppling us the xerox copy of Wang and Tang's paper and Miss Yun-chen Lin for good line drawing.

## REFERENCES

- HARA, H., 1969. Variation in *Paris polyphylla* Smith, with reference to other Asiatic species. J. Fac. Sci. Univ. Tokyo, Sect. 3, Bot. **10(10)**: 141-180.
- TAKHTAJAN, A., 1983. A revision of *Daiswa* (Trilliaceae). *Brittonia* **35(3)**: 255-270.
- WANG, F. T. and T. TANG, 1978. *Paris*. *Flora Reipublicae Popularis Sinicae*, **15**: 86-96.
- YING, S. S., 1978. *Paris* In: Li, *et al.* (eds.), *Flora of Taiwan*, **5**: 67-70. Epoch Pub. Co., Taipei, Taiwan.

## 臺灣植物誌之觀察 (1)

## 七葉一枝花屬 (延齡草科)

黃增泉 楊國禎

## 摘 要

Takhtajan (1983) 將重樓屬 (*Paris*) 修訂為三個屬；臺灣只產七葉一枝花屬 (*Daiswa*)。本文描述一球藥隔且短花瓣者為一新變種，稱為短瓣球藥隔七葉一枝花 [*Daiswa fargesii* (Franch.) Takht. var. *brevipetalata* Huang and Yang]。同時提出臺灣產本屬植物鑑定簡便之檢索表。