

Magnolia compressa Zhongshanhanxiao: A New *Magnolia* L. Cultivar (Magnoliaceae)

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Keywords. cutting, ornamental

Magnolia compressa Zhongshanhanxiao, a new *Magnolia compressa* (Maxim.) Sarg. cultivar, is described and illustrated in this paper. The leaves and flower of *M. compressa* ‘Zhongshanhanxiao’ were similar to *M. compressa* (Maxim.) Sarg., but differed from the latter by their larger sizes. The leaf lengths and widths of the new cultivar were 7 to 15 cm and 3 to 7 cm, respectively [the leaf lengths and widths of *M. compressa* (Maxim.) Sarg. were 5 to 7 cm and 2 to 3 cm, respectively], and the perianth lengths and widths were 4 to 7 cm and 1 to 4 cm, respectively [the perianth lengths and widths of *M. compressa* (Maxim.) Sarg. were 1.2 to 1.5 cm long and 0.3 to 0.5 cm wide]. In addition to the morphological differences, the new cultivar had a faster growth rate and the first flowering time was the third year after planting, whereas *M. compressa* (Maxim.) Sarg. took longer to first flower. The flowering period of this new cultivar was from February to March and the fruiting period was from October to November.

Origin

The genus *Magnolia* L., which contains ~80 species, mainly occurs in India, Sri Lanka, China, Indochina, Malaysia, and South Japan (Liang and Nooteboom 1993; Liu 2004; Liu et al. 1995; Wu et al. 2015; Ye et al. 2021). China, an important diversity and distribution center for the Magnoliaceae, harbors 70 species of *Magnolia* (Wang et al. 2005; Wu et al. 2015).

Received for publication 26 Apr 2023. Accepted for publication 6 Jul 2023.

Published online 31 Aug 2023.

We thank Yishuo Liang for helping to modify this paper and International Science Editing (<http://www.internationalscienceediting.com>) for editing this manuscript. This research was supported by the Jiangsu Agriculture Science and Technology Innovation Fund (CX(21)3044).

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M. compressa is an evergreen tree mainly found in broad-leaved forests across East Asia (Xu et al. 2017). Since the 1980s, the Institute of Botany, Jiangsu Province, China, and the Chinese Academy of Sciences (Nanjing Botanical Garden, Memorial Sun Yat-sen) have carried out studies on the introduction and domestication of *M. compressa* (Liu et al. 2008). In Sep 2016, 18 mutants showing significant phenotypic variation were identified and screened from more than 20,000 1-year-old *M. compressa* open-pollinated seedlings without any mutagenic treatment. Subsequent examination showed that these mutants had phenotypically consistent morphologies and growth rates. Morphologically, these mutants had much larger leaves and flowers compared with the original species. Furthermore, the start of flowering by individuals was 3 years, but the original species had a 6-year growth period until flowering. The analysis of

genetic variation showed these mutants were proved with high distinctive genetic diversity (Chen et al. 2023; Yin et al. 2022). Accordingly, we describe this as new cultivar, *M. compressa* Zhongshanhanxiao, and its diagnostics with illustrations are provided (Lobdell 2021).

Description

‘Zhongshanhanxiao’ is similar to *M. compressa* (Maxim.) Sarg., but differs by having larger leaves and flowers (Figs. 1 and 2) (Chen et al. 2023; Yin et al. 2022). Tree: evergreen, tower or conical. Bark: grayish brown and smooth. Leaf: obovate-elliptic or narrowly obovate, 7 to 15 cm long, 3 to 7 cm wide, glabrous, margin entire, blade leathery, apex acute to obtuse, adaxial surface dark green. Flower: solitary axillary, fragrant, one to four flowers per shoot; perianths 9 to 14, 4 to 7 cm long and 1 to 4 cm wide, narrowly ovate milky white to pale yellow with dark purple, purple, or pale purple base; pistil: green; stigma: purplish red; stamens: 8 to 14 mm long, yellowish green with purple base, 45 to 48. Fruit: 3 to 8 cm long; follicles narrow ellipsoid to ovoid, dorsum cleft, apex with a short tip. Seeds: pink, ovoid, or subglobose, slightly angled.

Phenology. ‘Zhongshanhanxiao’ flowers late February to early March, fruiting from October to November.

Etymology. The cultivar epithet refers to the type locality, Nanjing Botanical Garden, Memorial Sun Yat-sen.

Type. China: Nanjing Botanical Garden, Memorial Sun Yat-sen, Jiangsu Province, China. Z.Q. Wang s.n., 27 Jul 2022 (holo: NAS, NAS00640337; iso: NAS, NAS00640335, NAS00640336).

In our studies, the leaf length and width of this cultivar were 1.4 to 2.04 and 1.5 to 1.17

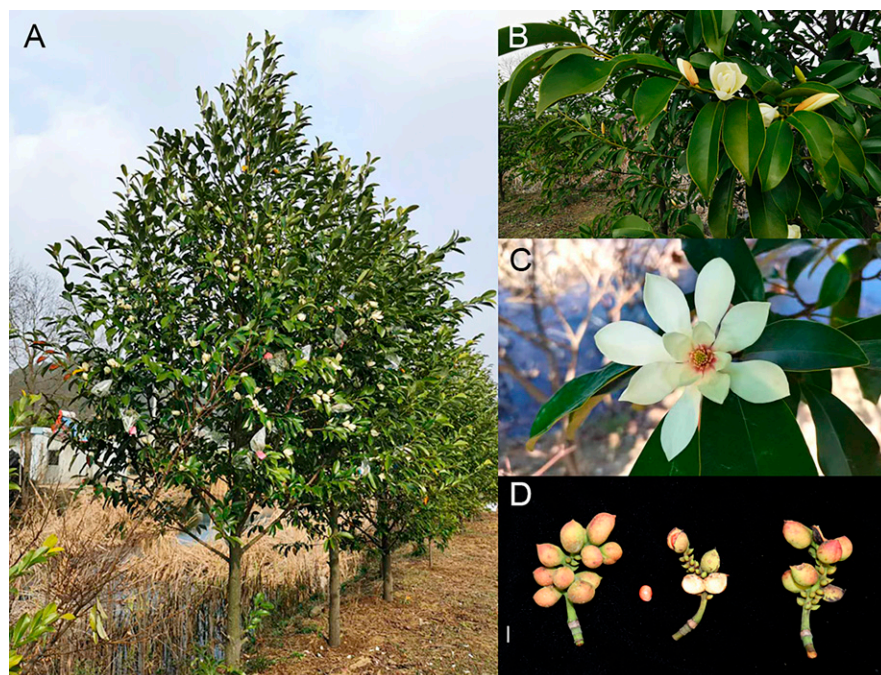


Fig. 1. Tree (A), shoot (B), flower (C), and fruit (D) of *Magnolia compressa* ‘Zhongshanhanxiao’.

when transplanting seedlings in the rainy season or before spring germination. Container seedlings can be transplanted in all four seasons. When planting, some seedling branches and leaves should be cut off to reduce water transpiration, which improves the survival rate after transplanting.

Availability

M. compressa 'Zhongshanhanxiao' is available through the Institute of Botany, Jiangsu Province, and the Chinese Academy of Sciences (Nanjing Botanical Garden, Memorial Sun Yat-Sen). Contact Yun-long Yin (e-mail: ylyin@cnbj.net) for inquiries.

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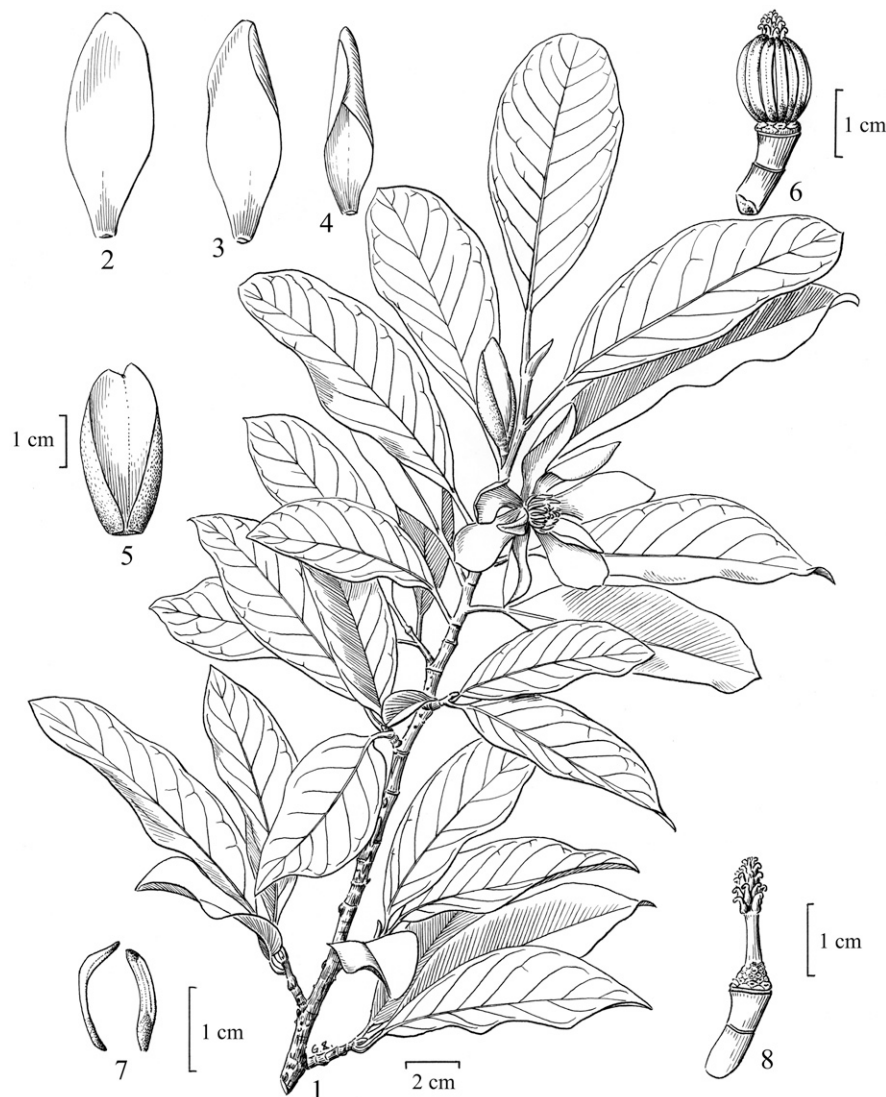


Fig. 2. *Magnolia compressa* 'Zhongshanhanxiao.' (1) Branch; (2–4) perianths; (5) bract; (6) stamens and pistil; (7) stamens; and (8) pistil. (Drawn by Zixia Gu.)

times greater than original species, respectively. Perianths were much larger, with lengths and widths that are 3.50 to 4.53 and 4.33 to 7.00 times greater than the original, respectively. After comparing 4-year-old individuals, the cultivar was 1.41 to 1.55 times higher and 2.79 to 3.16 times greater in diameter at breast height than the original.

Propagation, Cultivation, and Use

M. compressa 'Zhongshanhanxiao' can be used for landscaping in the southern area of

Huaihe River, China. Deep and fertile soil with good drainage site conditions is preferred for growth.

M. compressa 'Zhongshanhanxiao' can be propagated from cuttings in a seedbed [containing moistened perlite:peat soil with organic matter (1:1)] in a ventilated greenhouse under normal growth conditions. Under auxin treatment (soaking the base of cuttings in 2000 mg·L⁻¹ naphthalene acetic acid for 3 min), the cutting survival rate can reach 80% to 90%. Soil ball needs to be protected