‘RutRhaph1’ Southern Moon[®] Indian Hawthorn

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Raphiolepis Lindley are evergreen shrubs or small trees that are popular landscape plants from the southeastern United States westward to California. The genus is native to eastern and southeastern Asia and derives its name from the Latin terms *rhapis* (meaning needle) and *lepis* (meaning scale), which refers to the needle-shaped floral bracts (Fantz, 1997). Entomosporium leaf spot [*Entomosporium mespili* (DC) Sacc.] causes severe damage to this taxon in nurseries and landscapes, although selections vary in their susceptibility (Hagan et al., 2001; Ruter, 2004).

Raphiolepis umbellata (Thunb.) Makino is described as growing in thickets near the seashore in the Japanese provinces of Honshu, Kyushu, and Shikoku (Ohwi, 1984). This species is also reported to occur in South Korea, the Ryukyu Islands, Taiwan, and Zhejiang Province, China (Flora of China, 2003). Makino (1902) described *R. umbellata* var. *minor* as a garden variety with all its parts being smaller than the species and having erect branches with contracted panicles. Nakai (1924) mentions that the plant was only known from Japanese gardens and was common on grounds of temples near Kyoto, Japan, and suggests that the origins of this selection are unknown but speculates that it was brought to Japan from China. Ohwi (1984) describes the same plant as *R. umbellata* ‘Minor’, giving the plant cultivar status. Old plants of the cultivar Minor in South Georgia are multitrunked small trees reaching 3–4 m in height (J.M. Ruter, personal observation). A plant of 10 years old at the University of Georgia Tifton Campus reached a height of 2.6 m with a spread of 4.8 m. *Raphiolepis umbellata* ‘Minor’ has very good resistance to entomosporium leaf spot and fire blight [*Erwinia amylovora* (Burr.) Winslow et al.] (Ruter, 2004).

‘RutRhaph1’ Indian Hawthorn (*R. umbellata*) is an attractive dwarf evergreen shrub with white flowers and excellent disease

resistance that has been released by the University of Georgia.

Origin

The original plant of ‘RutRhaph1’ was grown from seed of open-pollinated *R. umbellata* ‘Minor’ collected in 1996 from a field trial planted in Tifton, GA (Ruter, 2004). Seeds were germinated at the University of Georgia and liners grown. In 1997, the liners were taken to Wight Nurseries, Cairo, GA, and were grown under production conditions. The original seedling was designated as RA96UM-1 after selection in 1998. In the Autumn of 2001, RA96UM-1 was brought back to the University of Georgia Tifton Campus and planted in the field for further evaluation. Growing conditions were as previously described (Ruter, 2004).

Semi-hardwood cuttings were collected in May 2004 for propagation, treated in a 1:5 dilution of Dip N’ Grow (Dip N’ Grow Inc., Clackamas, OR) as a 5-s quick dip, and then were stuck in 7.9 × 7.9 cm plastic pots filled with a substrate of milled pine bark and perlite (2:1, v:v). Cuttings were placed on a propagation bench in a glass greenhouse and received a mist frequency of 4 s every

10 min during daylight hours. Light exclusion was ≈70%. Greenhouse control temperatures were set at 32 °C (day) and 21 °C (night). Rooting percentage was ≈90% after 120 d.

Description

Raphiolepis umbellata ‘RutRhaph1’ is a woody, evergreen shrub which should be grown in full sun to light shade under landscape conditions in Georgia. After 5 years in the landscape, ‘RutRhaph1’ reached a height of 1.4 m and a spread of 2.6 m. Leaves are alternate and obovate with undulating margins (Fig. 1), the leaf tips are obtuse, and the leaf base is equilateral. The leaves on mature shoots range from 3.5 to 5.0 cm in length, 2.0 to 3.0 cm in width, and are thick and glossy with leaf margins slightly crenate to entire. The abaxial venation pattern of the leaves is reticulate. Adaxial leaf color (Royal Horticultural Society, 2001) is yellow-green 144-A on new growth and green 139-A on mature growth. Abaxial leaf color is yellow-green 144-C on new growth and green 138-B on mature growth. Adaxial venation color on mature plants is green 143-C, abaxial color is yellow-green 144-D. Petiole length ranges from 0.6 to 1.0 cm, petiole width is 0.3 cm, and petiole color is green 143-C. Stems of new growth are tardily pubescent and hair colored gray-white 156-D. Once the pubescence drops, color of new stems is a gray-orange 177-A and the color of old stems is gray 201-A.

The inflorescence is a panicle with 9–13 on a given branch but not all at anthesis at the same time. The flowers are bisexual and the diameter of the flowers is ≈2.0 cm. The number of petals is five with the petal shape being obelliptic with entire margins and petal tips which are rounded to acute. Petals are 0.5–0.6 cm in length with a width of 0.3–0.4 cm. Petals (top and bottom) are white 155-D.

Fig. 1. Glossy, undulate foliage of *Raphiolepis umbellata* ‘RutRhaph1’.

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The number of sepals is five, they are lanceolate in shape, and the margins are pubescent with acute sepal tips. Sepal color is initially yellow-green N144-A, turning red-purple 59-B as the flower matures. Sepals are 0.5 cm in length and 0.2 cm in width. Flower bud length is 0.5 to 0.6 cm with a diameter of 0.3 cm. Flower bud shape is oblong to oblanceolate. Stamens number from 13 to 18 with anther size being ≈ 0.13 cm and anther color is yellow 11-C. The color of the pollen is yellow 9-C and stigma color is yellow-green 145-C. Length of styles is ≈ 0.37 cm, the color being yellow-green 145-C. Fruit is a grayed-purple (N186-A) pome containing two locules per ovary and one to two seeds per fruit. Seed color is a gray-orange 176-A. Fruit diameter is 0.75–0.95 cm with fruit length being ≈ 0.7 cm. Fruit ripening occurs in October in Tifton, GA. Holotype: field-grown plant,

Ornamental Horticulture Research Area (lat. 31°47'60"N, long. -83°52'03"W), University of Georgia Tifton Campus. A voucher specimen has been deposited at the Valdosta State University Herbarium, Ruter (VSC).

Cultural Notes

Terminal and subterminal cuttings can be rooted throughout the year as long as the plants are not flowering and semi-hardwood cuttings are taken. Plants have been successfully grown in container sizes ranging from 2.8 to 19.6 L. Production time for a 2.8-L container is estimated to be 12–18 months as 'RutRaph1' is slower growing than *R. umbellata* 'Minor'.

In the landscape, *Rhaphiolepis* 'RutRaph1' usually blooms around the third week of March in Tifton, GA (Table 1; Fig. 2). In general, 'RutRaph1' blooms 7–10 d before

R. umbellata 'Minor'. Pest problems are minimal, no fire blight has been noted and resistance to entomosporium leaf spot is excellent under field conditions (Table 1). Some late season *Cercospora* sp. has been noted, but defoliation is minimal (J.M. Ruter, personal observation). *Rhaphiolepis* 'RutRaph1' has performed well for several years in USDA Hardiness zone 8b (USDA, 2012). Based on previous research with other Indian Hawthorn taxa, zone 8a can be expected to be the northern limit of landscape use for this plant (Lindstrom and Corley, 1992). A plant in the Trial Gardens at UGA (Athens, GA) survived one night temperatures of -14.4°C in 2014 with marginal leaf burn. In the landscape, *Rhaphiolepis* 'RutRaph1' can be used for foundation plantings, mass plantings, and in large containers. The plant is suited for low-maintenance landscapes and performs well in coastal areas as well as on dry and sandy sites with irrigation.

Table 1. Comparison of key morphological characteristics, 5-year growth, and disease ratings for *Rhaphiolepis umbellata* 'RutRaph1' and *R. umbellata* 'Minor' grown in Tifton, GA.

	'RutRaph1'	'Minor'
Leaf margin	Undulate	Entire
Leaf width (cm)	2.0–3.0	1.5–2.0
Petal length (cm)	0.5–0.6	0.7–1.0
Petal width (cm)	0.3–0.4	0.6–0.7
Number of stamens	13–18	18–20
Five-year height and width (m)	1.4 $\times$ 2.6	1.7 $\times$ 2.3
Five-year disease rating ^z	1.3	1.5
Full bloom date ^y	23 Mar.	2 Apr.

^zIncidence of Entomosporium leaf spot evaluated in May from 2003 through 2007, averaged over 5 years according to a visual scale from 1 = no disease, 2 = 1% to 25%, 3 = 26% to 50%, 4 = 51% to 75%, and 5 = >76%. For comparison, the cultivar *Rhaphiolepis* 'Clara' had a disease rating of 4.5 over the same period.

^yAverage date of plants in full bloom, 2005 through 2007.

Fig. 2. *Rhaphiolepis umbellata* 'RutRaph1' in flower.

Availability

Production and marketing of *Rhaphiolepis* 'RutRaph1' is licensed to Monrovia Nursery Company, Azusa, CA, by the University of Georgia Research Foundation, Inc. (UGARF) and Georgia Seed Development (GSD). Plants were first available for sale in 2010. The U.S. Plant Patent number is 20,730. Southern Moon[®] is a registered trademark of Monrovia Nursery Company.

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