



**Evaluation of *Callicarpa* spp. for
utilization in a breeding program.**

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Abstract

There are over 150 species of *Callicarpa* throughout the world but only four are commonly grown in the US. To determine their potential for use as breeding material or introduction six species of *Callicarpa* that have not been widely utilized in the nursery trade were evaluated in 2007. These six species were grown alongside four common cultivars for comparison. Five of the six species outperformed the currently grown cultivars based on overall ornamental rating. These five species are currently being evaluated for cold-hardiness and will be used in interspecific crosses in 2008.

Introduction

Callicarpa L. is a genus of ~150 species of shrubs and trees distributed throughout the world including warm-temperate and tropical America, SE Asia, Malaysia, Pacific Islands, and Australia (Harden, 1992) with the greatest concentration of species found in SE Asia, specifically the Philippine Islands (Atkins, 1999). Of the New World species the highest concentration occurs in Cuba, with ~20 native species (Atkins, 1999). There are currently four species commonly found in cultivation: *C. americana* L., *C. bodinieri* Lév., *C. dichotoma* (Lour.)K.Koch, and *C. japonica* Thunb. with a limited number of varieties or cultivars of each to choose from (Dirr, 1998). Beautyberries, desired primarily for their handsome berries produced in fall, have been selected for white-

fruiting varieties, finer textured varieties, and increased berry production. These varieties are desirable but do not possess especially novel characters.

With over 150 species, there is a wealth of germplasm that has yet to be utilized in the nursery trade of the southeastern US. The current research was conducted to evaluate a number of species that have either not been grown or have been grown on a very limited basis. In addition, four commonly grown cultivars were included to provide a basis for comparison. Superior species have been selected to be utilized in the beautyberry breeding program at The University of Georgia with the goal of developing improved cultivars with novel characteristics.

Materials and Methods

The ten taxa used were *C. americana* 'Lactea', *C. bodinieri* 'Profusion', *C. cathayana*, *C. dichotoma* 'Issai', *C. formosana*, *C. japonica* 'Heavy Berry', *C. kwangtungensis*, *C. longissima*, *C. pedunculata*, and *C. rubella*. Cuttings were set in late summer to early fall 2006 and shifted to #1 (2.8 L) containers after rooting. On 14 May 2007 plants were shifted from #1 to #7 (24.6 L) containers. The substrate consisted of 6:1 pinebark : sand amended with (lbs./yd³) dolomitic limestone (4.0), Micromax (1.5), gypsum (1.5), Talstar (2.0), and Osmocote Pro 22-4-6 (4.0). All plants were topdressed on 6 August 2007 with 95 g of Florikan Nutricote 18-6-8. Plants were grown under standard nursery practice, however plants were not pruned. Height measurements were recorded bimonthly as well as date of first flower and disease and insect damage. Plants were rated from 1 to 5 for form and overall ornamental potential on 30 November 2007 with 1 being poor and 5 being excellent. Plant heights reported herein are final

measurements recorded on 16 November 2007. The plants were placed can-tight after the final height measurement and are being left uncovered during the winter. In spring 2008 they will be evaluated for overwintering potential.

Results

Plant heights and ornamental ratings are presented in Table 1. *Callicarpa americana* 'Lactea' was generally sparsely branched, defoliated at time of evaluation, and fruit were already turning black and dropping. As indicated by the low ratings in Table 1 it was not showy at the time of evaluation. *Callicarpa bodinieri* 'Profusion' had very poor form with a few branches, becoming very vigorous and leggy, however it did exhibit moderate fall color and fruit display. *C. cathayana* had excellent form in containers and had a good fruit display that was still developing at the time of evaluation. *C. dichotoma* 'Issai' had good branching with clean foliage and an overall moderate to fair fruit display. *C. formosana* had moderate to good form, was highly branched, good to excellent fruit display, and leaves were still green in late November. *C. japonica* 'Heavy Berry' had fair form but had a profuse fruit display. *C. kwangtungensis* had excellent form, excellent color, and moderate fruit display. *C. longissima* exhibited moderate to fair form with a great deal of fruit, however they were very slow to develop and would possibly be injured prior to maturity. *C. pedunculata* had good form, good fruit display, and displayed some fall color. *C. rubella* was the only species to exhibit grasshopper damage, had poor form, inconspicuous and very few fruit (≈ 12 fruit on entire plant), but did have fair fall color.

Discussion

C. cathayana, *C. formosana*, *C. kwangtungensis*, *C. longissima*, and *C. pedunculata* all performed better than the cultivars currently being grown in the trade and with standard pruning the form of these could be further improved upon. These results indicate that these species that have yet to be utilized in the nursery trade in the US have potential as alternatives to what is currently grown. Furthermore, they have immediate and great potential as sources of germplasm in the beautyberry breeding program at The University of Georgia. These and other species will begin to be utilized in interspecific crosses in 2008.

Literature Cited

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Table 1. Plant heights recorded on 16 November 2007 and overall ornamental rating recorded on 30 November 2007.

Taxa	<i>n</i>	Height ^z	Rating ^{zy}	DFP ^x
<i>C. americana</i> ‘Lactea’	12	35.0 ± 1.11	1.58 ± 0.19	6 June
<i>C. bodinieri</i> ‘Profusion’	4	61.4 ± 5.60	1.50 ± 0.29	15 June
<i>C. cathayana</i>	8	48.8 ± 1.30	4.38 ± 0.26	18 June
<i>C. dichotoma</i> ‘Issai’	8	37.8 ± 2.24	3.13 ± 0.23	18 June
<i>C. formosana</i>	8	48.5 ± 3.53	3.38 ± 0.26	5 June
<i>C. japonica</i> ‘Heavy Berry’	7	33.3 ± 0.87	3.00 ± 0.45	4 June
<i>C. kwangtungensis</i>	5	39.7 ± 1.21	4.40 ± 0.40	15 June
<i>C. longissima</i>	8	50.4 ± 1.68	3.25 ± 0.25	18 June
<i>C. pedunculata</i>	2	47.0 ± 2.00	4.50 ± 0.50	29 June
<i>C. rubella</i>	8	53.9 ± 2.11	1.25 ± 0.16	6 June

^zData presented as means ± SE; height presented in inches.

^yOrnamental rating based on 1 to 5 scale; 1 being poor and 5 being excellent.

^xDate of first flower.