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An Efficient Clonal Propagation of *Eleutherococcus chiisanensis* via Somatic Embryogenesis using the Root Segments

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Objectives

Clonal propagation of woody plants is an important tool for tree improvement, reforestation, and gene pool conservation etc. *Eleutherococcus chiisanensis* is an endangered medicinal woody plants belonging to *Araliaceae*. Upto now somatic embryogenesis and plant regeneration has been achieved from the culture of zygotic embryos as initial explants in all *Eleutherococcus* plants. In this study, we developed an efficient micropropagation system via somatic embryogenesis of this species using different explants, especially focus on root explant.

Materials and Methods

1. Material : *Eleutherococcus chiisanensis*. *in vitro* plant, leaf, petiole, root

2. Methods

Callusing and embryogenic callus induction - MS medium with 1.0 mg/L 2,4-D, 0.01 mg/L TDZ, 1 g/L glutamine.

Somatic embryo induction : Hormone free 1/2 MS basal medium

Germination of somatic embryos - To induce germination, somatic embryos at cotyledonary stage were transferred to half-strength MS medium with 1 mg/L GA₃ + 0.02% activated charcoal and cultured for three weeks.

Soil transfer - Converted plantlets were transferred to artificial soil mixture in a greenhouse.

Results and Discussion

Callus induction occurred on all of the explants. but embryogenic callus was observed on root explants only. The best frequency of embryogenic callus formation (15% in root explants) was achieved on MS medium supplemented with 1.0 mg/L 2,4-D, 0.01 mg/L TDZ, 1g/L glutamine. Embryogenic callus was friable and white in color. Somatic embryos could be induced on hormone free half-strength MS medium. To induce of somatic embryos germination, cotyledonary stage embryos were transferred to half-strength MS medium with 1 mg/L GA₃ + 0.02% activated charcoal and cultured for three weeks. *In vitro*-converted plantlets were acclimatized in soil mixture of vermiculite : perlite (1:1 v/v) and nurtured in a greenhouse. About 90% of the plantlets acclimatized, and successfully transferred to field condition.

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