HortScience 60(6):866–868. 2025. https://doi.org/10.21273/HORTSCI18487-25

‘Mopan Jinguang’: A New Holly Cultivar with Yellow Variegated Leaves

Xinran Chong
Jiangsu Key Laboratory for the Research and Utilization of Plant Resources, Institute of Botany, Jiangsu Province and Chinese Academy of Sciences, Nanjing Botanical Garden Mem. Sun Yat-Sen, Nanjing 210014, China; and Jiangsu Engineering Research Center for Landscape Plant Resources and Germplasm Innovation, Xiaolingwei street, Xuanwu District, Nanjing, 210014, China

Jiangyan Guo
Jurong Mopan Mountain Forestry Farm, Tianwang Town, Jurong 212400, China

Ting Zhou
Jiangsu Key Laboratory for the Research and Utilization of Plant Resources, Institute of Botany, Jiangsu Province and Chinese Academy of Sciences, Nanjing Botanical Garden Mem. Sun Yat-Sen, Nanjing 210014, China; and Jiangsu Engineering Research Center for Landscape Plant Resources and Germplasm Innovation, Xiaolingwei street, Xuanwu District, Nanjing, 210014, China

Wenjie Fan
Jurong Mopan Mountain Forestry Farm, Tianwang Town, Jurong 212400, China

Bo Lu
Jiangsu Key Laboratory for the Research and Utilization of Plant Resources, Institute of Botany, Jiangsu Province and Chinese Academy of Sciences, Nanjing Botanical Garden Mem. Sun Yat-Sen, Nanjing 210014, China; and Jiangsu Engineering Research Center for Landscape Plant Resources and Germplasm Innovation, Xiaolingwei street, Xuanwu District, Nanjing, 210014, China

Donglin Zhang
Department of Horticulture, University of Georgia, 220 South Jackson Street, Athens, GA 30602, USA

Hong Chen
Jiangsu Key Laboratory for the Research and Utilization of Plant Resources, Institute of Botany, Jiangsu Province and Chinese Academy of Sciences, Nanjing Botanical Garden Mem. Sun Yat-Sen, Nanjing 210014, China; and Jiangsu Engineering Research Center for Landscape Plant Resources and Germplasm Innovation, Xiaolingwei street, Xuanwu District, Nanjing, 210014, China

Keywords. cold tolerance, selection, ornamental plant, yellow leaf

The genus *Ilex* L. (Aquifoliaceae) consists of more than 700 dioecious tree and shrub species distributed throughout tropical to temperate regions (Chong et al. 2022; Yao et al. 2022). In China, more than 200 species of *Ilex* have been documented (Su et al. 2020; Zhou et al. 2022). *Ilex* species have been widely used as pharmaceutical plants, ornamentals, timber, and honey plants (Tsang and Corlett 2005; Yao et al. 2022; Yi et al. 2016). Throughout the range of the genus, hollies have similar flowers and fruit, but show considerable variation in their leaves, including size, shape, color, texture, and margins (Yao et al. 2016). These leaf characteristics contribute significantly to their germplasm identification, and ornamental and commercial values (Chong et al. 2022). *Ilex dabieshanensis* ‘Ning Qing 3’ is unique for its peculiar oblong leaf morphology (Chong et al. 2023). *Ilex dabieshanensis* ‘Ning Qing 4’ stands out with its peculiar elliptical and serrated leaves (Zhou et al. 2024).

The most well-known “industry standard” hollies available in the market are *Ilex verticillata* (deciduous) and *Ilex* ×*attenuata* ‘Sunny Foster’ (evergreen). *Ilex verticillata* is popular for providing cut branches with bright-red drupes for winter decorations, whereas *I. attenuata* ‘Sunny Foster’ is notable for its golden narrow leaves. ‘Mopan Jinguang’ was selected and released by the Jurong Mopan Mountain Forestry Farm. This cultivar has attracted much attention because of its yellow variegated leaves; the young leaves are golden yellow [Royal Horticultural Society (RHS) 12A] (Royal Horticultural Society 2015), whereas the mature leaves are yellow (RHS 12A) in primary color and olive green (RHS 146A) in secondary color. The leaf color enriches holly’s genetic resources and significantly enhances its ornamental value. ‘Mopan Jinguang’ has the characteristics of wide adaptability, superior cold tolerance, and fewer pests and diseases. This cultivar is suitable for landscaping in parks, gardens, and other landscapes.

Origin

In 2015, a plant with significant leaf color variation was discovered in a seedling population of *Ilex chinensis* at the Jurong Mopan Mountain Forestry Farm, Tianwang Town, Jurong City, Jiangsu, China. This individual seedling was transplanted carefully into the nursery and selected for further phenotypic identification. It was subsequently named ‘Mopan Jinguang’. The name Mopan is derived from the discovery site of the plant, Mopan Mountain Forestry Farm, whereas Jinguang refers to its golden yellow, glossy leaves. From 2018 to 2022, the plant was split-grafted to 5-year-old *I. chinensis* seedling rootstocks, with a more than 90% survival rate. After 6 years of field observation (2018–23), the grafted seedlings exhibited the same morphological characteristics as the mother plant, confirming their phenotypic stability. The cultivar grew vigorously in Jiangsu (lat. 118°49′E, long. 32°03′N, US Department of Agriculture plant hardiness zones ∼9b/10a) and can tolerate high (37 to 41 °C) and low (–7 to 0 °C) temperatures. To date, no serious diseases and pests have been observed. The Forest Variety Certification Committee of China authorized the cultivar in 2024.

Description

Among the available germplasm resources of *Ilex*, ‘Mopan Jinguang’ shows similarities to *Ilex* ×*attenuata* ‘Sunny Foster’ and *I. chinensis*. Specifically, ‘Sunny Foster’ is characterized by elliptical, dark-green (RHS 147A) leaves with yellow (RHS 12B) blotches and leaf margins bearing one to three small spines on each side, whereas ‘Mopan Jinguang’ displays narrowly elliptical, glossy yellow (RHS 12A) variegated leaves with crenate margins. In contrast, the leaf color of *I. chinensis* is grayish olive green (RHS NN137A) (Table 1,

Received for publication 6 Feb 2025. Accepted for publication 17 Mar 2025.
Published online 6 May 2025.
This work was supported by the Opening Fund of the Jiangsu Key Laboratory for the Research and Utilization of Plant Resources (grant no. JSPKLB202312) and the Central Financial Forestry Science and Technology Demonstration Fund (grant no. SU[2023]TG08).
H.C. is the corresponding author. E-mail: ilex2021@163.com.

Table 1. Comparison of leaf morphology among *Ilex* 'Mopan Jinguang', *Ilex chinensis*, and *Ilex* 'Sunny Foster'.

Attribute	*Ilex* Mopan Jinguang	*Ilex chinensis*	*Ilex* 'Sunny Foster'
Leaf color	Young leaves, golden yellow (RHS 12A); mature leaves, yellow (primary color) and olive green (RHS 146A) (secondary color)	Grayish olive green (RHS NN137A)	Dark green (RHS 147A) with yellow blotches (RHS 12B)
Leaf shape	Narrowly elliptical	Narrowly elliptical or lanceolate	Elliptical
Leaf size	Big (5.5–10.2 cm long, 2.1–4.0 cm wide)	Big (5.3–11.0 cm long, 2.0–4.0 cm wide)	Small (3.5–4.5 cm long, 1–1.6 cm wide)
Leaf margin	Crenate	Crenate	One to three small spines on each side of leaf

RHS = Royal Horticultural Society.

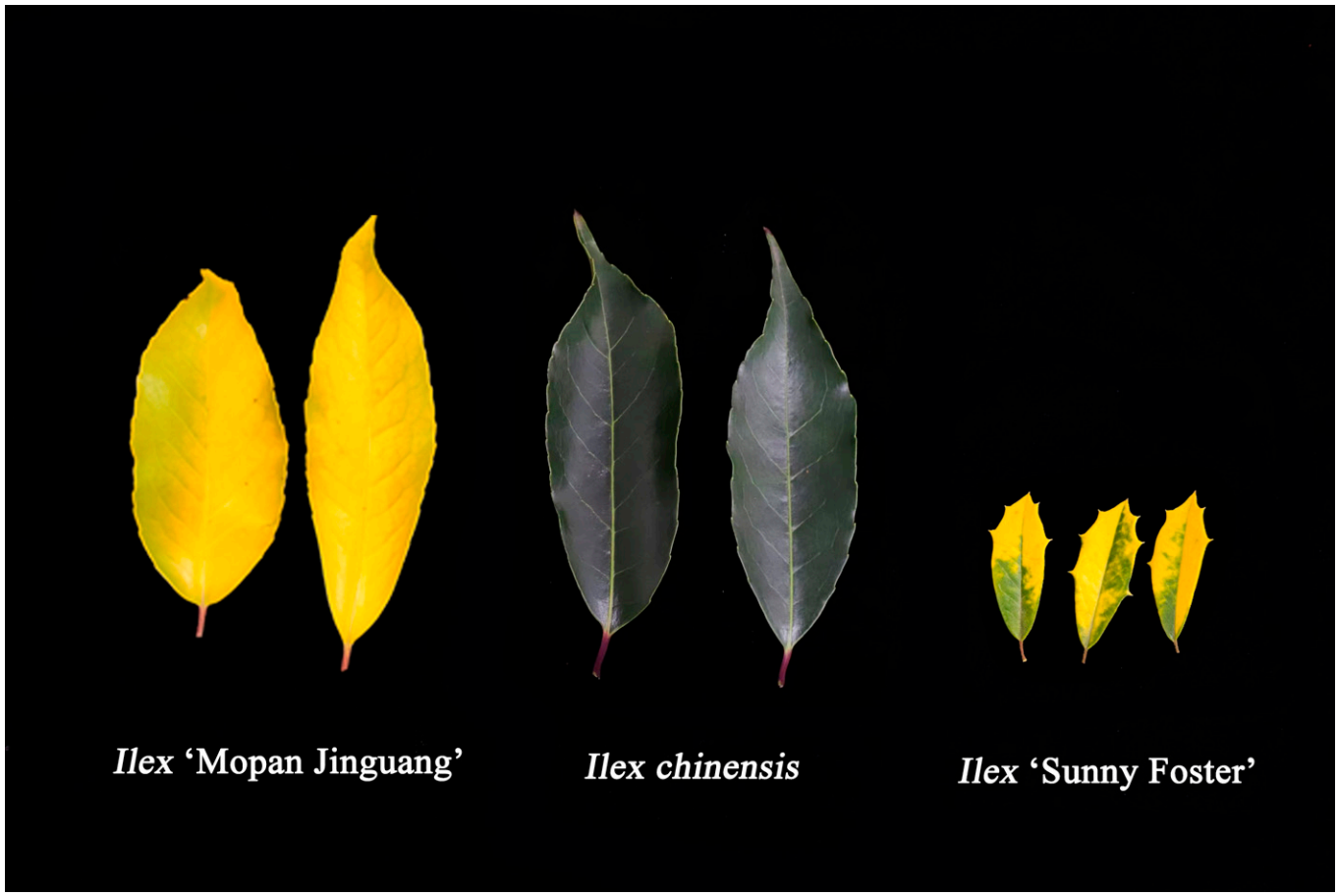

Fig. 1. Comparison of leaf attributes of *Ilex* 'Mopan Jinguang', *Ilex chinensis*, and *Ilex* 'Sunny Foster'.

Fig. 1). Specific characteristics of 'Mopan Jinguang' include the following.

Habit. It is an evergreen tree with an upright spreading habit, forming a graceful canopy (Fig. 2). It can reach up to 2.2 m tall with a 1.4-m spread at 6 years of age.

Branches and foliage. The branches are olive-gray without lenticels. The mature leaves are leathery with a primary color of yellow (RHS 12A) and a secondary color of olive green (RHS 146A), whereas the young leaves are golden yellow (RHS 12A). Leaf blades are narrowly elliptical and big (5.5–10.2 cm in length and 2.1–4.0 cm in width), connected with long petioles (0.5–1.4 cm), with coarse crenations at their margins. Leaf bases are cuneiform, and the apexes are acuminate (Fig. 2).

Flower. Each cymose inflorescence bears 7 to 15 small, purplish red axillary flowers growing inconspicuously on the current year's branchlets. Each flower has four obovate–oblong petals (3.9–4.0 mm in diameter), which are slightly connate at the base. Each flower has four degenerated stamens and a prominent pistil. The pistil has a conical ovary capitate stigma. In Jiangsu Province, the plant starts to blossom in mid-May, and the flowering period can last 9 d.

Fruit. The fruit are shiny red at maturity, ellipsoid, 10 to 12 mm long and 6 to 8 mm wide, and have prominent persistent stigma. The fruit ripens in mid-November and can persist throughout the winter until the following March.

Propagation

'Mopan Jinguang' is regenerated primarily through grafting *I. chinensis* seedlings as rootstocks in spring. The scion is selected from the current year's branch with healthy and plump axillary buds. The rootstock is split down the middle to a 2.5- to 3.5-cm depth. The scion is cut into a wedge ~1.5 to 2.5 cm long, with one side slightly thicker than the other, and is then inserted into the slit and carefully lined up with the cambium layers. The grafted scion is wrapped with plastic film, which should be removed when the scion is firmly attached to the stock plant.

Furthermore, the cultivar can also be propagated through hardwood cuttings. Thick

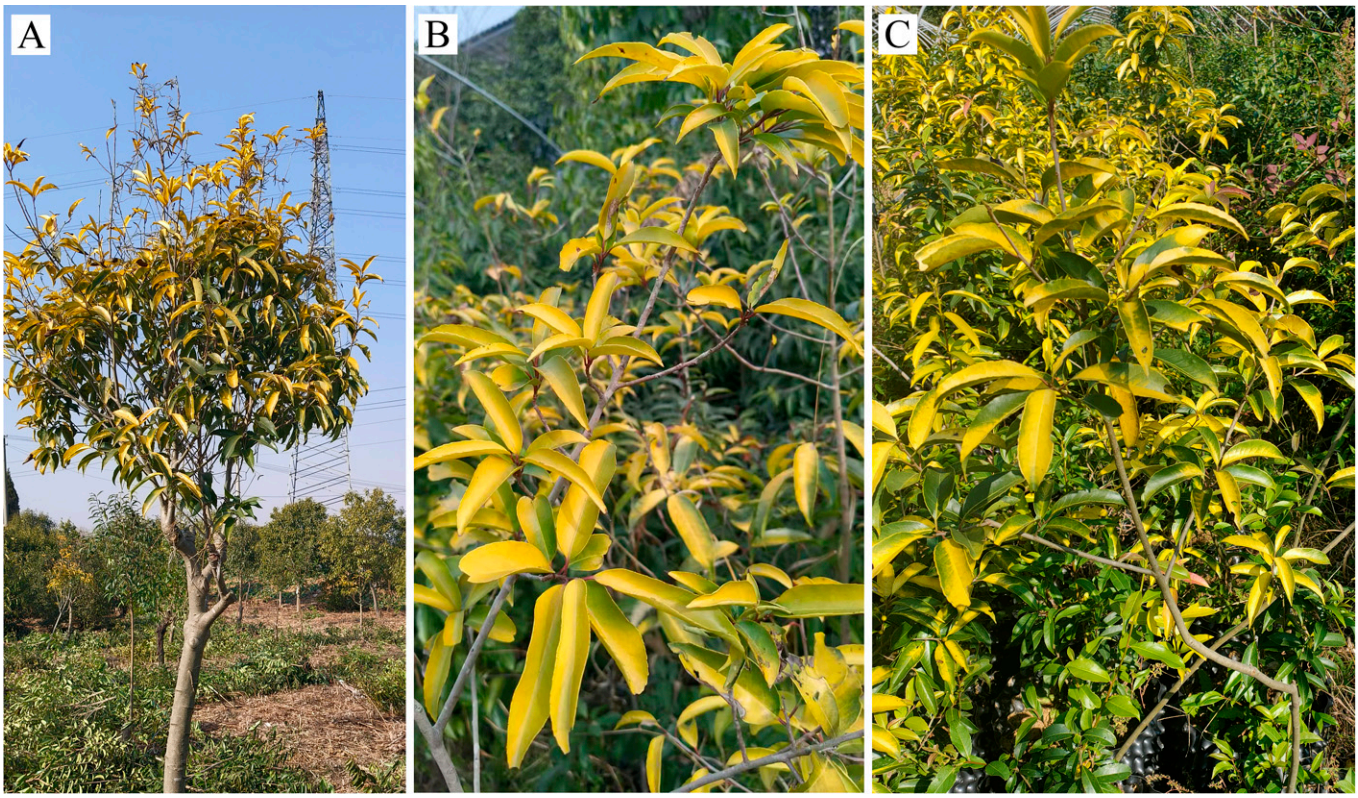

Fig. 2. Phenotypic characteristics of 'Mopan Jinguang'. (**A**) Upright growth habit with a semiopen canopy. (**B**, **C**) Leaves and twigs.

and healthy annual branches were selected in autumn or winter and cut into 10- to 15-cm-long cuttings. Cuttings were treated with 3000 ppm indole-3-butyric acid for 8 to 10 s, resulting in rooting percentages of 70% to 80% after 6 weeks.

Cultivation

'Mopan Jinguang' grows well in full sun to partial shade; yellow variegation is expressed more intensely in full sun. The cultivar is readily adapted to various soil types, with well-drained acidic soil being ideal. It can survive in the US Department of Agriculture hardiness zone 8b to 10. Transplantation with the soil ball in early spring are recommended, followed by thorough irrigation. Proper pruning and shaping of plants are necessary as needed. Fertilize adequately during the growing season and stop fertilizing in the hot summer. Pests or diseases did not cause significant problems, and only a few incidents of leaf spots were observed.

Availability

'Mopan Jinguang' is available in China from the Jurong Mopan Mountain Forestry Farm. Requests for grafted seedlings for research purposes may be addressed to Hong Chen or Wenjie Fan.

References Cited

Chong X, Li Y, Yan M, Wang Y, Li M, Zhou Y, Chen H, Lu X, Zhang F. 2022. Comparative chloroplast genome analysis of 10 *Ilex* species and the development of species-specific identification markers. Ind Crops Prod. 187:115408. https://doi.org/10.1016/j.indcrop.2022.115408.

Chong X, Wang X, Zheng B, Zhou T, Li Y, Wang C, Zhang F, Zhou Y, Chen H. 2023. 'Ning Qing 3': A new holly cultivar with peculiar leaf morphology. HortScience. 58(8):879–880. https://doi.org/10.21273/HORTSCI17197-23.

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

Su T, Zhang M, Shan Z, Li X, Zhou B, Wu H, Han M. 2020. Comparative survey of morphological variations and plastid genome sequencing reveals phylogenetic divergence between four endemic *Ilex* species. Forests. 11(9):964. https://doi.org/10.3390/f11090964.

Tsang A, Corlett R. 2005. Reproductive biology of the *Ilex* species (Aquifoliaceae) in Hong Kong, China. Can J Bot. 83(12):1645–1654. https://doi.org/10.1139/b05-131.

Yao X, Tan YH, Liu YY, Song Y, Yang JB, Corlett RT. 2016. Chloroplast genome structure in *Ilex* (Aquifoliaceae). Sci Rep. 6:28559. https://doi.org/10.1038/srep28559.

Yao X, Zhang F, Corlett RT. 2022. Utilization of the hollies (*Ilex* L. spp.): A review. Forests. 13(1):94. https://doi.org/10.3390/f13010094.

Yi F, Zhao X, Peng Y, Xiao P. 2016. Genus *Ilex* L.: Phytochemistry, ethnopharmacology, and pharmacology. Chin Herb Med. 8:209–230. https://doi.org/10.1016/S1674-6384(16)60044-8.

Zhou T, Chong X, Zhang F, Lu X, Zhang D, Chen H. 2024. 'Ning Qing 4': A new holly cultivar with elliptic and serrated leaves. HortScience. 59(1):16–17. https://doi.org/10.21273/HORTSCI17436-23.

Zhou T, Ning K, Mo Z, Zhang F, Zhou Y, Chong X, Zhang D, El-Kassaby YA, Bian J, Chen H. 2022. Complete chloroplast genome of *Ilex dabieshanensis*: Genome structure, comparative analyses with three traditional *Ilex* tea species, and its phylogenetic relationships within the family Aquifoliaceae. PLoS One. 17(5): e0268679. https://doi.org/10.1371/journal.pone.0268679.