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‘Ebony Embers’, ‘Ebony Fire’, ‘Ebony Flame’, ‘Ebony Glow’, and ‘Ebony and Ivory’ Dark-leaf Crapemyrtles

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Species of the genus *Lagerstroemia* L., commonly referred to as crapemyrtles, are native to Southeast Asia along with Indo-Malaysia and have long been cultivated for timber and as ornamentals. Confusion exists on the exact number of crapemyrtle species with reports ranging from 56 (Furtado and Srisuko, 1969) to 80 (Cabrera, 2004). Most species of *Lagerstroemia* have petite, unremarkable, pale white to lavender flowers. A few species such as *L. speciosa* (L.) Pers. and *L. indica* L. have larger more colorful flowers with ornamental appeal.

Crapemyrtles are one of the most popular groups of small flowering trees in mild temperate landscapes because of ease of production, adaptation to summer climate fluctuations, long summer flowering cycle, and ease of maintenance. Many clones are available in a broad range of growth habits, vigor, flower colors, pest tolerances, and bark traits to service various landscape objectives (Knox, 2000). Commercial crapemyrtle production in the United States is based on asexual propagation of named clones (Byers, 1997).

Crapemyrtles cultivated in the United States are primarily selections of *L. indica* and hybrids between *Lagerstroemia fauriei* Koehne and *L. indica* (Wang et al., 2011). Early domestic selections resulted from chance seedlings of *L. indica* hybridizations chosen for interesting horticultural traits (Egolf and Andrick, 1978). More recent crapemyrtle breeding efforts, especially programs by the U.S. National Arboretum, which has released more than 30 cultivars over the past 50 years, have focused on crapemyrtle resistance to diseases such as powdery mildew (*Erysiphe lagerstroemiae* E. West) and combinations of other desirable horticultural traits (Pooler, 2006; Pooler and Dix, 1999). Incorporating other species such as *L. fauriei* and *Lagerstroemia limii* Merr. (*L. chekiangensis* Cheng) into crapemyrtle breeding has expanded the genetic base for enhanced disease and pest resistance in modern cultivars (Pounders et al., 2007).

‘Ebony Embers’, ‘Ebony Fire’, ‘Ebony Flame’, ‘Ebony Glow’, and ‘Ebony and Ivory’ are cultivars that are predominantly *L. indica* in heritage that combine persistent black–purple leaves and a range of flower colors with intermediate growth habits. New leaves of several other cultivars such as ‘White Chocolate’, ‘Rhapsody in Pink’, ‘Burgundy Cotton’, and ‘Pink Velour’ initially display high levels of dark leaf pigmentation that fade away with maturity and summer heat. Our Ebony selections maintain their unique foliage color until senescence. The first cultivar with persistent dark leaves throughout the season was ‘Chocolate Mocha’ (sold under the Delta Jazz trademark) (Knight and McLaurin, 2010), which is the male parent of the Ebony series. ‘Ebony Embers’, ‘Ebony Fire’, ‘Ebony Flame’, ‘Ebony Glow’, and ‘Ebony and Ivory’ combine darker, more saturated black leaf color with a range of flower colors. Additional dark leaf cultivars that have recently been released include ‘PIILAG-V’ (trademarked as Midnight Magic) and ‘PIILAG-IV’ (Moonlight Magic), which presumably derive their dark foliage traits from ‘Chocolate Mocha’ as well (T. Rinehart, personal communication).

Origin

‘Ebony Embers’ (PCM39), ‘Ebony Fire’ (PCM10), and ‘Ebony Flame’ (PCM35) resulted from a controlled pollination of a hybrid seedling derived from a cross between ‘Whit VII’ (sold under the trademark Siren Red) (Whitcomb, 2004) and ‘Arapaho’ (Pooler, 2006) as the female parent and ‘Chocolate Mocha’ as the male parent. ‘Ebony Glow’ (PCM38) resulted from a cross-pollination with ‘Whit I’ (Raspberry Sundae) (Whitcomb, 1998) as the female parent and ‘Chocolate Mocha’ as the male parent. ‘Ebony and Ivory’ (PCM47) resulted from a cross-pollination of ‘Whit VIII’ (Rhapsody in Pink) (Whitcomb, 2006) as the female parent and ‘Chocolate Mocha’ as the male parent. Pollinations that resulted in the five cultivars were made in 2007 with elite seedlings from the various families first clonally propagated in 2008 for evaluation under varied environmental conditions. Paternity for the five cultivars was verified by genetic analyses using simple sequence repeat markers and methods detailed by Wang et al. (2011) (Fig. 1).

The five new crapemyrtle clones were bred, selected, and evaluated at the Thad Cochran Southern Horticultural Laboratory in Poplarville, MS, as superior burgundy-leafed plants within the progeny of the stated cross-pollinations. The foliage traits are complimented by a combination of desirable horticultural traits including an intermediate growth habit (2 to 4 m) and richly colored flowers over an extended bloom season. The cultivars have also been evaluated by cooperators in Florida, Texas, and Tennessee for container production and propagation by cuttings. The nurseries found the five clones were well adapted to their locations and highly desirable for marketing to their customers.

The cultivar names ‘Ebony Embers’, ‘Ebony Fire’, ‘Ebony Flame’, ‘Ebony Glow’, and ‘Ebony and Ivory’ were registered in 2013 with the U.S. National Arboretum, which is the International Registration Authority for *Lagerstroemia*, in accordance with the *International Code of Nomenclature for Cultivated Plants*–2009 (Brickell et al., 2009). The cultivar names reference the leaf and flower color of each selection.

Description

All cultivars display dense crown branching with excellent foliage coverage. Leaves are opposite, pinnately veined, broadly elliptical with an acuminate apex, cuneate base, and entire margins that tend to fold upward. Inflorescences generally have 40 or more flowers per panicle. Flower petals are fan-shaped with ruffled apex, ruffled margins, and sagittate bases. The five clones start flowering in late June in south Mississippi. Plants develop rapidly as a containerized crop and are highly tolerant to fluctuations of environmental conditions such as water availability, light intensity, and/or fertility. Phenotypes may vary slightly as a result of changes in culture with no alteration of genotype. The descriptions reported here are from a representative 4-year-old container-grown plant for each cultivar. Asexual propagation of the clones over multiple cycles has

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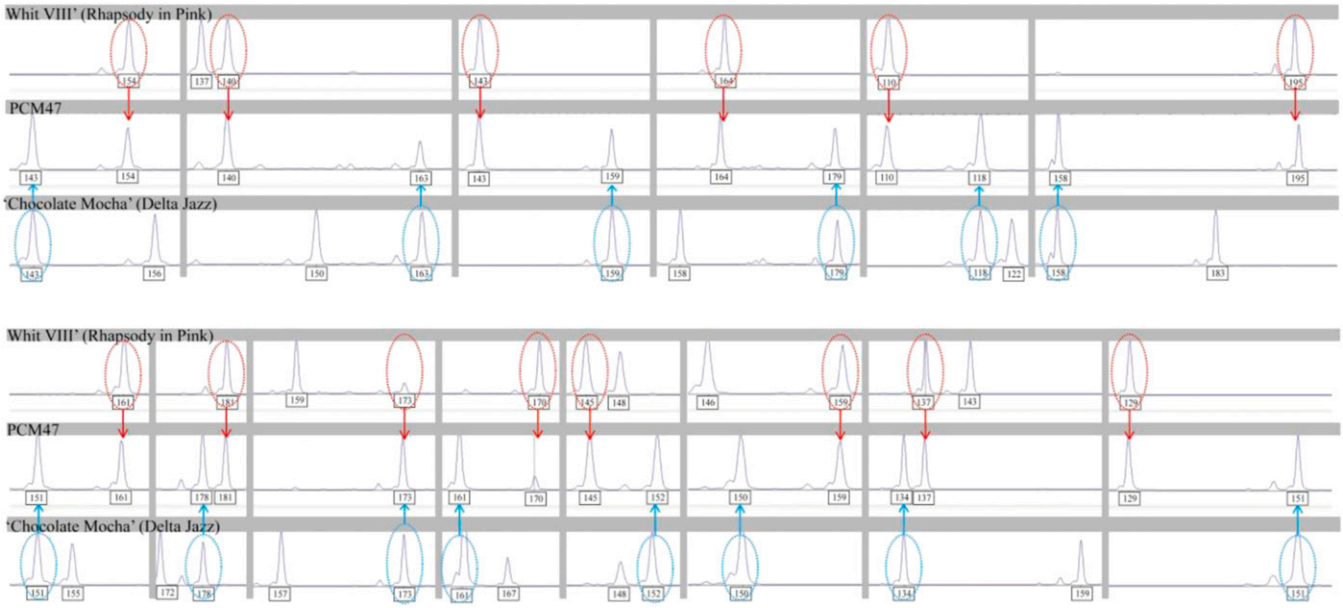

Fig. 1. Simple sequence repeat (SSR) marker fragment sizes are shown for the PCM47 ('Ebony and Ivory') and the parents 'Whit VIII' (Rhapsody in Pink) and 'Chocolate Mocha' (Delta Jazz). Fourteen of the 78 SSR markers used to verify parentage are shown, each separated by a gray line. Allele sizes are indicated in bps below the peak for each polymerase chain reaction-amplified fragment. Inheritance of maternal and paternal allele sizes are indicated by red and blue arrows, respectively. Parentage results for all Ebony crapemyrtles were consistent with the crosses described here.

demonstrated retention of major distinguishing traits.

'Ebony Embers' has a vase-shaped growth habit, ≈1.9 m tall and 1.1 m wide at 4 years (Fig. 2). Leaves are ≈5 cm × 3 cm. Emerging leaves are grayed purple 187-A (Royal Horticultural Society, 2001), which mature to a deep burgundy (brown 200A) with color remaining stable throughout summer heat (Fig. 3). Panicles are normally 10 cm in length and 10 cm in width on the terminal ends of branches. Flower buds are grayed purple 187A, rounded, 8 mm in diameter, and 8 mm in length. Individual flowers measure 3 cm × 3 cm with individual petals 1.3 cm × 1 cm. Flowers are red 53C the first day and then darken to red 53D the second day (Fig. 2). 'Ebony Embers' is the latest of the five clones to flower and produces striking red flowers against the dark foliage (Fig. 4).

'Ebony Fire' has a globe-shaped growth habit with approximate dimensions of 1.5 m tall and 0.6 m wide at 4 years (Fig. 2). Leaves are 4 cm × 2.5 cm. Fully developed leaves are deep burgundy (grayed purple 187A) (Fig. 3). Flower panicles average 12 cm in length and 9 cm in width on the terminal ends of branches. Flower buds are red–purple 59A, rounded, 6 mm in diameter, and 6 mm in length. Flowers petals measure 1.2 cm × 1.5 cm and flowers are 3.8 cm × 3.5 cm. Flowers are red–purple 60A when fully expanded on the first day and then darken to red–purple 60C the second day (Fig. 3). 'Ebony Fire' is the earliest of the five clones to flower.

'Ebony Flame' has an upright growth habit, ≈1.7 m tall and 0.5 m wide at 4 years (Fig. 2). Leaves are 5 cm × 2.5 cm, which are initially grayed purple 187A maturing to brown 200A (Fig. 3). Inflorescences are normally 7 cm in length and 8 cm in width.

Fig. 2. Growth habit of 4-year-old plants are shown for 'Ebony and Ivory', 'Ebony Fire', 'Ebony Flame', 'Ebony Glow', and 'Ebony Embers'. Foliage is similar among all five Ebony cultivars, but growth habit for 'Ebony Fire' and 'Ebony Glow' is different from 'Ebony and Ivory', 'Ebony Flame', and 'Ebony Embers'.

Fig. 3. An image showing flowers and leaves of 'Ebony Fire', 'Ebony Flame', and 'Ebony Embers' (left to right). Size and shape of the leaves and flowers are similar among all three red Ebony cultivars.

Flower buds are grayed purple 187A, rounded, 6 mm in diameter, and 7 mm in length. Flowers are 3.8 cm × 4 cm composed of 19 mm × 15-mm petals. Under low light conditions and/or cool mornings, flowers open white 155A with red–purple 67D /red–purple

67A highlights. Flowers are red 53A during the first day, changing to red–purple 60A the second day (Fig. 3).

'Ebony Glow' has an upright spreading growth habit, ≈1.5 m tall and 1.0 m wide at 4 years (Fig. 2). Leaves are generally 5 cm × 3 cm and are initially dull grayed purple 187A maturing to black 202A (Fig. 5). Inflorescences are usually 10 cm × 8 cm with flower buds that are red–purple 59A and 6 mm × 9 mm. Individual flowers are 2 cm × 1.5 cm with 15 mm × 19-mm petals. Flowers are generally red–purple 69C before midday and fade quickly to white 155B (Fig. 5).

'Ebony and Ivory' has an upright growth habit, ≈1.7 m tall and 0.6 m wide at 4 years (Fig. 2). Leaves measure 5 cm × 2.5 cm. Fully developed leaves are deep burgundy (brown 200A) (Fig. 3). Flower panicles are generally 14 cm long and 10 cm wide. Flower buds begin grayed red 178A maturing to red–purple 59A and are rounded, normally 8 mm × 7 mm. Flowers are 4 cm × 3.5 cm with individual petals 7 mm × 16 mm. Flowers are initially white 155D fading to orange–white 159C by the second day (Fig. 5).

Fig. 4. Image of the flowers and foliage for 'Ebony Embers' shows the deep red flowers highlighted by the dark foliage. The yellow appearance within each flower is the result of pollen on the upright stamens that protrude from the center of the flower.

Culture

'Ebony Embers', 'Ebony Fire', 'Ebony Flame', 'Ebony Glow', and 'Ebony and Ivory' are adapted to accepted cultural practices for *L. indica* cultivars, which thrive in diverse soil and climatic conditions. Crapemyrtles grow and flower best in full sun with adequate moisture, balanced fertility, and a well-drained substrate with a pH of 5.0 to 6.5. Crapemyrtles are generally top-hardy in USDA Hardiness Zone 7 (U.S. Department of Agriculture, 2013) and root-hardy to Zone 6 if properly hardened for winter conditions. Plants are amenable to pruning and can be maintained readily as smaller shrubs by annual heavy dormant pruning or allowed to mature to their natural growth habit.

The five cultivars are easily propagated by softwood stem cuttings treated with 2000 ppm indole butyric acid under intermittent misting systems or as hardwood cutting in the winter. Material should be taken from actively growing stock plants for best propagation results.

Availability

Additional information on 'Ebony Embers', 'Ebony Fire', 'Ebony Flame', 'Ebony Glow', and 'Ebony and Ivory' crapemyrtles and a list of nurseries propagating them are available on written request to Cecil Pounders, USDA-ARS (Cecil.Pounders@ars.usda.gov). The USDA-ARS does not have plants for sale. Specimens of the five cultivars have been deposited in the National Plant Germplasm System as 'Ebony Embers' (NA 81466, PI 668407), 'Ebony Fire' (NA 81467, PI 668408), 'Ebony Flame' (NA 81468, PI 668409), 'Ebony Glow' (NA 81469, PI 668410), and 'Ebony and Ivory' (NA 81465, PI 668406) and are available for research purposes. The five Ebony selections are also being marketed under the Black Diamond (BD) trademark as BD Blush ('Ebony Glow'), BD Pure White ('Ebony and Ivory'), BD Crimson Red ('Ebony Fire'), BD Best Red ('Ebony Flame'), and BD Red Hot ('Ebony Embers'). It is requested that appropriate recognition be made if this germplasm contributes to the development of new breeding lines or cultivars.

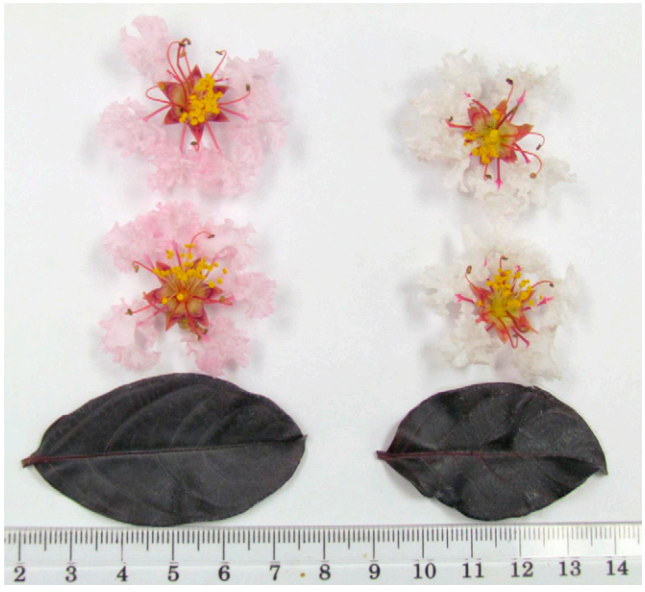

Fig. 5. An image showing flowers and leaves of 'Ebony Glow' and 'Ebony and Ivory' (right). Newly opened flowers were collected in the morning to highlight the pink blush observed with 'Ebony Glow'. Size and shape of the leaves and flowers are similar between both of these cultivars.

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