‘Dream of the Butterfly’: A New *Iris sanguinea* Cultivar

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Iris sanguinea is an herb perennial in Iridaceae, with both ornamental and medicinal value (Qi and Yang, 1988). It is mainly distributed in Heilongjiang, southern Jiangsu, Jilin, Liaoning, and Inner Mongolia, China; and surrounding countries, including Japan, Korea, Mongolia, and Russia (Zhao et al., 2000). It has specific characteristics including fast growth, extensive management, and simple cultivation and maintenance, and therefore, has a broad prospect of application in landscaping (Dong et al., 2014; Shang and Wang, 2014). Wild resources of *I. sanguinea* are abundant, but the color is mainly blue violet (Wang et al., 2016). Therefore, the improvement of flower color has become one of the interests in breeding of *I. sanguinea*. In 2013, a new light violet [Royal Horticultural Society (RHS) 85A] *I. sanguinea* cultivar Dream of the Butterfly was selected from a cross of *I. sanguinea* f. *albiflora* (RHS NN155C) × *I. sanguinea* (RHS N88A). After 4 years of observation and propagation, this cultivar had stable flower color and other major horticultural traits. Compared with its progenitors *I. sanguinea* and *I. sanguinea* f. *albiflora*, ‘Dream of the Butterfly’ has wider inner and outer perianths and shorter plant height with slender leaves.

Origin

In 2005, seeds of blue violet *I. sanguinea* and white *I. sanguinea* f. *albiflora* introduced from Shenyang Botanical Garden of China were planted in a 10 × 5 m field plot in a flower nursery of Northeast Forestry University, Harbin, China. A cross between *I. sanguinea* and *I. sanguinea* f. *albiflora* was made in 2011. The seeds of the progeny were collected in the fall and planted together with their parents in the same nursery of Northeast Forestry University next spring. In 2013, a unique plant with light violet color (inventory number NEFU 2013-04) was selected from the population. Compared with its blue violet male and white female parents,

this plant had light violet perianths, purple anthers, and light violet styles. This plant was then separated into several individuals, planted in a new plot, and grew under normal maintenance management. After propagation, field performance was observed from 2015 to 2017. All propagated plants showed stable and consistent phenotype. In 2017, a new cultivar was assigned as ‘Dream of the Butterfly’, and authorized by the American Iris Society (accession no. 17-0986).

Description

‘Dream of the Butterfly’ and its parents were planted at a 50 m² field plot in Northeast Forestry University, Harbin, for data collection from 2015 to 2017. A total of 90 ‘Dream of the Butterfly’ plants and their parents were arranged in a randomized trial with three replications. For evaluation, 30 plants (10 plants each replication/three replications) were randomly selected for data collection of the following morphological traits: flower color, plant height, leaf length and width, leaf length/width, bract length and width, bract length/width, flower diameter, inner perianth length and width, inner perianth length/width, outer perianth length and width, outer perianth length/width, flowering and fruiting period were evaluated and calculated. The data were analyzed using the software SPSS 21.0 (IBM Armonk, NY) with one-way analysis of variance on Duncan’s method. All

references to color numbers were from the RHS color chart (Royal Horticultural Society, 2007) and are designated as RHS numbers.

The plant height of ‘Dream of the Butterfly’ (58.87 cm) is shorter than both parents *I. sanguinea* (65.96 cm) and *I. sanguinea* f. *albiflora* (65.93 cm). The leaf is 50.90 cm long and 0.77 cm wide on average, which are less than those of its parents. But, the ratio of leaf length/width of ‘Dream of the Butterfly’ is greater than that of the parents (Table 1).

The flower size of ‘Dream of the Butterfly’ is smaller than *I. sanguinea* and *I. sanguinea* f. *albiflora*, but the inner and outer perianths are wider than those of its parents. The ratios of length/width of inner and outer perianths are lower than both those of its parents (Table 1). The perianth color of ‘Dream of the Butterfly’ is light violet (RHS 85A), whereas the perianth color of *I. sanguinea* and *I. sanguinea* f. *albiflora* is blue violet (RHS N88A) and white (RHS NN155C), respectively. The top of outer perianths presents light violet and drooped during blooming, with brown veining on yellow background at the base; inner perianths are light violet and stand upward during full blooming (Fig. 1). The anther color of ‘Dream of the Butterfly’ is purple violet (RHS N80A), compared with the dark blue violet anthers in *I. sanguinea* (RHS N92C) and white anthers in *I. sanguinea* f. *albiflora* (RHS 155A). The style color is light violet (RHS 85A), the edge is lighter and close to white, whereas the styles in the male parent are blue violet (RHS N88A) and the female parent are white (RHS NN155C) (Fig. 2).

The flowering time of ‘Dream of the Butterfly’ was from 10 June to 30 June, and fruiting time was from 25 Aug. to 25 Sept., both were later than its parents. The flowering time of male parent *I. sanguinea* and female parent *I. sanguinea* f. *albiflora* was from 5 June to 25 June, and the fruiting time was from 10 Aug. to 20 Sept. respectively.

In conclusion, the differences between ‘Dream of the Butterfly’ and its parents are

Table 1. Morphological traits of new cultivar Dream of the Butterfly and its parents *Iris sanguinea* and *I. sanguinea* f. *albiflora* were collected from 30 plants (10 plants each replication/3 replications) planted in a randomly designed nursery in Northeast Forestry University, Harbin, China, from 2015 to 2017.

Traits ^a	‘Dream of the Butterfly’	<i>I. sanguinea</i>	<i>I. sanguinea</i> f. <i>albiflora</i>
Plant height (cm)	58.87 ± 0.49 b ^b	65.96 ± 0.53 a	65.93 ± 0.61 a
Leaf length (cm)	50.90 ± 0.60 b	57.37 ± 0.98 a	57.66 ± 0.94 a
Leaf width (cm)	0.77 ± 0.01 b	0.95 ± 0.03 a	0.94 ± 0.02 a
Leaf length/width	65.75 ± 0.92 a	60.16 ± 0.99 c	60.99 ± 0.95 b
Bract length (cm)	5.85 ± 0.22 b	6.05 ± 0.16 a	6.07 ± 0.15 a
Bract width (cm)	1.15 ± 0.05 a	1.05 ± 0.04 b	1.04 ± 0.04 b
Bract length/width	5.10 ± 0.31 b	5.77 ± 0.23 a	5.85 ± 0.29 a
Flower diameter (cm)	5.98 ± 0.24 b	6.44 ± 0.27 a	6.48 ± 0.28 a
Inner perianth length (cm)	4.60 ± 0.22 b	4.73 ± 0.21 a	4.72 ± 0.20 a
Inner perianth width (cm)	2.44 ± 0.10 a	1.48 ± 0.08 b	1.44 ± 0.10 b
Inner perianth length/width	1.88 ± 0.13 c	3.21 ± 0.13 b	3.27 ± 0.11 a
Outer perianth length (cm)	4.99 ± 0.15 b	5.15 ± 0.18 a	5.12 ± 0.21 a
Outer perianth width (cm)	3.38 ± 0.12 a	2.76 ± 0.10 b	2.82 ± 0.10 b
Outer perianth length/width	1.48 ± 0.07 a	1.86 ± 0.05 c	1.82 ± 0.04 b
Flower period	10 June–30 June	5 June–25 June	5 June–25 June
Fruit period	25 Aug.–25 Sept.	10 Aug.–20 Sept.	10 Aug.–20 Sept.

^aData were collected in 2015–17 and analyzed by using software SPSS 21.0 (IBM).

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

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Fig. 1. (A) Single flower of ‘Dream of the Butterfly’, (B) *Iris sanguinea*, and (C) *I. sanguinea* f. *albiflora*. The flower color of ‘Dream of the Butterfly’ is light violet, compared with its blue violet male parent *I. sanguinea* and white female parent *I. sanguinea* f. *albiflora*.

Fig. 2. (A) Anatomical structure of ‘Dream of the Butterfly’, (B) *Iris sanguinea*, and (C) *I. sanguinea* f. *albiflora*. The colors of perianths, anthers and styles are light violet, purple violet, and light violet, respectively, compared with blue violet male parent (*I. sanguinea*) and white female parent (*I. sanguinea* f. *albiflora*).

mainly in the size of the spoon-shaped part of perianths, flower color, flowering time, and plant height. ‘Dream of the Butterfly’ has wider spoon-shaped part of perianths, light violet flower, wider perianths, slenderer leaves, shorter plant height, and later flowering and fruiting time. These unique characters make it an excellent supplement to the diversity of *I. sanguinea* species for ornamental purposes and good flora material for further *Iris* breeding.

Availability

Information about plant material and research of ‘Dream of the Butterfly’ can be obtained from Dr. Ling Wang (e-mail: wanglinghlj@126.com) at the College of Landscape Architecture, Northeast Forestry University, Harbin, China.

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