Response of Selected Carnivorous Plants to Thidiazuron and Rna Extraction of *Drosera x tokaiensis*

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ABSTRACT

Carnivorous plants are undergoing extinction due to their wide exploitation for use in medical and horticultural industry, thus require *in vitro* culturing as an alternative method to preserve them and increase their market availability without endangering them. A range of concentrations of thidiazuron (TDZ) at 0.00, 0.01, 0.05, 0.20, 1.00 and 5.00 mg/L was tested on *Drosera* × *tokaiensis*, *Drosera burmanii* and *Dionea muscipula* to determine the optimum concentration for inducing somatic embryogenesis (SE) in each of the species. The cultures were treated for 30 days with one subculture at day 15. The response from TDZ treatment on the explants of the selected carnivorous plant species were determined by calculating the total number of somatic embryos formed. The results obtained were tested by using Analysis of Variance (ANOVA) and Dunnett's T3 test to detect the significant difference caused by the different concentration of TDZ. Different concentrations of TDZ resulted in a significant difference among explants of *D.* × *tokaiensi* and no significant difference among explants of *D. burmanii*. In particular, 0.01 mg/L of TDZ induced the highest number of somatic embryo in explants of *D.* × *tokaiensis* and 5 mg/L of TDZ induced highest number of somatic embryo in explants of *D. burmanii*. All explants of *D. muscipula* showed no induction of somatic embryo. To further confirm that somatic embryogenesis is taking place, detection of the expression of embryogenesis-related genes can be done. RNA extraction was performed for the assay in this study using the Analytik Jena RNA extraction Kit and cetyltrimethyl ammonium bromide (CTAB). Extracted total RNA from *D.* × *tokaiensis* were characterised by using agarose gel electrophoresis and UV spectrophotometry. RNA was successfully extracted by using the CTAB method. Two bands of 28S and 18S were visible in the intact total RNA samples. The total yield and quality of RNA extracted lower than expected probably due to pipetting error during 70% ethanol aspirating step.