

P7

Effect of Auxins on Adventitious Root Formation from Root Segment of *Acanthopanax koreanum* Nakai and Mass Production through Bioreactor

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Objectives

We have undertaken a study of *Acanthopanax koreanum* Nakai, which is used for medicinal purpose, for production of Eleutheroside E. Experiment was carried out to investigate the effect of auxins on adventitious root formation in *Acanthopanax koreanum*, and subsequently produced adventitious roots through bioreactor.

Materials and Methods

1. Plant material: Root segments (1.0-2 cm) of somatic embryo-derived *Acanthopanax koreanum* Nakai.
2. Methods
 - Auxins: NAA (0-7.0 mg/L), IBA (1.0-7.0 mg/L), 2,4-D (0.5-5.0 mg · L⁻¹) (solid 1/2 MS medium).
 - Bioreactor culture: 10 L balloon type air lift bioreactor (liquid

1/2 MS medium containing IBA 3.0 mg · L⁻¹).

Results and Discussion

In vitro formation of adventitious roots of *Acanthopanax koreanum* Nakai was achieved from root segment by addition of IBA. The root segments were cultured on 1/2 MS medium supplemented with NAA, IBA and 2,4-D at the concentrations of 0.0-7.0 mg · L⁻¹ individually. An optimum of 88.6% explants produced adventitious roots in culture treated with 1.0 mg · L⁻¹ IBA, however number of adventitious roots from explant were more produced in 3.0 mg · L⁻¹ than in 1.0 mg/L IBA. Well grown adventitious roots were cultured in liquid MS medium containing 3.0 mg · L⁻¹ IBA in 10 L balloon type air lift bioreactor and, after 8 weeks of culture 4.6-fold adventitious roots were harvested from bioreactor.

