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Asarum ampulliflorum (Aristolochiaceae), a new species from Taiwan

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Abstract

Asarum ampulliflorum Lu & Wang, *sp. nov.* (Aristolochiaceae), collected from Taiwan, is described and illustrated here. *Asarum ampulliflorum* is similar to *A. asaroides* (Morr. & Decne.) F. Maekawa in appearance but can be differentiated from the latter by leaf length equal to width (vs. length longer or shorter than width), perianth tube smaller (8.7–11.7 mm × 13.8–18.1 mm vs. 20.0–25.0 mm × 25.0–30.0 mm) and more compressed (ratio of the perianth tube length to the diam. at the widest points of tube 0.62−0.66 vs. 0.80−0.83), and limb lobe nearly as long as perianth tube (vs. shorter than perianth tube). We have compared the species with similar species in Taiwan and east Asia and have provided an artificial taxonomic key for *A. ampulliflorum* and related species.

Key words: Aristolochiaceae, *Asarum*, *Asarum ampulliflorum*, East Asia, morphology, somatic chromosome number

Introduction

Asarum L., a genus of the Aristolochiaceae, comprises ca. 100 species distributed in the North Temperate Area. *Asarum* section *Heterotropa* (Morr. et Decne.) Al. Braun (1861: 13) is the biggest section in this genus and comprises more than 70 species disjunctively distributed in east Asia (China, Japan, and Taiwan) and southeastern North America (Lu & Wang 2013). Most species of *Asarum* section *Heterotropa* occur in East Asia, especially in China and Japan. In the past decade, many new species have been discovered and described from East Asia, such as *A. campaniflorum* Wang Y. & Wang Q. F. (2004: 239) from China; *A. majale* Sugawara (2006: 192), *A. mitoanum* Sugawara (1996: 136), *A. nazeanum* Sugawara (2012: 66), and *A. tabatanum* Sugawara (2012: 67) from Japan; and *A. chatienshanianum* Lu & Wang (2009: 230), *A. pubitessellatum* Lu & Wang (2013: 28), *A. tawushanianum* Lu & Wang (2009: 230), and *A. villisepalum* Lu & Wang (2009: 237) from Taiwan. The continued discovery of new species indicates that the studies of *Asarum* sect. *Heterotropa* in east Asia to date are insufficient.

Recently, we re-examined the confused species *A. macranthum* Hooker f. (1888: t7022) in Taiwan. This species was first described by Hooker (1888) based on Ford's collections from Keelung, Taiwan. On the basis of Hooker's work, Hayata (1915) described three species similar to *A. macranthum*: *A. albomaculatum* Hayata (1915: 139), *A. infrapurpureum* Hayata (1915: 146), and *A. taitonense* Hayata (1915: 149). Later Taiwanese taxonomists (e.g., Lai 1973, Liu and Lai 1976) followed the treatments of Hayata. In his revision of Taiwanese *Asarum*, Maekawa (1978) recognized *A. albomaculatum* (*Heterotropa albomaculata* (Hayata) F. Maekawa et Nemoto [1936: 156]) as a distinct species and regarded *A. taitonense* (*H. taitonensis* (Hayata) F. Maekawa et Nemoto [1936: 165]) as an uncertain species; however, he didn't mention *A. infrapurpureum*. On the basis of morphology, pollen features, and karyotype analysis, Huang *et al.* (1995) grouped *A. albomaculatum*, *A. infrapurpureum*, and *A. taitonense* into a broadly delimitated *A. macranthum*.

According to our detailed comparative studies of abundant fresh materials and examination of the type specimen and protologues, we found *A. albomaculatum* to be significantly different from *A. macranthum* in perianth-tube shape (cup-shaped vs. pyriform), gynoecium morphology (stigma lachrymiform, lateral, stylar protuberance bi-lobed, hornlike vs. stigma unciform, terminal to subterminal, stylar protuberance absent or bi-lobed), and reticulation pattern on the inner surface of the perianth tube (longitudinal ridges 12 vs. 24), whereas *A. taitonense* and *A. infrapurpureum* still remain to be further studied (Lu & Wang 2009). In addition, we discovered an unknown taxon that resembled *A. macranthum* in perianth-tube shape and the reticulation pattern on the inner surface of the perianth tube, but differed in leaf and gynoecium morphology. We compared it with the other related species in East Asia and concluded it is a new species. In this study, we describe and illustrate this new species.

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