

Production of Eleutherosides in *in vitro* Regenerated Embryos and Plantlets of *Eletherococcus chiisanensis*

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Eletherococcus chiisanensis an import endangered medicinal plant yields secondary metabolites called eleutherosides, which have been used as tonic and for the treatments of rheumatism, diabetes and hepatitis. The current study was designed to induce somatic embryogenesis from the suspended zygotic embryonic cells in liquid cultures and subsequent culture of cotyledonary embryos in bioreactor system for mass propagation of plantlets. Zygotic embryo-derived embryonic callus of *E. chiisanensis* was maintained in Murashige and Skoog's (MS) liquid medium supplemented with 4.5 μ M 2,4-D and 3% sucrose. High frequency somatic embryogenesis was achieved through suspension culture of embryonic cells in hormone free MS liquid medium supplemented with 30 g l⁻¹. Cotyledonary somatic embryos were germinated, and converted into plantlets following a pretreatment of embryos with 20 μ M gibberellic acid and subsequent transfer to a 10 l airlift bioreactor. After 8 weeks of culture, an initial 30 g inoculum of embryos was converted to 560 g fresh mass of plantlets in 1/3 strength MS medium.

Eleutheroside B, E and E1 were quantified in the embryos and plantlets and plantlets contained similar amount of eleutherosides like that of wild plantlets. These results show that *E. chiisanensis* can be efficiently regenerated from embryonic suspension culture in liquid cultures for aseptic production of bioactive compounds.