

‘Zi Meiren’: A New *Iris sanguinea* Cultivar

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Additional index words. flower, color

Iris sanguinea is a perennial flowering ornamental landscape plant (Shang and Wang, 2014; Wang et al., 2013). Natural hybridization occurs among cultivars, and the original wild species exists and makes abundant flower colors available in natural population. The flowers of *I. sanguinea* are mainly violet (RHS N88A), whereas *I. sanguinea* f. *albiflora* is white (RHS N155C). In recent years, some new flower colors and shapes of cultivars, such as ‘Zi Die’ (Dong et al., 2014), ‘Beautiful Lotus’ (Wang et al., 2016), ‘Bandie’ (Wang and Wang, 2017), and ‘Forest Fairy’ (Kuwantai et al., 2018), have been developed. In 2017, ‘Zi Meiren’ was released as a new cultivar from a naturally hybridized population of *I. sanguinea*. Its inner and outer perianths are purple (RHS 76C) with dark purple violet (RHS N82A) spots and stripes, and the color of the edge of the perianths turns to light (purple, RHS 76D). The inner perianth spreads outward, and the angle of the half of spoon part of the inner perianths droop down nearly 30°.

Origin

In 2003, seeds of blue violet *I. sanguinea* and white *I. sanguinea* f. *albiflora* were mixed and planted in the field plot in a nursery of the Northeast Forestry University, Harbin, China (lat. 45°43′6.69″N, long. 126°37′43.66″E). In 2005, seeds from each plant were harvested and mixed and planted in another plot nearby the plot where the parents grew in spring of 2003. In 2008, plants with pink or purple flower were observed in the population. Seeds from each plant were harvested and mixed and planted in the same nursery again in 2009. In 2011, a purple flowering plant with dark purple violet spots and stripes was found in the mixed population. This plant was divided (clones) into several individual plants and planted in a new plot. After several years of propagation, field performance was observed from 2015 to

2017. The flower color and shape were stable and consistent. A new cultivar name was assigned as Zi Meiren and authorized by the American Iris Society (accession No. 17-0991).

Description

The morphological traits of ‘Zi Meiren’ were compared with the original *I. sanguinea* plant. Ninety plants each of ‘Zi Meiren’ and *I. sanguinea* were planted in a 50-m² nursery at the Northeast Forestry University, Harbin, China, and were arranged in a randomized experiment with three replications from 2015 to 2017. Thirty plants (10 plants in each replication) were selected randomly for evaluation of the following morphological traits: plant height, leaf length, leaf width, leaf length/width ratio, bract length, bract width, bract length/width, flower diameter, inner perianth length, inner perianth width, inner perianth length/width ratio, outer perianth length, outer perianth width, and outer perianth length/width ratio. All colors were referenced to the Royal Horticultural Society Color Chart, which are designated as RHS. Statistical analysis was performed by using SPSS 22.0 (Xu et al., 2017).

Plants

Plant height. ‘Zi Meiren’ has plant height (79 cm), which is significantly taller than *I. sanguinea* (56 cm) (Table 1).

Flower color. The flower color of ‘Zi Meiren’ is different from *I. sanguinea*. Three outer and inner perianths of ‘Zi Meiren’ in full bloom are purple (RHS 76C) with dark purple violet (RHS N82A) spots and stripes, and the color of the edge turns to light (purple, RHS 76D), whereas the flower color of *I. sanguinea* is violet (RHS N88A). The base of three outer perianths of ‘Zi Meiren’ has dark brown reticulate stripes with yellow background, which is similar to that of *I. sanguinea*. Anthers of ‘Zi Meiren’ are violet (RHS 86A), compared with the violet blue (RHS N92C) anthers of *I. sanguinea* (Figs. 1–3).

Flower shape. The flower structure of ‘Zi Meiren’ consists of three falls and three standards, which is similar to the flower of *I. sanguinea*. The length (5.79 and 6.32 cm) and width (4.69 and 4.75 cm) of inner and outer perianths of ‘Zi Meiren’ are significantly larger than those of *I. sanguinea* (Table 1). The ratios of inner and outer perianth length/width of ‘Zi Meiren’ are 1.24 and 1.33, which are significantly smaller than those of *I. sanguinea* (3.12 and 2.74, respectively). The top of outer perianths of ‘Zi Meiren’ are spoon-typed and droop down to an ≈45° angle, but the top half of spoon-type parts of inner perianths droops down to an ≈30-degree angle when blooming, whereas the three inner perianths of *I. sanguinea* stand upright. The flower diameter of ‘Zi Meiren’ is 9.61 cm and is significantly larger than that of *I. sanguinea* (6.51 cm) (Fig. 1; Table 1).

Flowering length. The flowering time of ‘Zi Meiren’ starts in early June and ends in June, which is close to flowering time of *I. sanguinea* (Table 1).

Leaves

Leaf description. The leaf of ‘Zi Meiren’ is narrow and long, and its main vein is not apparent. Leaf length (77.10 cm) and width (1.27 cm) of ‘Zi Meiren’ are significantly

Table 1. Morphological traits of ‘Zi Meiren’ and *Iris sanguinea* in an experimental field in Northeast Forestry University, Harbin, China.

Trait ^z	‘Zi Meiren’	<i>Iris sanguinea</i>
Plant height (cm)	79.03 ± 0.60 a ^y	56.27 ± 0.74 b
Leaf length (cm)	77.10 ± 0.92 a	58.49 ± 0.90 b
Leaf width (cm)	1.27 ± 0.03 a	0.98 ± 0.03 b
Leaf length/width	60.57 ± 0.96 a	59.56 ± 0.94 a
Bract length (cm)	6.21 ± 0.12 a	6.17 ± 0.17 a
Bract width (cm)	1.30 ± 0.09 a	1.04 ± 0.08 b
Bract length/width	4.80 ± 0.35 b	5.96 ± 0.42 a
Flower diameter (cm)	9.61 ± 0.25 a	6.51 ± 0.29 b
Inner perianth length (cm)	5.79 ± 0.18 a	4.57 ± 0.15 b
Inner perianth width (cm)	4.69 ± 0.09 a	1.47 ± 0.06 b
Inner perianth length/width	1.24 ± 0.05 b	3.12 ± 0.09 a
Outer perianth length (cm)	6.32 ± 0.12 a	4.84 ± 0.10 b
Outer perianth width (cm)	4.75 ± 0.07 a	1.77 ± 0.06 b
Outer perianth length/width	1.33 ± 0.04 b	2.74 ± 0.05 a
Flower period	5 June–25 June	5 June–25 June
Fruit period	10 Aug.–20 Sept.	10 Aug.–20 Sept.

Received for publication 1 Feb. 2019. Accepted for publication 2 Mar. 2019.

This work was supported by the Fundamental Research Funds for the Central Universities (2572015BA07) and National Natural Science Foundation of China (no. 31670344)

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^zData were measured in flowering peak and fruiting period.

^yMeans with different lowercase letters within a row are significantly different at $\alpha = 0.05$.



Fig. 1. Single flower of *I. sanguinea* and 'Zi Meiren'. The flower color of 'Zi Meiren' is purple with dark purple violet spots and stripes, compared with *I. sanguinea*'s blue violet. Flower diameter of 'Zi Meiren' was bigger than *I. sanguinea*. The top of spoon-type parts of inner perianths of 'Zi Meiren' droop down to an $\approx 30^\circ$ angle, and inner perianths of *I. sanguinea* stand upright when fully blooming (lateral view).



Fig. 2. Single flower of *I. sanguinea* and 'Zi Meiren' in blooming (vertical view).



Fig. 3. Anatomical structure of *I. sanguinea* and 'Zi Meiren', indicating outer perianths, inner perianths, style arms, bracts, filaments, anthers, and ovary.

larger than those of *I. sanguinea*, which were 58.49 cm and 0.98 cm respectively (Table 1). The ratio of leaf length/width

(60.57) of 'Zi Meiren' is similar and not significantly different from *I. sanguinea* (59.56).

Bracts

Bract description. 'Zi Meiren' has green bracts with acuminate apices and is similar to *I. sanguinea*. The bract length of 'Zi Meiren' (6.21 cm) is nearly identical to that of *I. sanguinea* (6.17 cm), but the width of the bracts (1.30 cm) is significantly wider than that of *I. sanguinea* (1.04 cm). Therefore, the ratio of bract length/width of 'Zi Meiren' (4.80) is significantly lower than that of *I. sanguinea* (5.96) (Table 1).

Cultivation Techniques

'Zi Meiren' grows well in moist soil with good drainage and rich humus and prefers under abundant sunshine. Propagation by division in the spring, summer, and early fall is recommended to expand production. Summer ramet reproduction is suitable for late afternoon, when the temperature is lower and the survival rate of ramet reproduction is high. Individual plants should be spaced by 30×30 cm with regular watering and weed control management after planting.

Use

'Zi Meiren' is an addition of the ornamental varieties of *I. sanguinea* species. It can be used directly as ornamental plant in landscapes and as germplasm in an *Iris* breeding program.

Availability

'Zi Meiren' was officially released by the American Iris Society in Nov. 2017 (accession No. 17-0991). 'Zi Meiren' plants can be obtained from Dr. Ling Wang (E-mail: wanglinghj@126.com) at the College of Landscape Architecture, Northeast Forestry University, Harbin, China.

Literature Cited

- Dong, R., H.X. Zhao, D.F. Gu, and W.Q. Wang. 2014. A new *Iris sanguinea* cultivar 'Zidie'. Acta Hort. Sinica 41(3):607-608.
- Kuwantai, A., Y.J. Liu, Z.Z. Wan, H.Y. Liu, and L. Wang. 2018. 'Forest Fairy': A new *Iris sanguinea* cultivar. HortScience 53:1222-1223.
- Shang, F.J. and L. Wang. 2014. Biological characteristics of flowering and pollination of *Iris sanguinea*. Pratacultural Sci. 31(5):892-897.
- Wang, K. and L. Wang. 2017. A new *Iris sanguinea* cultivar 'Bandie'. Acta Hort. Sinica 44(S2):2715-2716.
- Wang, L., D.M. Xia, Y.N. Li, H.M. Peng, H.L. Chen, and L.J. Fan. 2016. A new *Iris sanguinea* cultivar 'Beautiful Lotus'. Acta Hort. Sinica 43(8):1629-1630.
- Wang, Z.Z., C. Wang, Y. Yang, and C.B. Liang. 2013. Research progress and development trend of wild perennial flower *Iris sanguinea*. Southern Hort. 24(2):51-53.
- Xu, W.J., F.Y. Yu, Q.X. Jia, G.J. Luo, and X.Y. Bi. 2017. 'Sweet Princess': A new summer ornamental *Iris* cultivar. HortScience 52:1832-1833.