



## The identity of *Aster lushiensis* (Asteraceae)

ZHIXI FU<sup>1,2</sup>, CAIFEI ZHANG<sup>1,2</sup> & TIANGANG GAO<sup>1</sup>

<sup>1</sup> State Key Laboratory of Systematic and Evolutionary Botany, Institute of Botany, Chinese Academy of Sciences, Beijing 100093, People's Republic of China; e-mail: Gaotg@ibcas.ac.cn (author for correspondence)

<sup>2</sup> University of Chinese Academy of Sciences, Beijing 100049, People's Republic of China

*Aster lushiensis* (J.Q.Fu 1983: 110) Brouillet, Semple & Y.L.Chen (2011: 607) (Astereae, Asteraceae) was recently combined from the genus *Gymnaster* Kitamura (1937: 301) (= *Miyamayomena* Kitamura (1982: 409)) without a study of specimens. It is only known from the type specimens collected in Lushi County, Henan Province, China. Examination of morphological characters of types showed that it is conspecific with *Chrysanthemum vestitum* (Hemsley 1888: 438) Stapf (1933: t. 9330) (Anthemideae; Shih *et al.* 2011), and is here reduced to a synonym of the latter species.

Fu (1983) described the species *Gymnaster lushiensis* based on the collection *J.Q. Fu 2540* in WUK. The holotype in WUK was not found and may have been lost during frequent relocations of herbarium in the last few decades (Yansheng Chen, curator of WUK, pers. comm.). Our studies of the isotype in WUK (WUK 116017, Fig. 1) show that the achenes of this plant are epappose, a character also present in *Miyamayomena*. However, its involucre bracts are marginally scarious, and the style apexes are truncate without appendages, which are characteristics of tribe Anthemideae (Fig. 2A) instead of tribe Astereae (Fig. 2B; Bremer 1994, Funk *et al.* 2009). The illustration in the protologue provided by Fu (1983) also clearly shows the truncate style apex. A close study of the isotype revealed that the vegetative and floral characters of the plant are identical to those reported for *Chrysanthemum vestitum* (Shih *et al.* 2011), e.g. leaf blades 1.0–8.0 x 0.5–3.0 cm, abaxially densely and thickly appressed pubescent, margin repand to remotely dentate; capitula 2.0–2.8 cm in diam., phyllaries with brown scarious margins; ray florets white, lamina 0.8–1.6 cm long; achenes subterete or obovoid, faintly 5–8 ribbed and epappose. We revisited the type locality in 2011 and found numerous individuals of *C. vestitum* (*Z.X. Fu 610*, PE; Fig. 2C–D), but none of *Miyamayomena*. After studying a type specimen of *Chrysanthemum vestitum* (*A. Henry 1115*, K), we concluded that *Aster lushiensis* is identical with *Chrysanthemum vestitum* and therefore must be reduced to a synonym of the latter species.

***Chrysanthemum vestitum*** (Hemsl.) Stapf, *Bot. Mag.* 156: t. 9330. 1933. (Stapf 1933).

Basionym:—*Chrysanthemum sinense* Sabine (1823: 145) var. *vestitum* Hemsley, *J. Linn. Soc., Bot.* 23: 438, 1888 (Forbes & Hemsley 1888).

Type:—China. Hubei: Yichang city, “Ichang and immediate neighborhood”, September 1886, *A. Henry 1115*, 3102 (syntypes, K).

≡ *Dendranthema vestitum* (Hemsl.) Y.Ling, *Bull. Bot. Lab. North-East. Forest. Inst.* 6: 2, 1980 (Ling 1980).

≡ *Gymnaster lushiensis* J.Q.Fu, *Bull. Bot. Res. Harbin* 1 (3): 110, 1983 (Fu 1983), *syn. nov.* Type:—China. Henan: Lushi county, Wulichuan, 23 October 1958, *J.Q. Fu 2540* (holotype, WUK, not seen; isotypes, WUK 116017!, KUN 0721706, photo PE!). ≡ *Aster lushiensis* (J.Q.Fu) Brouillet, Semple & Y.L.Chen, *Fl. China* 20–21: 607, 2011 (Chen *et al.* 2011).