

Effects of Freezing on Seed Germination of Orchids Plant

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Abstract: During the cold-moist conditions of winter, stratification occurs that alleviates dormancy in many species enabling spring germination. Orchid seed were first germinated at the base of wild collected potted orchid but germination was unreliable and seedling mortality rates were high. Winter in southeaster United states frequently have warm spells, lasting a few days, interrupted by cold freezing period in this study, the effects of a freeze during stratification and following a warm spell on and seedlings of locally common exotic and native plants were determined. In the laboratory, were exposed to freezing temperatures, following stratification and stratification warm spell, that simulated a cold and then they were incubated at warm temperatures. In a common garden, had cotyledons before a freeze; other species only had roots. Seedlings of had moderate survivorship, whereas those of had low survivorship. In the field, were sown inside and outside (control) of open top chambers. Viability of four species did not differ, probably due to the failure of the too warm above ambient conditions. Thus, freezing may differentially affect seed viability and germination and seedling survivorship of exotic native species and potentially influence competitive interactions between them. The types of method that are used for cryopreservation and the large variation in response of orchids to the cryopreservation method observed in the study emphasize the need for the development of more appropriate protocols for the preservation of orchids. Having flower and then seeds are characteristics of gymnosperm and angiosperm plants. In seed plant the process of reproduction is completely by the formation of the seed. Nutritive tissues of seed provide food for the development of embryo until the new born plant can photosynthesis.

Keywords: Seed, Freeze Effect, etc.

REFERENCES

- [1] Taylor, Edith L.; Taylor, Thomas N.; Krings, Michael (2009-01-21) Taylor, Edith L.; Taylor, Thomas N.; Krings, Michael (2009-01-21). Paleobotany: The Biology and Evolution of Fossil Plants. Academic Press. ISBN 978-0-08-055783-0. Academic Press.
- [2] Campbell, J.L., M.J. Mitchell, P.M. Groffman, L.M. Christenson, and J.P. Hardy. 2005. Winter in north-eastern North America: a critical period for ecological process. *Frontiers in Ecology and the Environment* 3: 314-322.
- [3] Davis, B. and R.G. Shaw. 2001. Range shifts and adaptive responses to Quaternary climate change. *Science* 27: 673-679.
- [4] Guisan, A. and W. Thuiller. 2005. Predicting species distribution: offering more than simple habitat models. *Ecology Letters* 8: 993-1009.
- [5] Hansen, A.J., V. Dale, C. Fothergill, L. Iverson, D. Currie, S. Shafer, R. Cook, and P. Bartlein. 2001. Global change in forests: responses of species, communities, and biomes. *BioScience* 51: 765-779.
- [6] Kraaling, J., S. Schmid, and G. Aas. 2015. Cold tolerance of tree species is related to the climate of their native ranges. *Journal of Biogeography* 42: 156-166.
- [7] Mack, R.N. 2000. Assessing the extent, status, and dynamism of plant invasions: current and emerging approaches. Pp. 141-168 in H.A. Mooney, R.J. Hobbs, eds. *Invasive species in a changing world*. Island Press, Washington, D.C.
- [8] Sandel, B. and E.M. Dangremond. 2011. Climate change and the invasion of California by grasses.



Climate Change Biology 18: 277-289.

- [9] Luo, Y.B., Jia, J.S., and Wang, C.L. (2003). As general review of the Conservation status of Chinese orchid. Biodiverse. Sci. 11, 70-77.