HortScience 60(6):985–986. 2025. https://doi.org/10.21273/HORTSCI18611-25

Jintuo: A New *Melliodendron xylocarpum* Cultivar

Xingli Zhu and Xiaogang Xu
Co-Innovation Center for Sustainable Forestry in Southern China, College of Life Science, Nanjing Forestry University, Nanjing, 210037, China

Lili Tong
School of Horticulture & Landscape Architecture, Jinling Institute of Technology, 211199, Nanjing, China

Menghan Xu
Co-Innovation Center for Sustainable Forestry in Southern China, College of Life Science, Nanjing Forestry University, Nanjing, 210037, China

Keywords. clone, *Melliodendron xylocarpum*, yellow leaves, uniformity and stability

Melliodendron xylocarpum Handel–Mazzetti (*Styracaceae*), an species endemic to China (Zhao et al. 2019), is sporadically distributed in mountainous dense forests, riverbanks, and ravines at altitudes ranging from 600 to 1500 m (Grimshaw et al. 2013) in Fujian, northern Guangdong, northwestern Guangxi, Guizhou, Hunan, Jiangxi, southern Sichuan, and southeastern Yunnan (Huang and Grimes 2003). *M. xylocarpum* blooms in March and April (Fig. 1I), before the emergence of leaves (Wu et al. 2020). In addition to its excellent ornamental value, the fruit exhibits significant potential for both biodiesel and medicinal production (Jiang et al. 2009). From the material perspective, the timber of the *M. xylocarpum* is noted for its toughness and straightness, making it a valuable resource with considerable economic potential (Huang and Grimes 2012).

In 2021, a novel cultivar named 'Jintuo' was selected from the *M. xylocarpum* nursery by Nanjing Forestry University (NFU) and was granted a patent by the State Forestry and Grassland Administration of China (Authorization No. 20230370). This new cultivar contributes to the germplasm resources of *Melliodendron* and has tremendous application prospects (Dai et al. 2025). The main quality of this variety lies in the ornamental value of its leaf color. Its mature leaves are yellow throughout the year, making it a common-colored leaf tree species among landscape plants. It is an ideal material for gardening and creating landscape forests and is also an important source for increasing the diversity of urban street trees.

Origin

In Aug–Sep 2005, fruits collected from a sample tree in the natural population of *M. xylocarpum* in Jinxiu, Guangxi, were transported to the NFU base and stored in sand at low temperatures. Seeds were extracted in Feb–Mar 2006 and sown in trays, with field cultivation starting in Apr 2006. In 2009, a variant with young expanding leaves ranging from green (RHS N144B) to golden-pink (RHS 39B) and fully expanded leaves being yellow (RHS 154A), a near-leathery texture and sunken veins, was found among 4-year-old seedlings. The color was determined according to the Royal Horticultural Society Color Chart (Royal Horticultural Society 2015). Its traits remained stable from 2009 to 2016. From 2016 to 2020, 35 cuttings of this clone were propagated in the spring, and the seedlings' traits remained consistent and stable. In addition, another new variety, 'Maotuo', was discovered and granted a patent at the same time as 'Jintuo' by the State Forestry and Grassland Administration of China (Authorization No. 20230371). Although the commercial application value of 'Maotuo' is lower than 'Jintuo', it plays an indispensable reference role in the comparative study with 'Jintuo' and is of great significance for a deeper understanding of the unique value of 'Jintuo'. The objective of this work is to investigate the unique traits and application value of 'Jintuo'.

Description

'Jintuo' possesses young expanding leaves that range from green (RHS N144B) to golden-pink (RHS 39B) and fully expanded leaves that are yellow (RHS 154A) with a near-leathery texture and depressed veins

Fig. 1. Comparison of leaf characteristics (color, texture, and vein) among 'Jintuo', 'Maotuo', and *M. xylocarpum* (**A–C**). Comparison of leaf vein backs and twig among 'Jintuo', 'Maotuo', and *M. xylocarpum* (**D–F**). The appearance (**G**) and flowers (**H**) of 'Jintuo'. The flowers of *M. xylocarpum* (**I**). The mature size of 'Jintuo' (**J**).

Received for publication 25 Mar 2025. Accepted for publication 7 Apr 2025.
Published online 28 May 2025.
This research was supported by Jiangsu Forestry Science and Technology Innovation and Extension Program [No. LYKJ [2023]21], Scientific and Technological Projects of Nanjing Greening and Landscape Bureau [No. YLKJ202204JH], the Priority Academic Program Development of Jiangsu Higher Education Institutions (PAPD).
X.X. is the corresponding author. E-mail: 113 7223302@qq.com.

Table 1. Morphological characteristic comparisons of 'Jintuo', 'Maotuo', and *M. xylocarpum*.

Characteristic	'Jintuo'	'Maotuo'	*M. xylocarpum*
Young expanding leaves	Green (RHS N144B) or golden pink (RHS 39B)	Green (RHS 135C)	Purplish red (RHS 182A)
Fully expanded leaves	Yellow (RHS 154A)	Dark green (RHS 135B)	Dark green (RHS 141A)
Leaf texture	Near leathery	Papery	Papery
Leaf vein	Obvious sunken	Slightly sunken	Slightly sunken
Back of leaf veins	No villus	Stellate villus	No villus
Twig	Polygonal, glabrous, purple brown (RHS N186C)	Cylindrical, hairy, green (RHS 135C)	Polygonal, glabrous, purple brown (RHS N186C)

RHS = Royal Horticultural Society (2015).

(Fig. 1A and D). In contrast, 'Maotuo' differs in leaf color, texture, vein, and twig characteristics (Fig. 1B and E); *M. xylocarpum* differs in leaf color, leaf texture, and vein characteristics (Fig. 1C and F). In addition, it is known that the height of *M. xylocarpum* is 8 to 20 m (Huang and Grimes 2003), whereas the measured height of 'Jintuo' is 3 to 6 m. The overall size of 'Jintuo' is smaller than that of the original *M. xylocarpum*. The differences in leaf color, texture, and vein characteristics among 'Jintuo', 'Maotuo', and *M. xylocarpum* are presented in Table 1.

The basic characteristics of 'Jintuo' are as follows: 'Jintuo' is a deciduous arbor, 3 to 6 m tall. Leaf arrangement is alternate (short internodes), young expanding leaves ranges from green (RHS N144B) to golden-pink (RHS 39B), whereas the fully expanded leaves are yellow (RHS 154A) and possess a texture that is firmer than that of *M. xylocarpum*, approaching leathery, 9.5 to 21 cm long, ovate-lanceolate, oval, or elongated oval. The apex is slightly acuminate, the base is cuneate, and the margin is finely serrated. Young expanding leaves are stellate pubescent, whereas fully expanded leaves are glabrous, lateral veins in seven to nine pairs. Veins are sunken on the leaves' upper surfaces. Flowers bloom in March and April and are borne on axils of 2-year branchlets, solitary or two conjoint blooms before or with leaves, and are white (RHS N155C) with a faint pink hue (RHS 56D) (Fig. 1H) with 2-cm pedicels.

Cultivation Technology and Application

'Jintuo' is cultivated from live seedlings of its original species *M. xylocarpum* and could be cultivated in both subtropical and certain warm temperate zones. It is heliophilous, shade-tolerant, drought-resistant, and prefers acidic and slightly acidic moist soil. With strong adaptability, 'Jintuo' is suitable for use in gardens and parks and as a border tree. Propagated by cuttings in spring and fall (both twig and hard cuttings), the rooting survival rate can exceed 80%. Spring cuttings (8 to 12 cm) can reach 30 to 40 cm by the end of the year and 80 to 120 cm long the next year. There is no special requirement for the cultivation techniques of the cultivar, and its cultivation is like that of conventional popular seedlings (such as *Styrax dasyanthus* Perkins). Its main ornamental quality is yellow (RHS 154A) leaf color. In conclusion, 'Jintuo' is an excellent material for landscape purposes.

Availability

Inquiries about the research or request for 'Jintuo' plant materials can be made to Xiaogang Xu (Xiaogangb.xu@njfu.edu.cn) at the College of Life Science, Nanjing Forestry University, Nanjing, China.

References Cited

Dai W, Zheng H, Xu M, Zhu X, Long H, Xu X, Fang Y. 2025. Comparative analysis of the chloroplast genomes of the *Melliodendron* (*Styracaceae*) species: Providing insights into molecular evolution and phylogenetic relationships. Int J Mol Sci. 26(1). https://doi.org/10.3390/ijms26010177.

Grimshaw J, Rix Huang SM. 2013. *Melliodendron xylocarpum: Styracaceae*. Curtiss Bot Magazine. https://doi.org/10.1111/curt.12035.

Huang S-M, Grimes JW. 2003. *Styracaceae*, p 214. In: Wu Z-Y, Raven PH, Hong D-Y (eds). Flora of China, Vol. 15 (Styracaceae). Science Press, Beijing, China; Missouri Botanic Garden Press, St. Louis, MO, USA.

Huang Q-L, Zheng Q-R, Rong J-T, Zhuo M-X, Guan X-H. 2012. Selective cutting technology of natural broad-leaved timber forests in the mid-subtropical region of Fujian province, China. List of target tree species based on tree species characteristics [In Chinese]. J Mountain Sci. (02):180–185. https://doi.org/10.3969/j.issn.1008-2786.2012.02.007.

Jiang L, Tong J, Li C, Zhang D. 2009. Potential bio-diesel plant resources from China. 2009 ASHS Annual Conference.

Royal Horticultural Society. 2015. RHS colour chart (6th ed). Royal Horticultural Society, London, UK.

Wu X-H, Zhang R, Utteridge TMA, Liu Y-L, Yang G-Y, Tang M. 2020. A review of the Chinese monotypic genus *Melliodendron* (*Styracaceae*), with a new synonym of *M. xylocarpum*. Kew Bull. 75(4):53. https://doi.org/10.1007/s12225-020-09913-4.

Zhao Z-X, Xu X-G, Tong L-L, Zhang Y-Q, Wang Y-B. 2019. The complete chloroplast genome sequence of *Melliodendron xylocarpum* (*Styracaceae*). Mitochondrial DNA B Resour. 4(2): 3677–3678. https://doi.org/10.1080/23802359.2019.1677521.