

Potential risk of hybridization in *ex situ* collections of two endangered species of

Sinojackia Hu (Styracaceae)

Qi-Gang YE, Xiao-Hong YAO, Jing-Ju ZHANG, Hong-Wen HUANG

Wuhan Botanical Garden, the Chinese Academy of Sciences, Wuhan, 430074,

Spontaneous hybridization in *ex situ* facilities can undermine the genetic integrity of *ex situ* collections and potentially contaminate open-pollinated seeds or seedlings destined for reintroduction of endangered plant species into the wild. In this study, the potential risk of hybridization between two endangered Chinese endemic species, *Sinojackia xylocarpa* Hu and *S. rehderiana* Hu, which are naturally allopatric species but were conserved *ex situ* in Wuhan Botanical Garden (WBG), were investigated in consecutive three years from 2003 to 2005. The whole overlapping flowering periods of the two species were from 14 – 20 days and the two species shared the same pollinator insects

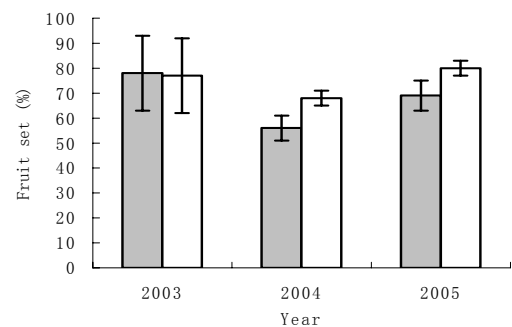


during the whole flowering season in WBG and there is no floral isolation between the two species in WBG, which suggested the opportunity for the transfer of inter-specific pollen and potential risk of genetic introgression and loss of genetic identity of cultivated seeds of these two endangered species. An artificial reciprocal cross between *S. xylocarpa* and *S. rehderiana* confirmed that the two congener species could readily set seeds, indicating no post-pollination barriers to hybridization and the importance of spatial isolation as a barrier to inter-specific crossing.

Furthermore, natural hybridization between this two

species has been confirmed by our molecular data. 27 out of 351 offspring of *S. xylocarpa* had one parent from *S. rehderiana* by parentage analysis using five microsatellites loci. Therefore, to manage these crossable species with overlapping flowering times and shared pollination vectors in *ex situ* facilities, spatial isolation should be carefully considered to minimize the possibility of spontaneous hybridization.

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■ *S. xylocarpa* (♀) × *S. rehderiana* (♂)
□ *S. rehderiana* (♀) × *S. xylocarpa* (♂)