

Induction of protocorm-Like Bodies by Thidiazuron (TDZ) from Leaf Explants of *Phalaenopsis Violacea* witte

Prepared by: Adelaide Takudzwa Kashangura

ABSTRACT

Orchids are one of the highly well regarded and desired ornamental plants. There are many genus in the orchid family. One of the most common is the *Phalaenopsis*. One particular species of interest is the *Phalaenopsisviolacea*Witte. It is however, a highly endangered species and conservation methods are required to tone down the problem. Plant tissue culture is a technique used for aseptic culturing of plant cells, tissues and organs *in vitro* and is employed in the production of *P. violacea* orchids from leaves as their explants. *P. violacea* is a plant that is difficult to culture and for that reason, a reproducible defined medium that is non-genotype-selective was chosen. For healthy growth to occur, somatic embryogenesis must occur with the aid of plant growth regulators. Thidiazuron (TDZ) was used as the choice of plant growth regulator at various concentrations between 0 mg/L and 5 mg/L. The cultures were incubated in the dark at 25°C for 30 days. The percentage of explants producing protocorm-like bodies (PLBs) per total number of explants was calculated and analysed using the two-factor Analysis of Variance (ANOVA). The statistical analysis showed that TDZ significantly affects PLB induction and that the best TDZ concentration for PLB induction on average is 2 mg/L. Above this concentration, the rate of PLB induction decreased. The explants did not manage to advance to the proliferation stage as subculturing was done late when the nutrients in the media had already been depleted and the explants were not transferred to the light to induce proliferation. Proximal and distal explants were used, the distal explants showed a higher induction rate than proximal due to the high concentration of auxins and meristematic cells found in the distal explant.