



REVIEW ARTICLE

A Revision of the Genus *Polygala* L. (Polygalaceae) in Taiwan

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(Manuscript received 22 November 2012; accepted 11 July 2013)

ABSTRACT: Based on the morphological characteristic and comparing the type specimen, we clarify the taxonomic chaos of the genus *Polygala* in Taiwan. We reexamine the genus *Polygala* and reconfirm the existence of *P. chinensis* and *P. polifolia* in Taiwan. A key to the taxa, synonyms for each taxon and taxonomic description are presented. The line drawing illustration, habitat and photographs of *P. chinensis* also provided.

KEY WORDS: *Polygala* L., *Polygala chinensis*, *Polygala polifolia*, taxonomy.

INTRODUCTION

The Polygalaceae is a cosmopolitan family comprising with 21 genera and 800–1000 species having its centre of diversity in tropical and subtropical areas (Eriksen and Persson, 2007). The modified perianths superficially resemblance to the papilionaceous flower of the Leguminosae is attributed to the Fabales in APG system (APG III, Heywood et al., 2007). The *Polygala* L. is the largest genus in this family which has about 325 species with cosmopolitan distribution except for the Arctic, Antarctica and New Zealand (Heywood et al., 2007). Five taxa were recognized by previous workers in the Flora of Taiwan (Huang, 1977, 1993; Yang and Liu, 2002).

In order to publish Flora of Lanyu, we had conducted the field collections in Lanyu and examined the specimens of the Lanyu Island from several herbaria. During the field survey in these years, we had collected two species belonging to *Polygala* plants. One of them is *P. japonica*, the other plant which has elliptic leaf and keel with deer horn-like appendage, and we could not identify with reference of the Flora of Taiwan. However, we did find it as *P. chinensis* in the Flora of China (Chen et al., 2008).

Besides, during checking both editions of Flora of Taiwan (Huang, 1977, 1993) and Manual of Taiwan Vascular Plant Vol. 6 (Yang and Liu, 2002), we realized that they placed this plant in the name of *P. arvensis*, *P. polifolia* and *P. golmerata* in Taiwan. Thus the revision of *Polygala* L. would be required.

In this paper we reconfirm both *P. polifolia* and *P. chinensis* in Taiwan, thus a total of 6 species of the genus *Polygala* in Taiwan. Moreover, the key to the taxa, synonyms for each taxon and taxonomic descrip-

tion are presented, we also provided the line drawing illustration, habitat and morphology photographs of *P. chinensis*.

TAXONOMIC TREATMENT

Polygala L., Sp. Pl. 2: 701. 1753.

Annual or perennial herbs, or shrubs, small trees (all species in Taiwan are herbs). Leave simple, alternate, estipulate, petiolate; leaves entire, glabrous or pilose. Racemes terminal or axillary. Flower bisexual, zygomorphic. Sepals 5, free, unequal, persistent or caducous; outer sepal 3, inner sepal 2, always petaloid. Petals 3, unequal, connate at base; lateral petal 2, lowest petal keel boat shaped, enclosing stamens and style, apex always with highly divided, fimbriated appendage. Stamens 8, monadelphous, filaments united at least at base, forming an open staminal sheath, adnate with petals; anthers with stalk or sessile, dehiscent from terminal pores. Ovary 2-loculed, ovule 1 per locule; style simple, sometime curved; stigma 1, rare 2. Fruit capsules, always winged, loculicidal dehiscent. Seed 2, ovoid or globose, pilose, with an aril.

About 325 species, cosmopolitan except for the Arctic, Antarctica and New Zealand, 6 species in Taiwan (including 1 endemic species).

Key to the species of *Polygala* L. in Taiwan

- 1a. Racemes terminal 2
- 1b. Racemes axillary 3
- 2a. Leaves petiolate, ovate; flowers purplish-red, sepals caducous after anthesis, keel without apical appendage 6. *P. tatarinowii*
- 2b. Leaves sessile, linear; flowers white, sepals persistent after anthesis, keel with 4–6-lobes fimbriated appendage 4. *P. paniculata*