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‘Xiangnong Xiangyun’: A New Variety of *Loropetalum chinense*

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Loropetalum chinense, commonly known as the Chinese fringe flower, is an evergreen shrub or small tree in the family Hamamelidaceae. Known for its strong sprouting ability and tolerance to pruning, its mature stumps often display an elegant, aesthetically pleasing shape (Li and Xiong 2023). As a classic foliage plant, *L. chinense* is a precious landscaping plant native to Hunan Province, China. It is widely used in landscaping and urban greening projects, with ∼110 varieties documented in Hunan Province (Hou et al. 2002). Because of its diverse and adaptable growth forms, as well as its rich leaf and flower colors (Li et al. 2008), it is cultivated and promoted in many countries (Liu 2024).

To enhance the variety and application of *Loropetalum* species and support the expansion of related industries, breeding programs have been initiated. These programs focus on the extensive collection and organization of existing varieties of *L. chinense* var. *rubrum* and related germplasm resources. Through natural pollination and the selection of superior individual plants within families, combined with clonal propagation (Li et al. 2010, 2011), new cultivars of *Loropetalum* have been developed. These new varieties exhibit desirable traits such as limited annual growth, reduced pruning requirements, and unique flower shapes, leaf morphology, and plant forms (Liu et al. 2023). The breeding materials mainly consist of vegetative varieties with relatively complex genetic backgrounds, such as *L. chinense* var. *rubrum* ‘Huaye Jimu No. 2’. The breeding of ‘Xiangnong Xiangyun’ involved collecting seeds from naturally pollinated ‘Huaye Jimu No. 2’ for propagation through sowing (Nov 2010). Morphologically and genetically stable individual plants were selected for identification, followed by clonal propagation through cuttings (May–Oct 2013). Subsequently, a variety comparison trial was conducted (2015–17), and finally, a cultivation promotion trial was carried out.

L. chinense var. *rubrum* ‘Huaye Jimu No. 2’ is particularly noted for its distinct ornamental value. The young leaves of this variety are yellow-green with purple-red spots, whereas the mature leaves are dark green with purple-red spots. The young branches are light red. It flowers two to three times a year, with the first flowering occurring from early to mid-March, and peak flowering occurring from late March to early April. The flowers are a vibrant pink (RHS 67B).

Origin

L. chinense ‘Xiangnong Xiangyun’ was developed from seeds collected after natural pollination of ‘Huaye Jimu No. 2’ and sown in Nov 2010 at the Hunan Agricultural University Horticulture Department Flower Nursery Base (lat. 28.12°N, long. 112.59°E). In 2011, a unique plant was identified in the mixed-progeny population, characterized by flower colors ranging from pure white to light creamy yellow (RHS 157D), distinct from its parent. Clonal propagation of this selection commenced May 2013. After three consecutive years of variety comparison trials and field stability observations (2015–17), numerous clones displaying stable morphological traits were propagated. In 2022, the National Forestry and Grassland Administration officially recognized this cultivar as a new variety, naming it ‘Xiangnong Xiangyun’, with the variety right no. 20220205.

Description

From 2022 to 2024, field trials were conducted at Hunan Agricultural University to evaluate the newly planted *L. chinense* ‘Xiangnong Xiangyun’ and ‘Huaye Jimu No. 2’. The trials took place in the foliage plant nursery area of the university’s flower base, covering a 40-m^2 experimental area. The trials involved 60 two-year-old cuttings (30 plants per variety), randomly assigned in three replicates of 10 plants each. The cuttings were cultivated in an open-field comparative trial with a planting spacing of 40 × 40 cm using typical mountain red soil from Hunan. The comparative trials were conducted using a completely randomized block design, with plot sizes varying between experiments (Zhang et al. 2024). Data were collected on various morphological and growth traits, including petal length, petal width, flower color, plant height, leaf length, leaf width, leaf length-to-width ratio, midbranch

Table 1. From 2015 to 2017, in a randomly designed nursery at Hunan Agricultural University, morphological traits of the new cultivars Xiangnong Xiangyun and Huaye Jimu No. 2 were collected from 30 plants each (10 plants × 3 replications).

Traits	Xiangnong Xiangyun	Huaye Jimu No. 2
Midleaf length (cm)	3.302 ± 0.36 a[i]	2.633 ± 0.41 b
Midleaf width (cm)	2.383 ± 0.34 a	2.133 ± 0.42 b
New-shoot length (cm)	7.226 ± 0.51 a	6.871 ± 0.61 b
Leaf spacing (cm)	1.368 ± 0.17 b	1.578 ± 0.29 a
Stem diameter (cm)	2.032 ± 0.15 a	2.032 ± 0.17 a
Petal length (cm)	1.623 ± 0.07 b	2.154 ± 0.10 a
Petal width (cm)	0.279 ± 0.11 a	0.141 ± 0.05 b
Initial flowering period	5–14 Mar	9–16 Mar
Full flowering period	15 Mar–5 Apr	17 Mar–10 Apr
Flower color	Pure white light	Pink
Color of young leaves	Light red to yellow-green	Yellow-green with purple-red patches
Color of mature leaves	Yellow-green or dark green	Dark green with light-red patches.

[i] Values followed by different letters within the same row indicate significant differences at $P < 0.05$.

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Fig. 1. Morphological characteristics of 'Xiangnong Xiangyun'. (**A**) New leaves and branches in spring. (**B**) Mature leaves and branches. (**C**) Flower. (**D**) Unripe fruit.

leaf length, midbranch leaf width, new-shoot length, stem diameter, leaf spacing, flowering period, and fruiting period. The data were analyzed using SPSS 22.0 (SPSS Inc., Chicago, IL, USA). The color references used are from the Royal Horticultural Society Color Chart (Royal Horticultural Society 2007) and are designated as RHS.

The primary botanical characteristics of 'Xiangnong Xiangyun' and its maternal parent 'Huaye Jimu No. 2' are presented in Table 1. The differences are primarily reflected in leaf and flower traits. 'Xiangnong Xiangyun' has medium-size, long-ovate leaves with blunt tips (Fig. 1); the length of the leaves in the middle of the branches is ∼3.30 cm and the width is ∼2.38 cm (Table 1). The young leaves are light red to yellow-green (Fig. 1), and the young branches range from light red to light green (Fig. 1). As the leaves mature (Fig. 1), they turn dark green (Fig. 1), whereas the mature branches become gray-brown (Fig. 1). The internode length varies at ∼1.36 cm (Table 1), and the new shoot length is ∼7.22 cm (Table 1). The plant exhibits vigorous growth and a compact habit.

The main phenological stages of 'Xiangnong Xiangyun' and its maternal parent 'Huaye Jimu No. 2' are presented in Table 1. Both varieties flower one to two times per year, with the initial flowering period occurring from early to mid-March and the peak flowering period from mid-March to early April. 'Xiangnong Xiangyun' produces an abundance of flowers, ranging in color from pure white to light creamy yellow. The petals are relatively broad and recurved, measuring ∼1.62 cm in length and 0.27 cm in width, which is nearly twice the size of the petals of the maternal parent.

Cultivation Techniques

Cutting propagation. The best time for cutting propagation is from May to October, with a survival rate of more than 90%. If appropriate protective facilities are available (Huang 2014), cuttings can be done year-round. Loose materials such as vermiculite, river sand, and yellow (or red) (Shen and Long 2019) loam are selected as cutting substrates to ensure good aeration, water permeability, and high air humidity for the cuttings.

Grafting propagation. Two main methods are used for grafting propagation: cleft grafting (Deng 2000) and budding (Xu 2010). Grafting can be performed from February to October, with cleft grafting being ideal before spring budding, and budding best suited for September to October. Currently, the College of Horticulture and Landscape Architecture at Hunan Agricultural University has 8-year-old 'Xiangnong Xiangyun' mother plants available for cuttings, as well as a small number of 1- to 2-year-old cuttings.

Current Cultivation Promotion Situation

'Xiangnong Xiangyun' bred by the College of Horticulture at Hunan Agricultural University, underwent regional trials from 2015 to 2017 in Yueyang City (Huarong County), Changsha City (Hunan Agricultural University) and Xiangxi Autonomous Prefecture (Baiyan Township). Each trial site covered an area of 0.035 acres, with 'Huaye Jimu No. 2' and *L. chinense* serving as controls to evaluate its adaptability across the province. Details of the experiments conducted in various locations can be found in the supplemental materials.

Based on trial plantings at various locations from 2015 to 2017, 'Xiangnong Xiangyun' exhibited healthy growth, with stable flower and new leaf characteristics. Under open-field cultivation in mountainous red-soil conditions, 'Xiangnong Xiangyun' demonstrated similar adaptability and resistance to pests and diseases as its maternal parent. However, its flower color differed significantly, displaying pure white to light creamy yellow petals (Fig. 1), which were two to three times wider and more recurved than those of its maternal parent. In addition, 'Xiangnong Xiangyun' produced an abundance of flowers, with a striking color contrast between the flowers and leaves, creating a highly ornamental effect.

Availability

For inquiries regarding 'Xiangnong Xiangyun' and related research, please contact Y. Li at the College of Horticulture, Hunan Agricultural University (liyanlin@hunau.edu.cn).

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