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‘Bi Yue Xiu Hua’: A New Rose Cultivar

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Rose is one of the most important crops for the ornamental plant and perfume industries worldwide, with both economic and cultural value (Wang et al. 2023). The breeding history of roses is extensive; it is widely believed that the initial stages of rose crossbreeding originated in China, as far back as 960 CE (Yuan et al. 2023). The modern rose represents a highly heterozygous and diverse group, formed through long-term breeding and repeated crossbreeding of various rose species. To date, more than 37,000 rose registrations have been submitted to the American Rose Society.

As time progresses, the objectives of rose breeding have shifted from merely ornamental aspects such as flower shape, hue, plant form, and floral characteristics to an emphasis on the cultivation quality of roses, particularly their resilience to disease, cold, heat, and pests. It is worth mentioning that the tireless dedication of rose breeders has resulted in the development of numerous rose varieties with strong cold resistance. Among these, ‘Carefree Beauty’ exhibits remarkable cold tolerance, thriving in temperatures as low as −38 °C. This variety was developed through hybridization and multiple backcrosses between *Rosa laxa* and modern roses (Griffith 1979). Additionally, Chinese rose breeders have developed several cold-resistant roses, including ‘Tianshan Xiangyun’ (Guo et al. 2011), ‘Tianxiang’, ‘Tianshan Baixue’, ‘Tianshan Taoyuan’, ‘Tianshanzhiguang’, ‘Tianshanzhixing’ (Yang et al. 2016), and ‘Mountain sunrise (Yao et al. 2022). In addition to cold resistance, it is also crucial for roses for roses to resist high temperatures. In this report, we introduce a new rose variety, ‘Bi Yue Xiu Hua’, which not only possesses high ornamental value but also demonstrates resilience to elevated temperatures, blooming even at temperatures reaching 40 °C.

Origin

The new variety ‘Bi Yue Xiu Hua’ is selected from the hybrid offspring of ‘Hong Wu Yue’ as the female parent and ‘Si Chun’ as the male parent. ‘Hong Wu Yue’ is developed by the Beijing Academy of Forestry and Landscape Architecture through hybridization between the female parent ‘Carefree Beauty’ and the male parent ‘Bavarian Girl’ (Chao et al. 2015). ‘Si Chun’ is an old Chinese rose cultivar, with its parentage remaining undocumented. In Autumn 2012, seeds obtained from the crossing of ‘Hong Wu Yue’ and ‘Si Chun’ were collected and subsequently planted in the same nursery in Spring 2013. In the same year, a plant exhibiting a specific floral pattern was identified and propagated through cuttings. After 8 years of rigorous field observations, all plants demonstrated stable and consistent morphological traits. In 2024, this new cultivar was officially authorized by the Plant Variety Protection certificate of the State Forestry and Grassland Administration of China with the named ‘Bi Yue Xiu Hua’.

Description

Thirty plants (three replicates with 10 plants/replicate) were randomly selected from each of ‘Bi Yue Xiu Hua’, ‘Hong Wu Yue’, and ‘Si Chun’, and their morphological characteristics were recorded. The comparison of morphological characteristics of ‘Bi Yue Xiu Hua’, ‘Hong Wu Yue’, and ‘Si Chun’ are shown in Table 1. Statistical analysis was conducted by independent-sample *t* test analysis of variance using IBM SPSS Statistics 26.0. All colors were recorded according to the Royal Horticultural Society (2007) (RHS) Color Chart.

The plant height of ‘Bi Yue Xiu Hua’ (77.79 ± 2.77 cm) is significantly shorter than both ‘Hong Wu Yue’ (150.36 ± 1.34 cm) and ‘Si Chun’ (178.45 ± 1.15 cm). The flower diameter of ‘Bi Yue Xiu Hua’ (9.17 ± 0.56 cm) is slightly smaller than that of ‘Hong Wu Yue’ (10.05 ± 0.31 cm) and ‘Si Chun’ (10.87 ± 0.85 cm). However, compared with ‘Hong Wu Yue’ and ‘Si Chun’, ‘Bi Yue Xiu Hua’ has the largest number of petals. In terms of flower color, ‘Bi Yue Xiu Hua’ exhibits distinct differences when compared with ‘Hong Wu Yue’ (RHS 44A) while demonstrating similarities to ‘Si Chun’, both of which are classified as light magenta (RHS N66C and 63B, respectively). ‘Bi Yue Xiu Hua’ features a button heart at the center of its flower (Fig. 1D), which persists even into the later stages of blooming. In contrast, ‘Hong Wu Yue’ and ‘Si Chun’ lack a button heart, and their inner petals appear somewhat disheveled (Fig. 1E–F). Both ‘Bi Yue Xiu Hua’ and its parents are continuous flowering roses, capable of blooming from mid-May to early November.

Cultivation Techniques

‘Bi Yue Xiu Hua’ exhibits optimal growth in neutral to slightly acidic soils under full sunlight, and diluted fertilizer with frequent applications ensures sustained ornamental performance. ‘Bi Yue Xiu Hua’ can be propagated by asexual propagation methods such as cuttings, grafting and tissue culture, with

Table 1. Morphological characteristics of ‘Bi Yue Xiu Hua’ compared with ‘Hong Wu Yue’ and ‘Si Chun’.

Traits[i]	‘Bi Yue Xiu Hua’	‘Hong Wu Yue’	‘Si Chun’
Plant height (cm)	77.79 ± 2.77 c[ii]	150.36 ± 1.34 b	178.45 ± 1.15 a
Flower diameter (cm)	9.17 ± 0.56 b	10.05 ± 0.31 a	10.87 ± 0.85 a
Number of petals	66.60 ± 2.97 a	30.40 ± 2.07 c	49.75 ± 1.70 b
Flower color	Light magenta (RHS N66C)	Red (RHS 44A)	Light magenta (RHS 63B)
Flower period	Mid-May to early November	Mid-May to early November	Mid-May to early November

[i] Data were collected in 2020–23 and analyzed using SPSS 26.0 (Lenovo, Beijing, China).
[ii] Means followed by different letters in the same row are significantly different ($P < 0.05$).
RHS = Royal Horticultural Society.

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Fig. 1. Comparison of the single flower and whole plant of 'Bi Yue Xiu Hua' and its parents. (**A–C**) Early bloom stage of 'Bi Yue Xiu Hua', 'Hong Wu Yue', and 'Si Chun'. (**D–F**) Full bloom stage of 'Bi Yue Xiu Hua', 'Hong Wu Yue', and 'Si Chun'. (**G–I**) Whole plant of 'Bi Yue Xiu Hua', 'Hong Wu Yue', and 'Si Chun'.

cutting propagation in full-light mist beds achieving more than 90% survival rate.

Habit and Application

'Bi Yue Xiu Hua' exhibits minimal environmental requirements and demonstrates resilience to extensive management practices. It is well-suited for open-field cultivation in Beijing and the broader North China region. In Beijing, this species can survive winter without protective measures, with minimum temperatures of approximately −20 °C. Its capable of blooming even when daily maximum temperatures reach 40 °C, with nighttime temperatures maintaining 18 to 28 °C. The flowers of 'Bi Yue Xiu Hua' are large and vividly colored. Additionally, it possesses strong resistance and a prolonged flowering period, making it an effective choice as a flowering shrub in various landscaping scenarios.

Availability

Inquiries about research or request for 'Bi Yue Xiu Hua' plant materials can be made to Prof. Hui Feng (feng.rose@qq.com) at the Beijing Key Laboratory of Greening Plant Breeding, Beijing Academy of Forestry and Landscape Architecture, Beijing, China.

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