DIRECT ORGANOGENESIS OF STEVIA REBAUDIANA

IN VITRO USING NODAL EXPLANTS Kasundi Mekhala GUNASENA, Sandun SENARATH*

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Abstract

Stevia rebaudiana Bertoni is a medicinal herb belonging to the family of Asteraceae. It is a natural sweetener plant, which is estimated to be 300 times sweeter than cane sugar. In this study, reliable protocol was developed for direct organogenesis of S. rebaudiana using in vitro derived nodal explants. Seeds were collected from mother plants and they were surface sterilized. To optimize the surface sterilization procedure, dark color (fertile seeds) seeds were surface sterilized using different concentrations and in different exposure time of carbendazim and sodium hypochlorite (Clorox). Out of different combinations 0.2% carbendazim for 5 minutes, 10% sodium hypochlorite for 10 minutes and 70% ethanol each followed by two successive washings in sterile distilled water was found to be the best for surface sterilization. Two sets of seeds (fresh, stored) were cultured on MS basal medium supplemented with different concentrations of GA3 for seed germination. According to the results seed viability was lost with time and it affected seed germination. Seed germination was not affected by GA3, but seedling height was affected by it. Seeds germinated on MS medium supplemented with 3.0 mg/L GA3 showed the highest seedling height after 10 days. MS basal medium supplemented with different concentrations of BAP and Kin were tested for shoot bud and multiple shoot induction. Out of different media Ms basal medium supplemented with 2.0 mg/L BAP was found to be the best medium for shoot bud and multiple shoot induction within 60 days. Keywords: Stevia rebaudiana, surface sterilization, seed germination, shoot induction, direct organogenesis.