

Seed Dormancy and Germination of *Sinojackia dolichocarpa*
C.J. Qi

Zhi-hui Li¹, Bin Zhang¹, Donglin Zhang^{2,4*}, and Shui-ping Fan³,
¹Central South University of Forestry and Technology, Changsha, Hunan 410004, China; ²Department of Plant, Soil, and Environmental Sciences, University of Maine, Orono, ME 04469; ³Nanyue Arboretum, Henyang, Hunan 421100, China; ⁴also a guest professor at Central South University of Forestry and Technology, Changsha, Hunan, China

Sinojackia dolichocarpa, a small ornamental tree known for its loaded white flowers and spindle-shaped fruits, is a threatened species, only distributed in the western part of the Hunan Province in China. Since no regeneration in the wild has been observed, reproducing this plant is an essential step in its conservation and cultivation. Seeds were collected from Shimen, Hunan, and stratified in a sulfuric acid and gibberellic acid (GA₃) soak, then sowed outside before winter. Duration of temperature lower than 4 °C in this winter was 10 weeks. No germination was found for directly sowed seeds (control). All stratification seeds had germination rates from 3.3% to 46.7%. Seeds soaked in 99.9% sulfuric acid for 2 days had much higher germination rates than those that were soaked for 3 and 4 days. The highest germination rate (46.7%) was observed in seeds soaked in sulfuric acid for two days, and then 500 mg·L⁻¹ GA₃ for one day. The results concluded that seeds of *S. dolichocarpa* had a combinational dormancy (physical and physiological dormancy). The testa was very thick, which accounted for 91.9% of the seed dry weight. The hardseededness and water-impermeability of the seed could be overcome by acid erosion. Seeds soaked in sulfuric acid for four days had 44.5% of its testa (by dry weight) removed. Physical dormancy of *S. dolichocarpa* seeds could be partially released from acid soak. GA and subsequent lower temperature treatments could overcome the physiological dormancy. Further studies should focus on better germination rates and some asexual regeneration methods.