

## *Goodyera pendula* Maxim. (Orchidaceae), A Neglected Species in the Flora of Taiwan

Shih-Wen Chung<sup>(1)</sup>

(Manuscript received 3 September, 2002; accepted 30 October, 2002)

**ABSTRACT:** *Goodyera pendula* Maxim., a neglected species to the Flora of Taiwan, is described and illustrated here. *Goodyera pendula* Maxim. is rare and the specimen presently is known only from the mountain forest near Shih-yuan-ya-kou (at 1800-1900 m elevation), a spot in the northern part of the Central Mountain Range of Taiwan. It is distinguishable from the other 19 indigenous species in Taiwan by the stem 3-5 cm long; flowers many, one-sided, in dense spikes, spikes 4-6 cm long; sepals 3-4 mm long, narrowly ovate, sub-obtuse at apex; and leaves broadly lanceolate to ovate.

**KEY WORDS:** *Goodyera pendula*, Orchidaceae, Neglected species, Taiwan, Taxonomy.

### INTRODUCTION

In our recent botanical exploration to a mountain forest near Shih-yuan-ya-kou (at 1800-1900 m elevation), a spot in the northern part of the Central Mountain Range of Taiwan, *Goodyera pendula* Maxim., which was not reported in the Flora of Taiwan (Leuo, 2000) and Manual of Taiwan Vascular Plant (Lin, 2001), was discovered. Though mentioned in previous publication (Hsieh & Yang, 1969; Garay & Sweet, 1974; Ying, 1977 & 1990), *Goodyera pendula* Maxim. of Taiwan has never been given a morphological description, an indication of its location, or an examination of its specimen in any article published. It was treated in Flora of Reipublicae Popularis as an insufficiently known species due to the lack of specimen and description (Lang, 1999).

*Goodyera pendula* Maxim. was regarded as endemic to Japan, growing mainly on tree-trunks or rocks in *Fagus crenata* forests and sporadically distributed in Hokkaido, Shikoku and Kyushu (Ohwi, 1965; Maekawa, 1971). Tomohisa Yukawa (pers. comm.) suspected *Goodyera prainii* Hook. f. recorded in India and China may be the synonym of *Goodyera pendula* Maxim. In Taiwan, growing on fallen trees of mixed coniferous and broadleaf forests, it is apparently rare and the specimen presently known only from Shih-yuan-ya-kou.

Nineteen species of *Goodyera* were recognized in the recently revised Flora of Taiwan (Leuo, 2000); all members of the genus are indigenous, and 6 of them are endemic. This neglected species is distinguished from these 19 species by having stem 3-5 cm long; flowers many, one-sided, in dense spikes, spikes 4-6 cm long; sepals 3-4 mm long, narrowly ovate, sub-obtuse at apex; and leaves broadly lanceolate to ovate.

### TAXONOMIC TREATMENT

***Goodyera pendula* Maxim.**, Bull. Acad. Sci. St. Petersburg. 32: 623. 1888; Masamune, Sci. Rep. Kanazawa Univ. 9: 128, 1964. Figs. 1 & 2

1. Division of Forest Biology, Taiwan Forestry Research Institute. Taipei 100, Taiwan. E-mail: wenwen.9@yahoo.com.tw

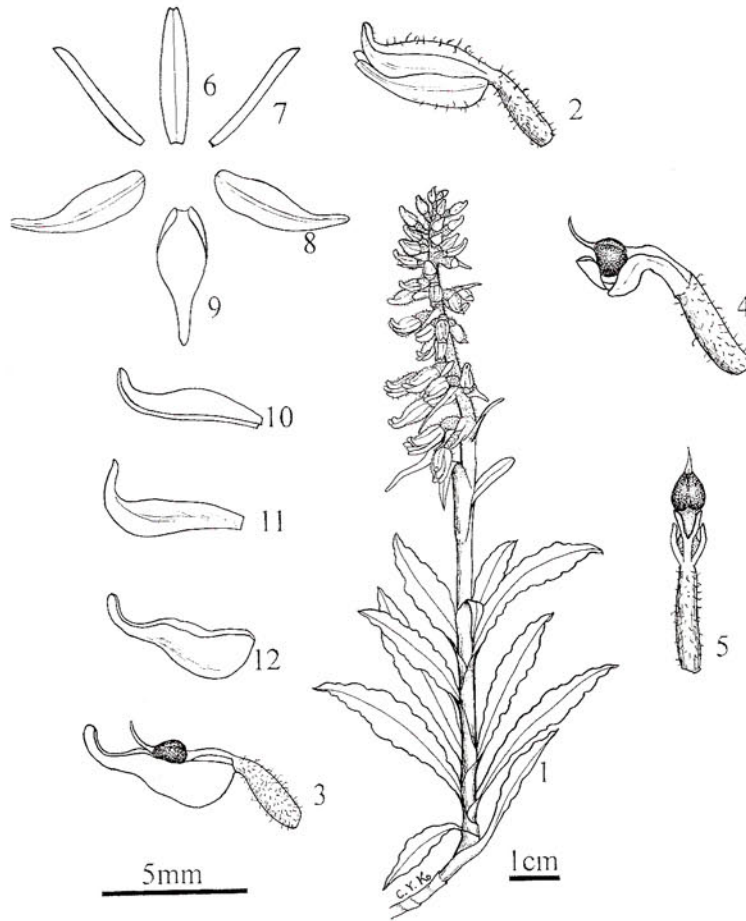


Fig. 1. *Goohyera pendula* Maxim. 1: habit; 2: flower, side view; 3: column and lip, side lateral; 4: lateral view of column and lip, pollen sac untouched; 5: column, dorsal view; 6: dorsal sepal; 7: petal; 8: lateral sepal; 9: lip; 10: dorsal sepal, side view; 11: petal, lateral view; 12: lip, lateral view.

*Epipactis pendula* (Maxim.) Eaton, Proc. Biol. Sci. Wash. 21:65, 1908  
*Peramium pendulum* Makino, J. Bot. 6:36, 1929.

Stems short-creeping, often declined above, 3-5 cm long; leaves few, alternate, green, without white decoration, broadly lanceolate to ovate, 2-3.5 cm long, 5-7 mm wide, acuminate, acute to cuneate at base, 3-5-nerved, the petioles rather broad, shortly sheathing at base, the upper 3 or 4 leaves linear-lanceolate; inflorescence with arcuate penduncles, densely many-flowered, one-sided, 4-6 cm long, whole inflorescence scattered multicellular glandular hairs; bracts lanceolate, membranous, 4-10 mm long, 1-nerved, spreading; flowers white, not fully open; sepals about 3-4 mm long, narrowly ovate, sub-obtuse, sparsely to loosely multicellular glandular hairs, 1-nerved; petals narrowly oblanceolate, closely appressed to the dorsal sepal; lip slightly shorter than the sepals, slightly recurved at apex, saccate at base, white tinged with red-orange on central part; smooth within, the limb narrowly ovate; column 1.5-2 mm long.

**Specimens examined:** Taiwan. **Ilan Hsien:** Ilan-branch line of Central Cross-Island Highway, near road marker 41.5 Km at Shih-yuan-ya-kou, ca. 1800-1900 m elevation in the northern part of the Central Mountain Range of Taiwan (Fig. 3), 1 July 2001, Shih-Wen Chung & Hsin-Hou Kuo 5700 (TAIF). Field collection made on May 10 2001; specimens pressed from cultivated plants.



Fig. 2. Color photograph of inflorescence of *Goodyera pendula* Maxim.

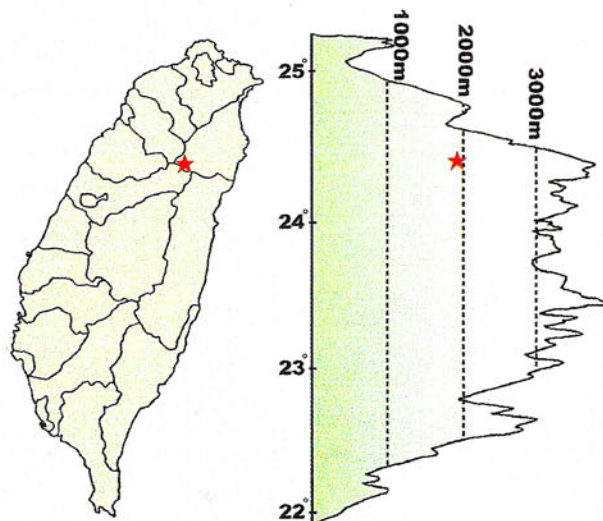


Fig. 3. Distribution map of *Goodyera pendula* Maxim. in Taiwan.

### ACKNOWLEDGEMENTS

I thank Chien-Yu Ke for technical assistance of the line drawing; Chien-Wen Chen for scanning the color photograph; Hsin-Hou Kuo for collecting the specimens together; and Chun-Chi Wu for helpful discussions. I am indebted to Tomohisa Yukawa (Tsukuba Botanical Garden National Science Museum) for confirming the identification of the *Goodyera pendula* Maxim. (Contribution No. 218 of Taiwan Forestry Research Institute)

### LITERATURE CITED

- Garay, A. L. and H. R. Sweet. 1974. Orchids of Southern Ryukyu Islands. Botanical Museum, Harvard University Cambridge, Massachusetts. p. 166.
- Hsieh, A.-T and T.-I. Yang. 1969. Nomenclature of Plants in Taiwan. College of Agriculture National Taiwan University, Taiwan. p. 313.
- Lang, K. 1999. Fl. of Reipubl. Popul. Sin. Vol. 17. Orchidaceae (1)-*Goodyera*. Science Press, Beijing. p. 155.
- Leuo, C.-S. 2000. *Goodyera*. In: Huang, T.-C. *et al.* (eds.). Orchidaceae. Flora of Taiwan, 2nd ed., vol. 5. Editorial Committee of the Flora of Taiwan. Second Edition, Taipei. pp. 898-914.
- Lin, T.-P. 2001. *Goodyera*. In: Yang, Y.-P. *et al.* (eds.). Orchidaceae. Manual of Taiwan Vascular Plant, vol. 5. The Council of Agriculture, Taipei. pp. 254-256.
- Maekawa, F. 1971. The wild Orchids of Japan in Colour. Seibundo-Shinkosha, Tokyo. p. 256.
- Ohwi, J. 1965. Flora of Japan. Smithsonian Institution Press. Washington, DC. p. 340.
- Ying, S.-S. 1977. Coloured Illustrated Indigenous Orchids of Taiwan. 1: 461 Private publication.
- Ying, S.-S. 1990. Coloured III. Illustrated Indigenous Orchids of Taiwan 2: 539. Private publication.

## 台灣植物誌疏漏之蘭科植物—垂葉斑葉蘭

鐘詩文<sup>(1)</sup>

(收稿日期：2002 年 9 月 3 日；接受日期：2002 年 10 月 30 日)

### 摘 要

本文發表一種台灣植物誌未記載的蘭科植物：垂葉斑葉蘭(*Goodyera pendula* Maxim.)，並提供植物圖、照片及分布圖以資辨識。垂葉斑葉蘭為台灣的稀有植物，目前台灣僅一份標本，採於台灣中央山脈北方的思源埡口附近森林內。垂葉斑葉蘭的植株高約 12 到 14 公分左右；花多數，全長在同一邊，成密穗狀花序，約 4-6 公分長；萼片約 3 到 4 公釐長，狹卵形；葉寬披針形到卵形，葉面沒有斑紋。這些特徵，明顯可與原生的另外 19 種同屬植物區別。

關鍵詞：垂葉斑葉蘭、蘭科植物、疏漏種、台灣、分類。

---

1.行政院農業委員會林業試驗所生物系，台北市 100，南海路 53 號。