Effect of Auxin on Somatic Embryogenesis of *Plantago asiatica* L.

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**ABSTRACT**

*Plantago asiatica* L. is an eminent species well known for therapeutic uses. The medicinal value led researchers to regenerate large numbers of this plant through *in vitro* culture. The pharmacological value of the plant led researchers to micropropagate them *in vitro*. The purpose of this research is to induce somatic embryogenesis in *P. asiatica* using four types of explant which is the shoot tip, cotyledon, hypocotyl and root from 2-4 weeks old *in vitro* germinated seedlings cultured on Murashige and Skoog medium (MS medium) supplemented with three types of auxins, 2,4 dichorophenoxyacetic acid (2,4-D) at 3 concentrations (0.5, 1.0 and 2.0 mg/L) as positive control, picloram and 1-naphtaleneacetic acid (NAA) at six concentrations (0.00, 0.25, 0.50, 1.00, 2.00 and 5.00 mg/L). In a preliminary unpublished study, 1.0 mg/L 2,4-D showed good result in inducing SE from the species and to reconfirm that result, the experiment was repeated which results in a good formation of somatic embryos in shoots (young leaves), cotyledons, hypocotyls and roots at the same concentration (1.0 mg/L). NAA showed no embryogenic structure formation on both day 15 and 30 but induced 30-40% of callus structures as well as showed formation of root hair on day 15 and double up the amount of callus and root on day 30. Whereas picloram was determined as a promising alternative as it showed significant percentage of (%) induction (number of explants producing embryogenic structures per total number of explant) by all the explants of 100% at day 30 on 2.0 and 5.0 mg/L picloram. Overall, the results obtained from this study assisted us to identify optimum concentration for the induction of SE from this species.