



## NOTE

## *Lysimachia candida* Lindl. (Primulaceae), an Extinct Species and also a New Record Species to Taiwan

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(Manuscript received 04 October 2012; accepted 02 December 2012)

**ABSTRACT:** During our Co-sponsored Project with the Herbarium of Komarov Botanical Institute, St. Petersburg, we investigated the S. Yano's specimens collected in Taiwan from 1896 to 1897. Among those of more than 400 specimens, we have found one *Lysimachia* that might be a new taxon to Taiwan. After literature surveying and examining the related specimens in several herbaria in Taiwan, this specimen was identified as *L. candida* Lindl., and was recognized to be a new record species to Taiwan. The species is also believed to be extinct since the earlier 1900s. This report gives taxonomic descriptions and palynological characters. A key for the species of the genus *Lysimachia* in Taiwan is also provided to facilitate identification.

**KEY WORDS:** *Lysimachia candida*, new record extinct, Primulaceae, palynology, taxonomy, S. Yano, Taiwan.

### INTRODUCTION

*Lysimachia* L. is one of the largest genera in the family Primulaceae and mainly distributed in temperate areas of the northern hemisphere, with a few species in the tropics, Africa, Australasia and South America (Hu and Kelso, 1996; Kao and Peng, 1998; Heywood et al., 2007). The total number of species in the world varied widely from 150 (Mabberley, 1987, 2008), 160 (Heywood et al., 2007), 180 (Hu and Kelso, 1996; Kao and Peng, 1998) to about 200 species (Willis, 1985).

The first report of the genus *Lysimachia* in Taiwan was made by Forbes and Hemsley (1889). Since then, species of *Lysimachia* have been successively published by Henry (1896), Matsumura and Hayata (1906), Hayata (1908, 1911, 1917, 1921), Sasaki (1928, 1930), Mori (1936), Masamune (1954), Kao and DeVol (1978), Chen et al. (1989), Hu and Kelso (1996), and Kao and Peng (1998). According to the above publications, there are 10 species, including three endemic species, known to occur in Taiwan. These includes *L. ardisioides* Masam., *L. capillipes* Hemsl., *L. chingshuiensis* C.-I Peng & C.M. Hu, *L. congestiflora* Hemsl., *L. decurrens* G. Forster, *L. fortunei* Maxim., *L. japonica* Thunb., *L. mauritiana* Lam., *L. nigropunctata* Masam. and *L. remota* Petitm.

During the first year period, 1<sup>st</sup> August 2009–30 June 2010, of the National Science Council – Russian Foundation for Basic Research (NSC-RFBR) Co-sponsored Project “Investigation of S. Yano's specimens collected in Taiwan in 1896–1897 and

located at the Herbarium of the Komarov Botanical Institute (LE)” the first author (TYAY) visited the Herbarium of the Komarov Botanical Institute, St. Petersburg (abbreviation: LE) in February 2010. He worked with the second and third authors at the Central and East Asia Section, 4<sup>th</sup> floor and identified about 200 specimens collected by Mr. S. Yano, whom had little information only known he was a Japanese collector and visited Taiwan in 1896–1897. During the examination of specimens, he found one *Lysimachia* specimen, Yano collection number 369 (Fig. 1) which could not be assigned to any described species in the “Flora of Taiwan” (Kao and Peng, 1998). Then a duplicate specimen of Yano 369 (Fig. 2) was brought back to Taiwan for further examination. However, the specimen could not be identified until discussed with the forth author (CHC). After checking with the related species described in “Flora Reipublicae Popularis Sinicae” (Chen et al., 1989) and “Flora Fujianica” (Lin, 1989), the specimen was suspected to be the species “*L. candida* Lindl.”. Finally, identification of the specimen was confirmed through checking with the authentic specimens of *L. candida* collected from China at the Herbarium of National Museum of Natural Science, Taichung (abbreviation: TNM). The species “*L. candida*” is a new record species to Taiwan, but is also believed to be extinct in Taiwan now. A key to all species of the genus *Lysimachia* in Taiwan is provided here to facilitate identification. In addition, morphological characters of pollen grains from both LM and SEM observations, taxonomic descriptions and