

Valerie Webb Suwanseree 2011: Effects of Gamma Radiation, Colchicine and Oryzalin on the Phenotype of *Torenia hybrida in vitro*. Master of Science (Tropical Agriculture), Major Field: Tropical Agriculture, Interdisciplinary Graduate Program. Thesis Advisor: Associate Professor Thunya Taychasinpitak, M.S. 51 pages.

The aim of this study was to develop new cultivars of *Torenia hybrida* for the ornamental market. Excised nodes of *T. hybrida* plantlets grown *in vitro* were exposed to 0, 0.0025, 0.0075 or 0.0125 mM colchicine or 0, 0.0028 mM, 0.0086 mM or 0.144 mM oryzalin for 48 or 72 hours before subsequent *in vitro* multiplication. Four-week-old *in vitro* plantlets from the colchicine treatments were irradiated with 0, 30, 40, or 50 Gy of gamma radiation and those from the oryzalin treatments were irradiated with 0 or 60 Gy of gamma radiation. After subculturing, the plants were transferred to the field and changes in phenotype were noted. Colchicine and oryzalin treatment did not result in any polyploid plants. No variations were observed in leaf shape, color or size but variations were observed in growth habit (compact and creeping), flower color (pink and pale blue, as well as mottled or streaked purple petals), and flower form (erose petal margins). The plants with erose petal margins were selected for possible development of a new cultivar.

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Thesis Advisor's signature

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