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小五台银莲花(毛茛科)的名实订正

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摘要: 通过标本检查,发现小五台银莲花(*Anemone xiaowutaishanica* W. T. Wang & Bing Liu)与银莲花(*A. cathayensis* Kitag. ex Ziman & Kadota)属于同一种植物,故将前者处理为后者的异名。由于银莲花属于银莲花亚组[subsection *Omalocarpus* (DC.) Tamura],故同时将根据小五台银莲花而建立的小五台银莲花组(section *Leptothece* W. T. Wang & Bing Liu)处理为银莲花亚组的异名。
关键词: 银莲花属; 新异名; 毛茛科; 分类学
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The Identity of *Anemone xiaowutaishanica* (Ranunculaceae)

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Abstract: Examination of herbarium specimens has shown that *Anemone xiaowutaishanica* W. T. Wang & Bing Liu is conspecific with *A. cathayensis* Kitag. ex Ziman & Kadota. We therefore place *A. xiaowutaishanica* in synonymy under *A. cathayensis*. As *A. cathayensis* belongs to subsection *Omalocarpus* (DC.) Tamura, we place section *Leptothece* W. T. Wang & Bing Liu, which was established based on *A. xiaowutaishanica*, in synonymy under subsection *Omalocarpus*.
Key words: *Anemone*; New synonymy; Ranunculaceae; Taxonomy

Anemone xiaowutaishanica W. T. Wang & Bing Liu (Ranunculaceae) was described based on two specimens, Bing Liu 983 (PE) (Fig.1: A) and Bing Liu 415 (PE) (Fig.1: B), from Xiaowutai Shan, Hebei Province, China, with the former being designated as the holotype[1]. In the protologue, the authors stated that the species was related to those within section *Himalayica* (Ulbr.) Juz. (as '*Himalayicae*') in the vertical rhizome, rosulate leaves, 1-flowered cymes, sessile involucral bracts, linear stamen filaments, tricolpate pollen grains with spinulose tectum, and subulate styles, but differed by the 3-partite or 3-sect involucral bracts, 3 carpels per flower, and strongly bilaterally compressed ovaries. They established a new section, section *Leptothece* W. T. Wang & Bing Liu, to accommodate the new species, pointing out that the section was remarkably more advanced than, and might be derived from, section *Himalayica*.

As emphasized by Wang and Liu[1], Xiaowutai Shan, the highest mountain with an altitude of 2882 m in northern China, had been previously very well botanized. The description of a new species of *Anemone*, a genus often with quite showy flowers, from such a well-botanized area, caught our attention. We checked the type specimens of *A. xiaowutaishanica* against the rich herbarium material of *Anemone* from Xiaowutai Shan and other regions in China kept in the major Chinese herbaria, and found that *A. xiaowutaishanica* is not

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essentially different from *A. cathayensis* Kitag. ex Ziman & Kadota. (Figs. 2, 3), a species placed within section *Omalocarpus* (DC.) Juz. by Wang[2], Tamura[3], and Ziman et al.[4], and very common on Xiaowutai Shan. The rhizome is erect, thick, covered with the vestiges of old leaf-sheaths in the uppermost part; the leaves are suborbicular or reniform-pentagonal, 3-sect, with the petioles sparsely pubescent or glabrescent; the scapes are also sparsely pubescent or glabrescent, with flowers 1 to 5 in umbelliform cymes; the ovaries are glabrous and bilaterally compressed. While the carpels per flower were described to be 3 in number in *A. xiaowutaishanica*, those of *A. cathayensis* had been reported to be highly variable, ranging from 4 to 16[2].

Pollen grains of *Anemone cathayensis*, according to Xi and Chang[5], are tricolpate with spinulose tectum, and thus are morphologically the same as those in *A. xiaowutaishanica* reported by Wang and Liu[1].

It seems that the main reason why Wang and Liu[1] did not refer *Anemone xiaowutaishanica* to section *Omalocarpus* but compared it with section *Himalayica* is that the type specimens of *A. xiaowutaishanica* have 1-flowered cymes. Indeed, section *Himalayica* is characterized by mostly having 1-flowered cymes, but this character also, albeit quite occasionally, occurs within section *Omalocarpus*[2–3]. *Anemone imbricata* Maxim. is an example. This species has strongly compressed and broadly winged achenes, and thus is often placed into section *Omalocarpus*[2–3], but its cymes are 1-flowered. Our molecular phylogeny also places this species into section *Omalocarpus* of Wang[2] and of Tamura[3] (Zhang and Yang, unpublish.), not supporting the treatment as a monotypic section, i.e., section *Imbricata* of Ziman et al.[6] (never formally described). The flower number on the cymes is variable in *A. cathayensis* from Xiaowutai Shan (Fig. 2) or other regions (Fig. 3), ranging from 1 to 5, and 1-flowered cymes are very common in this species. Wang and Liu[1] noted the strongly bilaterally compressed ovaries in *A. xiaowutaishanica*, a most important character of section *Omalocarpus*, but regrettably this feature did not remind them of this section.

Fig. 1 Specimens of *Anemone cathayensis*. A: China, Hebei, Xiaowutai Shan, Bing Liu 983 (PE, holotype of *A. xiaowutaishanica*); B: The same locality, Bing Liu 415 (PE, paratype of *A. xiaowutaishanica*).

Fig. 2 Specimens of *Anemone cathayensis*, all from Xiaowutai Shan (a mountain located in Zhuolu and Weixian), Hebei, China, showing the habit and the flower number variation on the cymes. A: Anonymous 2326 (PE); B: J. W. Feng 94 (PE); C: Anonymous 395 (PE); D: Anonymous 1803 (PE).

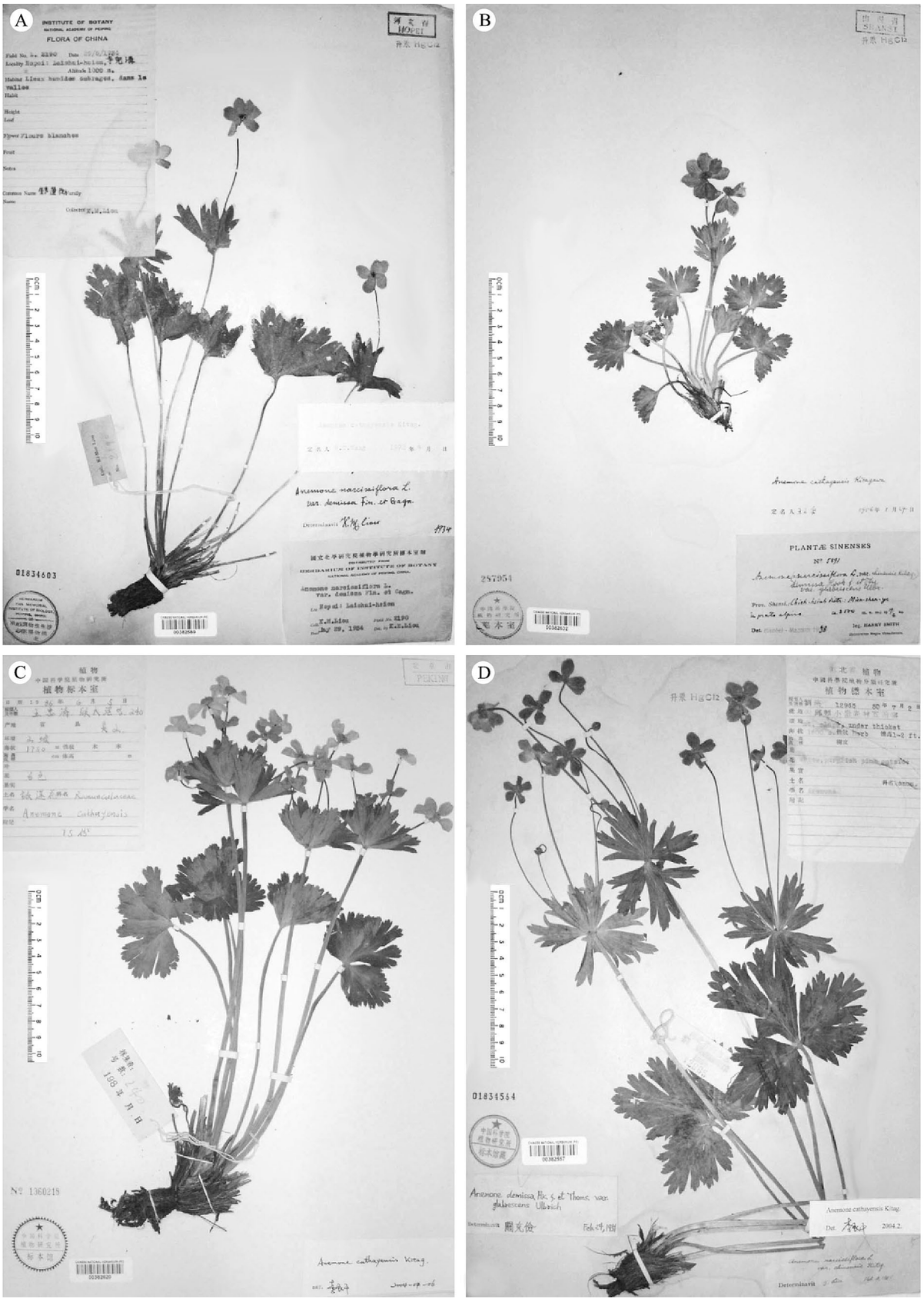

Fig. 3 Specimens of *Anemone cathayensis* from Beijing, Hebei, and Shanxi, China, showing the habit and the flower number variation on the cymes. A: Hebei, Laishui, K. M. Liou 2190 (PE); B: Shanxi, Jiexiu, Harry Smith 5891 (PE); C: Beijing, Mentougou, Z. T. Wang et al. 240 (PE); D: Hebei, Neiqiu, Y. Liu 12965 (PE).

Significantly, Hoot et al.[7] recently proposed a reclassification of *Anemone*, which recognized two subsections under section *Omalocapus*, subgenus *Anemonidum* (Spach.) Juz., i.e., subsection *Omalocarpus* (DC.) Tamura and subsection *Himalayicae* (Ulbr.) Tamura. This classification is the first formal phylogeny-based one of *Anemone*. Here we accept this new classification.

Based on the above analysis, we synonymize *Anemone* section *Leptothece* and *A. xiaowutaishanica*.

Anemone subsect. ***Omalocarpus*** (DC.) Tamura in Sci. Rep. Osaka Univ. **16**(2): 27. 1967. Type: *A. narcissiflora* L.

A. sect. *Leptothece* W. T. Wang & Bing Liu in J. Syst. Evol. **46**: 738. 2008. syn. nov. Type: *A. xiaowutaishanica* W. T. Wang & Bing Liu.

For a more complete synonymy see Tamura[3].

Hoot et al.[7] listed only three species in this subsection, i.e., *Anemone demissa* Hook f. & Thomson, *A. narcissiflora*, and *A. tetrasepala* Royle. This subsection is virtually identical in species composition to section *Omalocarpus* as defined by Wang[2], Tamura[3], and Ziman et al.[4,8]. According to Tamura[3], this subsection may include ca. 15 species in Eurasia and western North America, mostly in the alpinesubalpine, or the arctic-subarctic zones.

Anemone cathayensis Kitag. ex Ziman & Kadota in J. Jpn. Bot. **81**: 7. 2006. Type: China. Hebei: Xiaowutai Shan, 1914, Y. Nagai 48 (holotype, TI!).

A. cathayensis Kitag., Lineam. Pl. Mansh. 213. 1939, pro syn.; et Neo-Lineam. Pl. Mansh. 290. 1979, nom. nud; Tamura in Acta Phytotax. Geobot. **17**: 114. 1958, nom. nud.; W. T. Wang in Fl. Reipubl. Popularis Sin. **28**: 54. 1980, nom. nud.; W. T. Wang, Ziman & B. E. Dutton in Fl. China **6**: 320. 2001, nom. nud.

A. xiaowutaishanica W. T. Wang & Bing Liu in J. Syst. Evol. **46**: 739. 2008, syn. nov. Type: China. Hebei: Xiaowutai Shan, alt. 1692 m, grassy slope in ravine, 15 Sept. 2007, Bing Liu 983 (holotype: PE!).

This species is distributed in China (Hebei, Shanxi) and Korea. A variety with pubescent ovaries and achene body, var. *hispida* Tamura, is recognized from China (northwestern Henan, northern Hebei), and Korea[2,9–10].

Wang et al.[10] and Ziman et al.[4] stated that *Anemone cathayensis* is characterized by the involucral leaves (bracts) larger than the basal leaves, but our examination of a large amount of herbarium material of the species does not support this statement. The involucral bracts are highly variable in size, but they are almost always smaller than the basal leaves. In the Latin protologue of *A. cathayensis*, Ziman et al.[4] described its tepals as white or pinkish (alba sive roseola), but in the discussion on its relationships with other species, they mentioned the tepals as being blue or pink. After careful perusal of the field notes of the collections of *A. cathayensis* kept in major Chinese herbaria we did not find specimens with the tepals recorded as blue.

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