

Wipaporn Sawangmee 2011: Effects of Gamma Irradiation on Mutation of an Interspecific Hybrids between *Torenia fournieri* and *Torenia baillonii*. Master of Science (Horticulture), Major Field: Horticulture, Department of Horticulture. Thesis Advisor: Associate Professor Thunya Taychasinpitak, M.Sc. 79 pages.

Mutation breeding of *Torenia* hybrids were used gamma radiation combined with detached-leaf technique and were expose to 0, 50, 100, 150 and 200 gray of acute irradiation (100 leave in each group in all experiment). After 30 days for regeneration, the LD₅₀ and GR₅₀ was calculated to be 83 and 76 gray respectively. At dose 50 gray had the highest growth and higher dose resulted in reduced plant growth. No percentage of survival in dose 150 and 200 gray. Mutation was observed in 1 plant of 50 gray. It was tetraploid with thicker leave branches petals and chromosome number were more than control, diploid (2n=2x=17) and tetraploid (2n=4x=34). Then detached-leaf technique were expose in suitable dose (GR₅₀₍₃₀₎=76 gray) of acute radiation from first experiment were 0, 50, 60, 70 and 80 gray. No percentage of survival in dose 80 gray. In dose 50 gray had the highest growth and was observed 1 mutation plant. Further, we were observed the chimera flower. In last experiment, we used chronic radiation combined with detached-leaf technique and were expose to 0, 50.33, 71.29, 91.24 and 113.18 gray. After 30 days, it was not possible to calculated the LD₅₀ because the survival rate was higher than 50 percent in all experiment groups. A mutation was observed at dose 91.24 gray of chronic radiation. The most appropriate dose of acute gamma radiation to induce mutation in *Torenia* was found to be 50 gray.

Student's signature

Thesis Advisor's signature

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