Induction of Somatic Embryogenesis in *Plantago asiatica* with Thidiazuron (TDZ)

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ABSTRACT

Plantago asiatica is one of the source of important therapeutic aid for curing human ailments. The pharmacological value of this plant led researchers to micropropagate them *in vitro*. The main objective of this research is to induce somatic embryogenesis of *P. asiatica,* a medicinal plant which has four major bioactive component, plantaginin, plantamajoside, acetoside and 6-hydroxyluteolin 7-glucoside. The source of explants are the hypocotyl segments from 4 weeks old *in vitro* germinated seedlings cultured on MS medium. Media used for the induction of somatic embryogenesis are MS medium supplemented with TDZ at various concentrations (0.00, 0.50, 1.00, 2.00, and 5.00 mg/l). The optimum concentration for the production of somatic embryos was observed at 1.00 mg/l of TDZ at day 15 from culture intiation. At day 30, proliferation of callus was observed on the hypocotyls and the somatic embryos which was present at day 15 started to dissappear and gave rise to callus. Thus, it was concluded that under ectopic overexpression of embryogenic regulators, callus started to proliferate from the somatic embryos. At 5.00 mg/l of TDZ, higher callusing rate was documented and such treatment was suggested for callus induction. Overall, the results obtained from this study enable us to identify optimum concentration for the induction of somatic embryogenesis as well as for callogenesis. Futhermore, the reverse phenomenon observed through the conversion of somatic embryos to callus showed us an alternative way to induce callus and regenerate plantlets.