‘White Skirt’: A New *Iris sanguinea* f. *albiflora* Cultivar

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Additional index words. *I. sanguinea* f. *albiflora*, ornamental, cultivar, flower

Iris sanguinea is a perennial herb of *Iris* (Zhao, 1985). It has high ornamental value with beautiful, brightly colored flowers (Shang and Wang, 2014). It is easy to manage and resistant to adverse conditions (Huang et al., 2003). *I. sanguinea* f. *albiflora* is a variant of *I. sanguinea*, which grows in wetlands, wet meadows, or rivers in the Sanjiang wetland in the northeastern part of Heilongjiang (Zhao et al., 2000). We released a new *I. sanguinea* f. *albiflora* cultivar named White Skirt in 2017. ‘White Skirt’ was selected from an open-pollinated progeny population of *I. sanguinea* f. *albiflora*. Its white outer and inner perianths (RHS 155A) have wavy and serrated margins.

Origin

The open-pollinated seeds of *I. sanguinea* f. *albiflora* were collected at Mao-er-shan Experimental Nursery (lat. 45°43′6.69″N, long. 126°37′43.66″E) of Northeast Forestry University, Harbin, China, in 2007. These seeds were planted in the field plot in the Spring of 2008. One exceptional individual was selected in 2010 for further observation. Compared with its parent *I. sanguinea* f. *albiflora*, the plant had larger flowers with wavy and serrated edges on the outer and inner perianths. This plant was separated into several individual plants and planted in a new plot. In 2015 to 2017, these plants showed stable and consistent morphological traits (Table 1). The new cultivar was assigned as *I. sanguinea* f. *albiflora* ‘White Skirt’ and authorized by the American Iris Society on 23 Nov. 2017 with an accession no. 17-0990.

Description

‘White Skirt’ is a compact plant. The scape is smooth and has white powder on

the surface. The outer perianth is white (RHS 155A). The base of outer perianth has green reticulate stripes on a yellow (RHS 12B) background. The spoon-type part of the outer perianth has downward inclination from the horizontal when it is in full bloom. The inner perianth is a white color (RHS 155A). The base of inner perianth is yellow (RHS 6D). The inner perianth has upward inclination from the horizontal when it is in full bloom. The edges of inner and outer perianths are serrated with a wavy pattern (Fig. 1). Each flower has three inner perianths, three outer perianths, and three stamens. Style branches are flat and the top transitions into a rounded shape. The edge of the bract is membranous (Fig. 2).

In 2015, ‘White Skirt’ and *I. sanguinea* f. *albiflora* were planted in the Mao-er-shan Experimental Nursery. In 2017, 30 plants (10 plants in each replication) of ‘White Skirt’ and 30 plants of *I. sanguinea* f. *albiflora* were selected randomly to record the following morphological traits: plant height, plant crown, flower diameter, leaf length, leaf width, inner perianth length, inner perianth width, outer perianth length, outer perianth width, bract length, bract width, flower period, and fruit period. The physiological characteristics of ‘White Skirt’ and *I. sanguinea* f. *albiflora* (Aerdake et al., 2018) were compared (Table 1). The data were analyzed by SPSS 22.0 (IBM Corp., Chicago, IL) (Table 1). All references to color numbers were from the Royal Horticultural Society

color chart (Royal Horticultural Society, 2007) and designated as RHS.

The inner and outer perianths of ‘White Skirt’ have serrations and wavy edges, whereas its parent *I. sanguinea* f. *albiflora* has rounded edges (Fig. 3). The color of ‘White Skirt’ (RHS 155A) is close to *I. sanguinea* f. *albiflora* (RHS N155C). They both belong to the white group in the Royal Horticultural Society color chart (Fig. 3). The ‘White Skirt’ plant height (63.48 cm) is taller than *I. sanguinea* f. *albiflora* (55.84 cm). Its flower diameter (9.10 cm) is larger than *I. sanguinea* f. *albiflora* (6.43 cm). The inner perianth length (5.3 cm) and width (2.28 cm) of ‘White Skirt’ are greater than *I. sanguinea* f. *albiflora* (4.46 cm and 1.50 cm, respectively). The outer perianth length (6.95 cm) and width (4.75 cm) are also greater than *I. sanguinea* f. *albiflora* (4.67 cm and 1.78 cm, respectively). Its plant crown is similar to *I. sanguinea* f. *albiflora*. ‘White Skirt’ has shorter but wider leaves than *I. sanguinea* f. *albiflora*. The flowering times of ‘White Skirt’ and *I. sanguinea* f. *albiflora* are from 10 June to 30 June and from 5 June to 25 June, respectively. The fruit of each matures at the same time, 10 Aug. to 20 Sept. (Table 1).

‘Snow Honey’ (Bi et al., 2013) and ‘Lanwen Baidie’ (Zhu et al., 2014) are two *Iris* cultivars with white flowers. The plant height of ‘White Skirt’ (63.48 cm) is close to ‘Snow Honey’ (63 cm), but shorter than ‘Lanwen Baidie’ (90 cm). The flower diameter of ‘White Skirt’ (9.1 cm) is greater than ‘Snow Honey’ (4 cm), but less than ‘Lanwen Baidie’ (16.1 cm). The flowering period for ‘White Skirt’ (10 June–30 June) is different from ‘Snow Honey’ (July–Aug) and ‘Lanwen Baidie’ (early to mid-May). The edges of their perianths are obviously different. ‘Snow Honey’ has rounded edges. ‘Lanwen Baidie’ has wavy edges. The perianths of ‘White Skirt’ are serrated with a wavy pattern.

In conclusion, ‘White Skirt’ is more attractive than its parent *I. sanguinea* f. *albiflora* and others *Iris* cultivars with white flowers because it has larger flowers,

Table 1. Morphological traits of 30 plants (10 plants per replication in three replications) were selected randomly from *I. sanguinea* f. *albiflora* and cultivar ‘White Skirt’, which were planted in the Mao-er-shan Experimental Nursery, Harbin, China from 2015 to 2017.²

Characteristics	White Skirt	<i>I. sanguinea</i> f. <i>albiflora</i>
Plant height (cm)	63.48 ± 1.74 a ^y	55.84 ± 0.82 b
Plant crown (cm)	59.01 ± 1.45 a	60.10 ± 2.70 b
Flower diameter (cm)	9.10 ± 0.28 a	6.43 ± 0.31 a
Leaf length (cm)	54.65 ± 2.60 a	58.02 ± 0.94 b
Leaf width (cm)	1.44 ± 0.26 a	0.98 ± 0.67 b
Inner perianth length (cm)	5.3 ± 0.30 a	4.46 ± 0.15 b
Inner perianth width (cm)	2.28 ± 0.34 a	1.50 ± 0.03 b
Outer perianth length (cm)	6.95 ± 0.29 a	4.67 ± 0.13 b
Outer perianth width (cm)	4.75 ± 0.25 a	1.78 ± 0.05 b
Bract length (cm)	5.81 ± 0.38 a	6.18 ± 0.35 a
Bract width (cm)	1.36 ± 0.25 a	0.98 ± 0.07 b
Flower period	10 June–30 June	5 June–25 June
Fruit period	10 Aug.–20 Sept.	10 Aug.–20 Sept.

²Data were collected and averaged in 2015–17.

^yMeans followed by different letters in the same row are significantly different ($P < 0.05$).

Received for publication 5 Feb. 2019. Accepted for publication 22 Mar. 2019.

This work was supported by the National Natural Science Foundation of China (No.31670344) and the Fundamental Research Funds for the Central Universities (2572016EJA6).

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Fig. 1. Flowers of 'White Skirt'. Flower, top side (A); flower, lateral side (B); and a cluster of flowers (C). 'White Skirt' is a compact plant. The scape is smooth and has white powder on the surface. The edges of inner and outer perianths fold in a wavy pattern. The flower color is white.

Fig. 2. Flower anatomic structure of 'White Skirt'. Each flower has three inner perianths, three outer perianths, and three stamens. Style branches are flat and the top transitions into a round shape. The edge of the bract is membranous.

different flowering period, and a more attractive serrated and wavy perianth edge. 'White Skirt', 'Snow Honey', and 'Lanwen Baidie' have different morphological traits to adopt to different cultivation requirements.

Cultivation Techniques

'White Skirt' is well adapted for growing in well-drained soils in full sun. Propagation is best accomplished by dividing the rhizome clumps in spring or fall. The plant's upper

leaf should be cut off, leaving ≈ 20 cm of leaf with three to five buds per plant. The rhizome should then be covered with soil and watered. The 'White Skirt' cultivar is cool hardy enough to withstand the winter outside in Harbin, China.

Habit and Application

'White Skirt' prefers full sunlight and a moist environment. It can be used in urban landscaping and flower arrangements, and has great market potential. It also can be

planted next to the aquatic landscapes and used as a groundcover under trees or for erosion protection on slopes (i.e., along rivers and streams). In the garden, the main application patterns are clumps, color blocks, and normal plantings. In home decoration, it can be used as a potted flower.

Availability

Inquiries about research or use of 'White Skirt' plants can be addressed to Dr. Ling Wang (E-mail: wanglinghlj@126.com) at the

Fig. 3. Comparison of *I. sanguinea* f. *albiflora* and 'White Skirt'. Single flowers of *I. sanguinea* f. *albiflora* (A), inner perianth of *I. sanguinea* f. *albiflora* (B), outer perianth of *I. sanguinea* f. *albiflora* (C), single flowers of 'White Skirt' (D), inner perianth of 'White Skirt' (E), and outer perianth of 'White Skirt' (F). The flower and inner and outer perianths of 'White Skirt' are larger than *I. sanguinea* f. *albiflora*. The inner and outer perianths of the *I. sanguinea* f. *albiflora* have round edges. The inner and outer perianths of 'White Skirt' fold in a wavy pattern.

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