‘Blue Angel’ Winter-hardy Hibiscus (*Hibiscus* × *moscheutos* L.)

Dariusz P. Malinowski¹

Texas AgriLife Research, Texas A&M System, P.O. Box 1658, Vernon, TX 76385

Robert S. Brown

Texas Foundation Seed Service, 11914 Highway 70 S, Vernon, TX 76384

William E. Pinchak

Texas AgriLife Research, Texas A&M System, P.O. Box 1658, Vernon, TX 76385

Additional index words. landscape plants, Malvaceae, ornamentals

Winter-hardy hibiscuses are herbaceous perennials in the mallow (Malvaceae) family that belong to six species native to the United States: *H. coccineus* Walter (scarlet rose mallow), *H. dasycalyx* S.F. Blake and Shiller (Neches River rose mallow), *H. grandiflorus* Michx. (swamp rose mallow), *H. laevis* All. (halberdleaf rose mallow), *H. lasiocarpus* Cav. (hairy-seeded rose mallow), and *H. moscheutos* L. (crimson-eyed rose mallow) (Lawton, 2004; Winters, 1970). All species in the winter-hardy hibiscus group have the same complement of chromosomes ($2n = 38$) (Klips, 1995) and hybridize relatively easily. They grow naturally in marshy habitats in the eastern part of the United States to southern Ontario (Canada) and in California (*H. lasiocarpus*).

Winter-hardy hibiscuses, especially *H. moscheutos* and its hybrids, have attractive, tropical-looking flowers with a size of 5 to 30 cm in diameter. Winter-hardy hibiscus species are long-day plants (Warner and Erwin, 2001). All species of winter-hardy hibiscus are long-day plants (Warner and Erwin, 2001) that abundantly produce flowers from midsummer through late fall. The flowers last 1 d and colors range from white through pink to red, depending on the species. Recently developed cultivars of *H. moscheutos* such as ‘Fantasia’ (PP11,853) and ‘Plum Crazy’ (PP11,854) have lavender flowers. Breeders have also developed cultivars with different leaf shapes and colors and varying plant architecture. ‘Blue Angel’ has been released to provide a cultivar with a unique violet–blue flower color, which is not reported for winter-hardy hibiscus species.

Origin

‘Blue Angel’, selected as ‘TAMUS-3401’, is an interspecific hybrid among four winter-hardy hibiscus species: *H. coccineus* (Medik.)

Walter, *H. dasycalyx* S.F. Blake & Shiller, *H. militaris* Cav., and *H. moscheutos* L. It was derived from the controlled hybridization between breeding line ‘HM-2009-ST437’ with ‘TAMUS-3101’ made in 2009 (Fig. 1). Colors were designated using the Royal Horticultural Society (RHS) Color Chart (Royal Hort. Soc. and Flower Council of Holland, 2007). The maternal line ‘HM-2009-ST437’ is a cross

between ‘HM-2007-TXPNK’ [*H. coccineus* ‘Texas Star’ × unnamed, pink (RHS 65D) flowering seedling of *H. moscheutos*] and ‘TAMUS-2875’ (unnamed, pink flowering seedling of *H. moscheutos* × unnamed seedling of *H. dasycalyx*). The maternal line ‘HM-2009-ST437’ has small (6 cm in diameter) pale purplish pink (RHS 62D) flowers with a purplish red (RHS 60D) eye, resembling flowers of *H. dasycalyx*. Leaves are 5 to 7 cm long and hastate. The pollen parent, experimental line ‘TAMUS-3101’, was selected from a controlled hybridization between experimental line ‘HM-2007-RBWF-R’ [unnamed seedling of *H. dasycalyx* × ‘Fireball’ (PP13,631)] and ‘Plum Crazy’. The paternal plant has magenta (RHS 74A) flowers with a size of 17 cm in diameter and a dark brown (RHS 187A) eye. Leaves are deeply lobed with textured lamina.

Seeds from one pod of the stated hybridization between ‘HM-2009-ST437’ and ‘TAMUS-3101’ were planted in a greenhouse of the Texas AgriLife Research and Extension Center at Vernon, TX, in Jan. 2010. Sixteen seedlings were transplanted to the field in Apr. 2010 and bloomed for the first time in July 2010. ‘Blue Angel’ was selected from this population for its unique violet–blue flower color and a dark brown eye.

Fig. 1. Hybridization schema of the ‘Blue Angel’ winter-hardy hibiscus. Origin of ‘Fireball’ and ‘Plum Crazy’ hibiscus cultivars after Fleming and Zwetzig (2003) and Fleming and Zwetzig (2001), respectively.

Received for publication 28 Oct. 2011. Accepted for publication 12 Dec. 2011.

¹To whom reprint requests should be addressed; e-mail dmalinow@ag.tamu.edu.

Fig. 2. Flower color of 'Blue Angel' winter-hardy hibiscus in shade in late afternoon.

Fig. 3. Leaf of 'Blue Angel' winter-hardy hibiscus.

Description

'Blue Angel' is a new and distinct cultivar of winter-hardy hibiscus. Flower color is pale purple (RHS 91C) in full sunlight in the morning hours and changes to light violet (RHS 92B) as the flower matures in the afternoon (Fig. 2). The bluish flower color becomes more saturated in shade or during overcast days. The center eye is red (RHS 57B) on the outside

edge, becoming dark brown (RHS 187A) toward the center of the flower. It has deeply lobed, hastate leaves resembling leaves of *H. coccineus*, a parent in its lineage (Fig. 3). Leaf color is green (greenhouse cultivation) with purple veins (field-grown plants exposed to direct sunlight). Plants branch freely at the bottom and reach a height of 1 m. Seed pods are small (1.5 cm in diameter) and contain four to six seeds.

The original plant of 'Blue Angel' has been evaluated for 2 years in Vernon, TX (lat. 34°09' N, long. 99°20' W, elevation 370 m) (USDA hardiness zone 7a) and has proven fully cold-hardy at this location where the lowest temperature was -17 °C in Feb. 2011. The climate of the testing location is characterized by dry and hot summers with temperatures typically reaching 38 to 42 °C during June through September and relatively mild winters with average minimum temperatures ranging from -2 to -3.5 °C during December through February. In vitro propagated plants have been evaluated for one growing season at several locations across Texas, including College Station, Dallas, Lubbock, San Antonio, and Vernon. The cloned plants repeated the characteristics of the mother plant. Long-term trials have not been conducted in other regions. Considering winter-hardiness of its parentage components, it is anticipated 'Blue Angel' will be adapted to USDA hardiness zones 5 through 8.

Culture

'Blue Angel' is well suited for use as a specimen plant for small gardens, where its architecture and unique flower color can be best displayed. Like with other winter-hardy hibiscus cultivars, 'Blue Angel' should be planted in full sun to promote maximal plant development and blooming. No diseases and pests have been observed at the trial location in Vernon, TX. However, like with other species in the mallow family, 'Blue Angel' may be susceptible to cotton root rot caused by the fungus *Phymatotrichum omnivorum*, especially when grown in areas where cotton (*Gossypium hirsutum* L.) is cultivated. In some areas of cultivation, pests like Japanese beetles (*Popillia japonica*), sawflies (suborder Symphyta), spider mites (family Tetranychidae),

and aphids (family Aphidoidea) may cause damage to winter-hardy hibiscus.

Propagation

Propagation of 'Blue Angel' winter-hardy hibiscus has been achieved successfully in vitro using the method described by West and Preece (2004). Alternatively, the cultivar has been propagated from stem cuttings collected in midsummer and treated with 0.1% indole-3-butyric acid.

Availability

A U.S. plant patent application has been submitted for 'Blue Angel' winter-hardy hibiscus and plant patent rights will be assigned to Texas A&M University System. Propagation and production rights have not been assigned to a specific commercial partner as of the date of this publication. Vouchers of 'Blue Angel' winter-hardy hibiscus are deposited with the Texas Superstar® program (Texas AgriLife Research and Extension, Texas A&M System).

Literature Cited

- Fleming, D.W. and G.A. Zwetzig. 2001. Hibiscus plant named 'Plum Crazy'. U.S. Patent and Trademark Office. 28 Nov. 2011. <<http://patft.uspto.gov>>.
- Fleming, D.W. and G.A. Zwetzig. 2003. Hibiscus plant named 'Fireball'. U.S. Patent and Trademark Office. 28 Nov. 2011. <<http://patft.uspto.gov>>.
- Klips, B.P. 1995. Genetic affinity of the rare eastern Texas endemic *Hibiscus dasycalyx* (Malvaceae). *Amer. J. Bot.* 82:1463-1472.
- Lawton, B.P. 2004. Hibiscus. Hardy and tropical plants for the garden. Timber Press, Inc., Portland, OR.
- Royal Hort. Soc. and Flower Council of Holland. 2007. RHS colour chart. 5th Ed. London, UK. 28 Nov. 2011. <<http://www.azaleas.org/index.pl/rhsmacfan1.html>>.
- Warner, R.M. and J.E. Erwin. 2001. Variation in floral induction requirements of *Hibiscus* sp. J. *Amer. Soc. Hort. Sci.* 126:262-268.
- West, T.P. and J.E. Preece. 2004. Effects of thidiazuron and nutrient salt formulations on micropropagation of hardy hibiscus (*Hibiscus moscheutos* L.). *Acta Hort.* 630:293-297.
- Winters, H.F. 1970. Our hardy hibiscus species as ornamentals. *Econ. Bot.* 24:155-164.