

Japanese Barberry and Hybrid Cultivars Showed Various Rooting Ability from Stem Cuttings

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Introduction

Barberry Thunbergii DC. (Japanese barberry) is a member of Berberidaceae, which native to central and southern Japan. It is a beautiful deciduous, dense, and spiny shrub with showy foliage in various colors and persisted red fruits. Since it can grow under various habitats and adapt from full sun to shade, hybrids and cultivars of Japanese barberry are the most attractive ornamental plants in summer landscapes. However, it was too popular in the landscape and some of them escaped to the wood as invasive plants.

Asexual propagation by stem cuttings has been reported in China and other countries, but there is few reports conduct on the so many cultivars of Japanese barberry. Experiment were conducted to investigate the rooting of cultivars of Japanese barberry and determine the effects of foliage color on their cultivar rooting ability.



Fig.1. Nursery of *Berberis thunbergii* DC. and its cultivars



Fig.2. *Berberis thunbergii* var. atropurpurea 'Bagatelle'

Materials and Methods

Stem cuttings of Japanese barberry were collected on 9 Sep. 2006 from the horticultural Farm of Univ. of Connecticut's in USA. A total of forty-seven cultivars were included and the cultivars were divided into four groups according to their foliage colors:

green, purple, yellow and bicolor foliage. Each cutting was pruned from the base to an approximate length of 12 to 20 cm. All bottom portions of the cuttings were stripped and received double wounded. Cuttings were treated with IBA powder and/or K-salt. Rooting media were commercial potted promix and coarse horticultural perlite(1:1, by volume). The mist system was set for 20 sec. for every 20 min, thereafter during daylight hours. Bottom heat was supplied at $\pm 24^{\circ}\text{C}$. Rooting rate was recorded and number of roots per cutting were recorded. To better express rooting quality, the average root length (cm) was measured for each cutting too.



Fig.3. *Berberis thunbergii* 'Bonanza Gold'



Fig.4. *Berberis thunbergii* var. atropurpurea 'Angel Wings'



Fig.5. *Berberis thunbergii* var. atropurpurea 'Crimson Ruby'



Fig.6. *Berberis thunbergii* var. atropurpurea 'Erecta'



Fig.7. *Berberis thunbergii* 'Aurea'

Results and Discussion

The green foliage cultivars had the highest rooting percentage of 76.3%. The next highest rooting percentage, 70.3%, was found from bicolor foliage cultivars. Half of purple foliage cultivars had been rooted and the lowest rooting percentage, 39.3%, was observed from the yellow foliage cultivars. Rooting quality followed the trend of the rooting percentage and decreased significantly from green and bicolor foliage cultivars to purple and yellow foliage cultivars. Cuttings treated with



Fig.8. *Berberis thunbergii* var. atropurpurea 'Golden Ring'

K-IBA had better rooting than that treated with Hormondin#2. Different cultivars had various rooting potential and no root was generated from 'Aurea Nana', 'Golden Carouse', 'Helmond Pillar', 'Rose Glow', and 'Superba'. Cultivars, 'JN Redleaf', 'Red Bird', 'Red Chief', and 'Tara', had less than 13% of rooting and poor rooting quality (the total root length was less than 2cm). These cultivars demonstrated that their rooting ability were significantly lower than that of other cultivars. 'Concored', 'Crimson Dwarf', 'Green Pygmy', 'Inermis', 'Kobold' and 'Pow Wow' could be easily rooted with high quality of root systems.



Fig.9. *Berberis thunbergii* 'Kobold'



Fig.10. *Berberis thunbergii* var. atropurpurea 'Crimson Velvet'



Fig.11. *Berberis thunbergii* var. atropurpurea 'Helmond Filla'

Reference

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Fig.12. *Berberis thunbergii*.DC

