

Cutting Propagation of Wild *Rhododendron decorum* Franch

Xuejuan Chen¹, Yan Zhou², Qixiang Zhang¹, Donglin Zhang³, and Xun Chen²

¹College of Horticulture, Beijing Forestry University, Beijing 100083, China

²Guizhou Academy of Science, Guiyang, Guizhou 550001, China

³Dept. of Plant, Soil and Environmental Sciences, University of Maine, Orono, ME 04469, USA



Fig. 1: *Rhododendron decorum* (dabai rhodo) has great ornamental potential for our daily gardens (Fig. 2 & 4). Researchers had focused on its drought tolerance, seed morphology, and diversity. Seed germination had been studied with little success. To clonally reproduce this plant, cutting propagation had been conducted in this study.

Introduction

Rhododendron decorum is a small ornamental tree or shrub for its loaded white flowers (Fig. 1) during early spring. It is a dominant species in Baili Rhodo Forests in Guizhou, China and

Materials & Methods

Vigorous and healthy semi-hardwood cuttings (with or without heels) had been collected from wild populations in Guizhou, China in June 2007 and transported with moisture containers to the lab. Cuttings were prepared followed the standard procedures, treated, and inserted to the prepared beds under low-plastic tunnels, which had high moisture from applied water or ground water. The treatments were as the following:



Fig. 2: Ornamental attributes of *Rh. decorum*.

1. Control (no treatment or only tap water).
2. Hormone: Hormodin, K-IBA/NAA, ABT, Dip'N Grow.
3. Concentration: 200, 5,000, 8,000, 10,000 mg-L⁻¹.
4. Application method: Soak (to 2 hours) or quick dip.
5. Medium: peat moss, sand, perlite.
6. Retaining number of leaves: 1, 2, 3, or 4.

Days to root initiation, rooting percentage, number of roots, and root length (cm) were collected. A randomized completely block design was employed in this experiment with 3 blocks and 20 pseudo-replicates per treatment per block. All data were analyzed using MS Excel and SPSS version 10.1.

Reference:

Chen, Xuejuan, Qixiang Zhang, Weijie Li, Xun Chen, and Donglin Zhang. 2008. Natural regeneration of *Rhododendron decorum* Franch. HortScience 43(4):1177.

Wu, Z.Y., P.H. Raven & D.Y. Hong, eds. 2005. Flora of China. Vol. 14 (Apiaceae through Ericaceae). Science Press, Beijing, and Missouri Botanical Garden Press, St. Louis.

Results & Discussion:

Hormone type had significantly affected on rooting of dabai rhodo. Dip'N Grow was better and produced roots at 44 days (74 days for the control) with 53.2% rooting rate (1.1% for the control). Hormodin, straight IBA, NAA, and other yielded 3.9 to 22.6% rooting rates. The quality of roots, which measured by the total roots and the longest root length, was also significantly better (Table 1). The quick-dip Dip'N Grow concentration should be 1:10 (1,000 mg-L⁻¹ IBA + 500 mg-L⁻¹ NAA) and higher or lower concentrations would significantly reduce the rooting ability of dabai rhodo. The quality of root followed the trend of the rooting rates. Cuttings treated with Dip'N Grow at 1:10 ratio produced 45 roots per cutting with the longest root of 8.1 cm. Quick dip was the better method



Fig. 3: Rooted cuttings of *Rh. decorum*.

Table 1: Effect of hormones on rooting rate (%) and quality of *Rhododendron decorum*.

Hormone	Day to root initiation	Rooting rate (%)	No. of roots	Root length (cm)
Control	74.0a	1.1e	2.0c	0.5e
Dip' N Grow	44.0c	53.2a	45.0a	8.1a
Hormodin	55.0b	22.6b	13.0b	4.6b
IBA+NAA	59.0b	21.3bc	9.7b	3.1c
ABT ₁	62.0b	14.3cd	8.0b	2.8c
NAA	64.3b	7.6e	6.0b	1.8d
IAA	69.0ab	3.9e	5.3b	1.0d



Fig. 4: *Rh. decorum* community in Baili Rhododendron Forests.

than that of 30 minute to 2 hours soak. For the media, the rooting beds prepared with peat moss and perlite (3:1, v.v) produced significant higher rooting percentage and better rooted cuttings (Fig. 3). Two leaves per cuttings should be retained. It is possible that we could trim the leaves to its 1/3 and retained four leaves. *Rh. decorum* could be reproduced using semi-hardwood cuttings with heel, quickly dipping into the 1:10 Dip'N Grow for 5-10 seconds, and rooting with perlite and peat moss media.