

A New *Hippeastrum* Hybridum ‘Ling Xiu’

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Hippeastrum is a perennial flowering herb of the genus *Hippeastrum* in the Amaryllidaceae family. It is native to South America. With bright, rich, and large flower shapes, it has high ornamental value and occupies a unique position in the plant kingdom (Chen et al. 2025). Due to its high content of alkaloids, it has certain medicinal value. As a medicinal plant, *Hippeastrum* has a good effect of clearing away heat and detoxification. It is often used to treat carbuncle and swelling poison in humans (Chen et al. 2019).

The flowers of *Hippeastrum* are not only strikingly beautiful but also come in a rich variety of colors. Moreover, *Hippeastrum* is suitable for purposes such as potting, landscaping, and cut flower appreciation, and can also be cultivated in the open field.

Currently, China relies heavily on imported bulbs, which limits the independent development of the *Hippeastrum* industry and hinders the cultivation of local varieties that meet the unique aesthetic needs of the Chinese market. Therefore, cultivating new varieties of *Hippeastrum* with independent intellectual property rights in China and high ornamental value is of extremely important and urgent practical significance for promoting the healthy and sustainable development of China's *Hippeastrum* industry, enhancing its competitiveness, and meeting people's growing aesthetic and consumption demands for high-quality flowers (Cai et al. 2023). For *Hippeastrum*, in addition to the traditional

large-flowered varieties, the medium- and small-flowered types with small and compact plant shapes, shorter leaves, and stronger stress resistance, which are suitable for more compact indoor cultivation environments, more convenient for indoor arrangement and appreciation of the cultivar, and that stably grow and bloom under different environmental conditions, are gradually becoming new growth points of market demand. Therefore, it is necessary to carry out systematic hybridum selection and breeding work with the aim of cultivating new varieties of *Hippeastrum*

with medium and small flowers, short leaves, and strong resistance suitable for indoor cultivation (Bai et al. 2024).

Origin

Since 2017, Yangtze University established a *Hippeastrum* research and technical team to conduct germplasm resource collection and crossbreeding experiments. The objectives include prolonging the flowering period, enriching flower colors and forms, and enhancing disease resistance. To achieve these goals, the team experimented with various crossbreeding combinations.

‘Xiao Qing Long’ exhibits a fresh, pure white-green floral coloration. ‘Green Iguazu’ (Fig. 1A), indigenous to northeastern Argentina, displays chartreuse blossoms. Its glaucous foliage presents a pruinose surface texture.

In Mar 2020, controlled hand-pollination was conducted using ‘Xiao Qing Long’ as the maternal parent and ‘Green Iguazu’ as the paternal parent. Upon capsule maturation in May of the same year, seeds were immediately harvested and sown for seedling propagation.

In May 2023, the hybridum seedlings bloomed for the first time. Among them, single plants with excellent plant types were selected for hanging and recording. Comparative observations were continuously conducted during the flowering period from 2024 to 2025. Ultimately, it was determined that their traits were stable and consistent.

The *Hippeastrum* hybridum exhibited superior ornamental traits, including elegant floral architecture, vibrant pigmentation, enhanced disease resistance, and vigorous growth kinetics. Based on these characteristics, it was formally designated as a novel cultivar Ling Xiu (Fig. 1B–D). This *Hippeastrum* hybridum

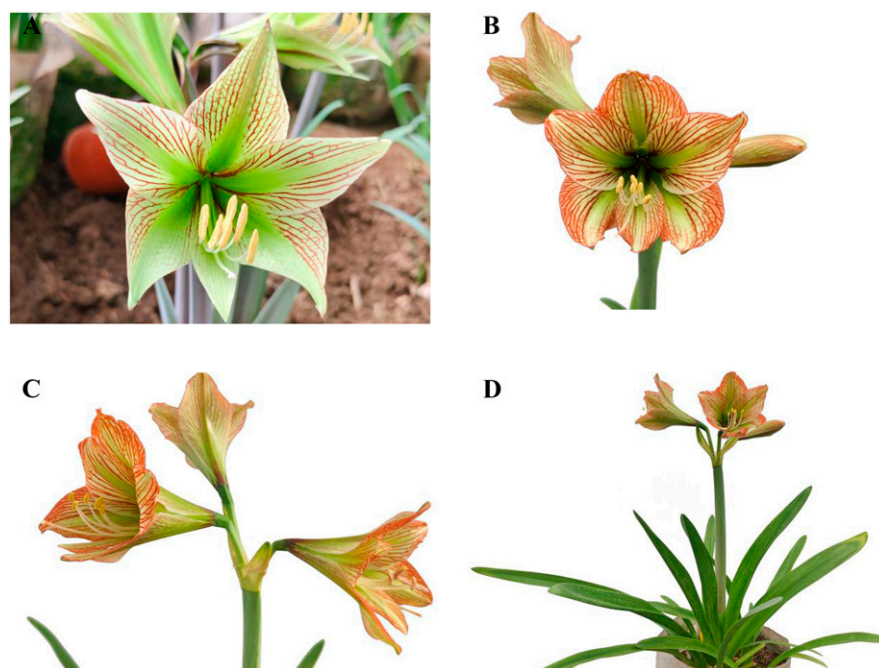


Fig. 1. Habit and blossoms of the *Hippeastrum* hybridum ‘Ling Xiu’. (A) the male parent ‘Green Iguazu’ (as a comparison) (B) The front view (C) The side view (D) The whole plant.

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Table 1. Comparison of plant traits between ‘Ling Xiu’ and ‘Green Iguazu’.

Variety	Flower: Inner main color	Flower: Avg diam (cm) (Standard error: 0.3 cm)	Fickle heart: Color	Flower: Reticulated color	Flower: Shape	Plant: Color
Ling Xiu	Pale pink (31D)	8.1	Strong yellowish green (144A)	Bright orange-red (34A)	Blunt	Green
Green Iguazu	Light yellow-green (145C)	13.1	Yellow-green (N144C)	Strong yellowish pink (37B)	Pointed	Purple

was developed through elite single-plant selection followed by offset propagation. Its release establishes a foundation for advancing *Hippeastrum* hybridization protocols and enriching genetic resources.

Description

The average plant height of ‘Ling Xiu’ is 41.5 cm and the plant width is 45.3 cm. The subterranean portion consists of a bulb. The aerial part is composed of a basal rosette of leaves and an erect, hollow scape, which emerges from the bulb and is significantly taller than the leaf rosette. The entire plant is green.

The petals have an orange net pattern. The flower color is based on the Royal Horticultural Society plant standard color chart of the Royal Society of British Gardens. The main color is light yellowish pink (31D), the middle part of the petal is strong greenish yellow (151A), the center of the flower is strong yellowish green (144A), and the reticulation color of the petal is bright orange-red (34A).

Flower type: Single-petaled (6 tepals). Color distribution: Veined. Form on frontal view: Round. Sepals and petals: Isomorphic. Sepal and petal: Smooth. Overlapping of tepals: Medium.

The number of flower stalks was one, upright and green, with an average length of 35.4 cm and a diameter of 2.1 cm. The average number of flowers per stalk was 3.2, and the flower diameter was 7.93 cm. The depth of the flower trumpet is 10.2 cm. It blooms in plastic greenhouses in Hubei Province from April to May. The life span of a single flower is 9.5 d and the single stalk viewing period is 17.0 d. This cultivar blooms once a year.

The leaves are broad and band-like, leathery, and green on the leaf surface. The average length is 31.3 cm and the width is 3.6 cm.

‘Ling Xiu’ exhibits strong compatibility for hybridization and produces abundant seeds. Capsules, which mature ~40 d after pollination, are nearly spherical with a diameter of 1.5–2.5 cm. Immature fruits are green, turning yellowish-brown upon maturity. Internally, the capsule is divided into three chambers by septa. Each chamber contains 40 to 60 flat, black seeds bearing membranous wings. Seeds were sown in a substrate composed of peat:coir:perlite (2:1:1, vol/vol/vol). Germination commenced ~2 to 3 weeks after sowing, yielding F₂ seedlings.

‘Ling Xiu’ features small flowers with intense coloration, suitable for commercial sales in festive floriculture markets, serving as visual focal points in flower borders, and interior decor applications (e.g., living rooms).

The flower type of the Ling Xiu cultivar is similar to that of its male parent ‘Green Iguazu’. The plant comparison between ‘Ling Xiu’ and ‘Green Iguazu’ is shown in Table 1.

Cultivation

Hippeastrum hybridum ‘Ling Xiu’ prefers sunlight. Sustained exposure to temperatures exceeding 32 °C during summer necessitates ~60% shading to prevent foliar photobleaching and scorch damage. Optimal growth occurs under diurnal temperatures of 25 to 30 °C with nocturnal temperatures of 15 to 20 °C.

It exhibits high thermotolerance and moderate drought tolerance; under greenhouse cultivation, plants maintain perennial evergreen foliage and tolerate transient exposures >40 °C. Although tolerant of brief, light frosts, aerial parts senesce and enter dormancy during Central China’s cold winters. Containerized specimens must be overwintered indoors (5 °C) under desiccating conditions. Field-grown bulbs require protective mulching with rice straw (≥15 cm depth), deciduous leaf litter, or polyethylene film (0.1-mm thickness) to prevent periglacial injury.

It prefers loose, fertile, and well-drained slightly acidic to neutral soils (pH 6.0–7.0). The potting medium is prepared by mixing leaf mold, peatmoss, and perlite at a ratio of 4:3:3. For potted cultivation, clay or earthen pots with excellent air permeability are recommended. The pot diameter should be 5 to 10 cm larger than the bulb, and the bottom must feature drainage holes. For field planting, select sunny plots with loose, non-waterlogged soil. Keep the soil moist during the growing season and water it two to three times a week.

It prefers rich fertilizer. Apply compound fertilizer granules with a ratio of nitrogen, phosphorus, and potassium of 15N–15P–15K, 1 to 2 g per plant. Fertilize once every 20 to 30 d in summer and once every 30 to 40 d in winter.

Propagation is mainly carried out by the method of bulb division after flowering. For potted plants, expose one-third to one-half of the bulb above the soil surface. For field planting, the bulbs can be planted slightly

deeper, but the top still needs to be partially exposed.

Under facility cultivation conditions, this cultivar exhibits enhanced disease resistance and stress tolerance, with no documented major pest or disease outbreaks. It demonstrates high resistance to Cucumber mosaic virus and shows effective resistance against piercing-sucking pests including spider mites and scale insects. Nevertheless, vigilant monitoring and management remain essential during the growing season to control leaf spot, root rot, noctuid larvae, snails, and spider mites.

Environmental factors have a certain impact on the growth of *Hippeastrum*. There are certain differences in the performance traits of *Hippeastrum* under protected cultivation and open-field planting. The planting soil, water management, microclimate, etc., in the greenhouses of Yangtze University have important influences on the growth characteristics of *Hippeastrum*. Continuous observation and follow-up experiments provide valuable experience for optimizing the growth conditions of future varieties.

Availability

If you are interested in this new variety, you can go to the Experimental Base of the College of Horticulture and Gardening at Yangtze University. Limited split seedlings will be provided for experiments. Contact Dehua Jia (e-mail: 457074462@qq.com) for further information.

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