



## **Evaluation of *Callicarpa* spp. for cold hardiness, seed germination, and new cultivar development**

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There are over 150 species of beautyberry (*Callicarpa* L.) including natives of North and South America, SE Asia, and Australia. There is a wealth of diversity in the genus including differences in ornamentally important characters, however, there are currently only four species grown in any quantity in the US: *C. americana*, *C. bodinieri*, *C. dichotoma*, and *C. japonica*. Among these species there are limited cultivars available that display differences in fruit color, fruit density, and leaf variegation. Due to the fact that there is an abundance of germplasm that has yet to be utilized a breeding program was initiated to develop well adapted beautyberry cultivars that are ornamentally desirable and exhibit novel traits.

In 2007, research was started to evaluate six species of *Callicarpa* that have been underutilized in the nursery trade. *Callicarpa cathayana*, *C. formosana*, *C. kwangtungensis*, *C. longissima*, *C. pedunculata*, and *C. rubella* were compared to four industry standards; *C. americana* 'Lactea', *C. bodinieri* 'Profusion', *C. dichotoma* 'Issai', and *C. japonica* 'Heavy Berry'. Results from the initial evaluation can be found in the May/June 2008 GGIA Journal pp. 32-33; however five of the "new" species performed as well or better than industry standards; *C. rubella* being the only exception. Evaluation of ornamental rating is being replicated in 2008-09. Evaluation of cold-hardiness of these species was conducted in winter of 2007-2008 and will be replicated during the winter of 2008-09.

The project was continued, not only to evaluate cold-hardiness, but to evaluate seed germination and interspecific hybridization through open pollination. Seed was collected in Fall 2007, cold stratified for 60 days, and germinated in pine bark. Moderate differences were seen in seed germination, however all taxa in the study were low and were overall not remarkable. Most of the resulting OP seedlings were also unremarkable and were very similar in appearance to the maternal parent. However, there are several plants that may be of hybrid origin that are still being evaluated. Cold-hardiness differed significantly among taxa. Of the "new" species *C. kwangtungensis* was the most cold-

hardy with no mortality and no stem dieback. The most cold tender were *C. formosana*, *C. longissima*, and *C. pedunculata* with 50, 25, and 50% mortality, respectively.

Data collected from evaluation during 2007-2008 were used to select individuals for use in controlled crosses during summer 2008. *Callicarpa cathayana*, *C. formosana*, *C. kwangtungensis*, *C. longissima* were all crossed with *C. americana* to develop beautyberry hybrids adapted to the southeast that exhibit novel ornamental characters.