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A New Hybrid *Lycoris* Cultivar: Nanshan

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The genus *Lycoris* Herb., belonging to the family Amaryllidaceae, was established by Herbert in 1819, with *Lycoris aurea* designated as the type species (Herbert 1819). Currently, this genus includes more than 30 species, distributed primarily across the temperate and subtropical regions of East Asia, ranging from southwestern China to Japan and the Korean Peninsula (Zhang et al. 2024). The Yangtze River Basin of China serves as the distribution center for *Lycoris* germplasm resources, with endemic species accounting for nearly 80% of the total (Ji and Meerow 2000).

Lycoris species, as bulbous ornamentals, were introduced to Europe as early as the 18th century. This is evidenced by the fact that *L. aurea* and *Lycoris radiata* were named and placed within the genus *Amaryllis* in 1788 (L'Héritier de Brutelle et al. 1788). American horticulturists began hybridization breeding work with *Lycoris* in the 1930s and 1940s (Culpepper 1940). However, as a result of limited knowledge of *Lycoris* characteristics at the time, the success rate of hybridization was low. According to Caldwell (1958), William Wood conducted hybridization experiments in 1941 using *Lycoris traubii* as the maternal parent and *L. radiata* as the paternal parent, obtaining progeny with flower color and form similar to the maternal parent, which was named *Lycoris woodii*. This is considered the first successful instance of interspecific hybridization in *Lycoris* (Caldwell 1958).

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Systematic research on *Lycoris* hybridization breeding in China began in the 1970s. Researchers conducted comprehensive studies on pollen size and viability (Lin and Qiu 1984), storage methods and germination rates (Lin et al. 1985), and hybridization compatibility patterns, incorporating cytological literature (Lin 1985). Two hybrid combinations flowered—*Lycoris sprengeri* × *Lycoris chinensis* and *Lycoris haywardii* × *L. chinensis*—and were named *Lycoris* ×*elegans* ('Xiuli') and *Lycoris* ×*macrocephalum* ('Xiuqiu'), respectively (Lin 1987; Lin and Yu 1986; Xu et al. 1986).

Origin

In Summer 2015, hybridization was conducted using *Lycoris longituba* (Fig. 1A) as the maternal parent and *Lycoris tsinlingensis* (Fig. 1C) as the paternal parent. The parental plants were collected from Tsinling Mountain during a field investigation in 2014, with *L. tsinlingensis* later published as a new species in 2020 (Lu et al. 2020). Twelve seeds were harvested in Fall 2015 and sown immediately. Germination occurred in Mar 2016, with leaves emerging in Spring 2017. The first flowering was observed in 2021, and stable traits were confirmed over two consecutive years. In 2022, a registration application for the new cultivar was submitted to the Royal General Bulb Growers' Association. The international registration was completed successfully in Sep 2022 under the name 'Nanshan' (Fig. 1B), with the series no. 600234.

Description

The bulb is nearly spherical, with a diameter of 4 to 5 cm. The leaves are green and emerge in spring with a blunt, rounded tip and a more prominent light band in the vein. The leaves are 45 to 50 cm in length, which is a little longer than the maternal parent, *L. longituba*, and 1.5 to 2.2 cm in width. The flower stem is green and is ∼50 to 60 cm high, which is the same as male parent, *L. tsinlingensis*. There are two bracts and five to six small flowers in the umbel. The perianth, which is orange-brown (34D, Royal Horticultural Society 2015) and yellow in throat, is ovate, 8 to 8.5 cm long, and 1.5 to 1.8 cm wide, with a moderately wrinkled edge and a slightly curled tip. The corolla tube is 2.5 to 3.0 cm long, which is between the parents. The stamens are a little shorter than the perianth, ∼7 to 7.5 cm long. The filaments are yellow. The pistil extends slightly outside the perianth. Although 'Nanshan' is quite different from *L. longituba* in terms of the perianth color, it is similar to it in terms of its flower pattern. The flowering and fruiting periods are in July and September, respectively. The capsule has three angles with a cracked back. The seed is nearly spherical with a black seedcoat.

Propagation, Cultivation, and Application

Lycoris 'Nanshan' is fertile and can be propagated through seed or various vegetative methods, including twin-scale cutting, sectioning, bulb division, and tissue culture. For optimal propagation, twin-scale cutting, sectioning, and bulb division should be performed in early summer (May–June) after leaf senescence, whereas tissue culture–based rapid propagation can be conducted year-round.

This cultivar is adaptable to different soil conditions but thrives best in well-drained, deep, humus-rich sandy loam or sandy soil with a slightly acidic to neutral pH. Although drought tolerant, it is vulnerable to waterlogging, making proper drainage essential to prevent bulb rot. The bulbs should be planted at a depth sufficient to cover them completely, with spacing of 10 cm between plants and 20 to 30 cm between rows. Excessive planting depth should be avoided because it increases the risk of bulb rot in soils with a high moisture content. The cultivar exhibits limited cold tolerance, with leaves suffering mild frost damage at temperatures less than 0 °C.

With its tall scape exceeding 50 cm, well-formed flowers, and unique coloration, *Lycoris* 'Nanshan' is well-suited for cutting flowers, potted plants, or groundcover plants. In recent years, flower fields and flower borders have become increasingly popular in landscape design. *Lycoris* 'Nanshan', which shares ornamental characteristics with commonly used flower field plants such as tulips, lilies, and chrysanthemums, serves as an excellent choice for creating these landscape features.

Availability

Lycoris 'Nanshan' is available through Hangzhou Botanical Garden. Contact Pengchong

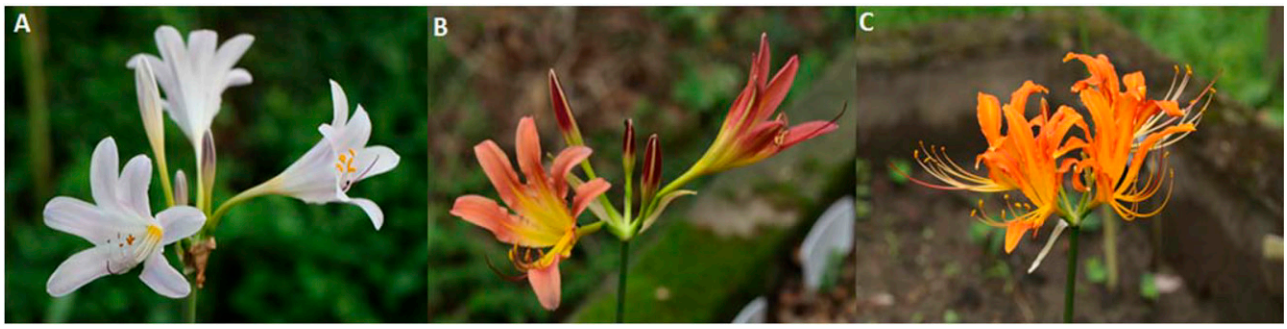

Fig. 1. Flower characteristic of *Lycoris longituba* (**A**), the *Lycoris* cultivar Nanshan (**B**), and *Lycoris tsinlingensis* (**C**).

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References Cited

Caldwell S. 1958. Hybridizing *Lycoris*. Plant Life. 14(1):66–68.

Culpepper C. 1940. Attempts to grow Lycoris from seeds. Plant Life. 7:171–172.

Herbert W. 1819. *Lycoris* Herb. Botanical Mag. 47(5):2113.

Ji Z, Meerow A. 2000. *Lycoris* Herb., p 264–273. In: Wu Z, Raven PH (eds). Flora of China. Vol. 24. Science Press, Beijing, China.

L'Héritier de Brutelle CL, Bruguière JG, Didot PF, Pernotin B, Redouté PJ, Sowerby J. 1788. Sertum Anglicum, seu, Plantae rariores quae in hortis juxta Londinum: Imprimis in horto regio Kewensi excoluntur, ab anno 1786 ad annum 1787 observatae/Car. Lud. L'Heritier. Petri Francisci Didot, Paris, France. https://doi.org/10.5962/bhl.title.11440.

Lin JZ. 1985. Cross compatibility in interspecific hybridization of *Lycoris* (in Chinese). Newsl Hangzhou Botanical Garden. 2: 24–25.

Lin JZ. 1987. Interspecific hybridization of *Lycoris* II: Hybridization between *L. haywardii* and *L. chinensis* (in Chinese). Newsl Hangzhou Botanical Garden. 1:8.

Lin JZ, Qiu XJ. 1984. Determination of pollen size and viability in several species of *Lycoris* (in Chinese). Newsl Hangzhou Botanical Garden. 2:18–19.

Lin JZ, Qiu XJ, Yu YF. 1985. Storage and germination test of pollen in Amaryllidaceae (in Chinese). Newsl Hangzhou Botanical Garden. 1:34–36.

Lin JZ, Yu ZZ. 1986. A note on new species of *Lycoris* (in Chinese). Newsl Hangzhou Botanical Garden. 4:1.

Lu YJ, Wang T, Wang C, Wang YC, Zhang PC. 2020. *Lycoris tsinlingensis* (Amaryllidaceae): A new species from Shaanxi, China. Ann Botan Fennici. 57(4–6):193–196. https://doi.org/10.5735/085.057.0424.

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

Xu BS, Lin JZ, Yu ZZ, Huang SF. 1986. Interspecific hybridization between *Lycoris sprengeri* and *L. chinensis* (in Chinese). Acta Hortic Sinica. 13(4):283–284.

Zhang PC, Zheng YH, Zhang SY, Pang CP, Tian LY. 2024. *Lycoris* of Amaryllidaceae in China, p 58–97. In: Ma J (ed). China: Mother of gardens, in the twenty-first century. Science Press, Beijing, China.