

P 30 Production of Scopolamine and Hyoscyamine by Elicitation of Adventitious Hairy Root of *Scopolia parviflora*

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Objectives

Scopolia is a perennial crop rarely found in the deep mountain of Korea. The roots is well known as Nangtangeun, which was used anticholinergic agent for a long time. This is still supplied due to rarity and under conservation as endangered plant. In present study, establishment of the culture, and production of alkaloids by adventitious hairy root culture in *Scopolia parviflora*.

Materials and Methods

Adventitious hairy root were induced from the rhizome of a mature plant, and maintained in B5 medium containing 3% sucrose and 0.1 mg/l IBA. Several elicitors were tested to increase tropane alkaloids production in hairy root cultures. NaCl, KCl, CuSO₄ applied as abiotic elicitor, and chitosan and cultures of various microorganisms were used as an biotic

elicitor. Polymeric resins (XAD and diaion) were tested on production and recovery of TA in the medium. Hairy root were harvested, weighed, and analysed using by HPLC (MeCN: 50mM K₂HPO₄=22:78, 4.6×25cm TSK gel ODS column, and UV 215 nm).

Results and Discussion

Scopolamine and hyoscyamine are a pharmaceutically important tropane alkaloid that accumulates in several solanaceous plants. Adventitious hairy root were induced rhozyme of *Scopolia parviflora* an indigenous plant in Korea. Abiotic elicitors made a slightly production promotion effect. Treatment of high concentration of chitosan dramatically increased the propane alkaloid production. When XAD resins were added in the medium, root growth and tropane alkaloid production were both increased. This results will be served mass production of tropane alkaloid by large scale cultivation.

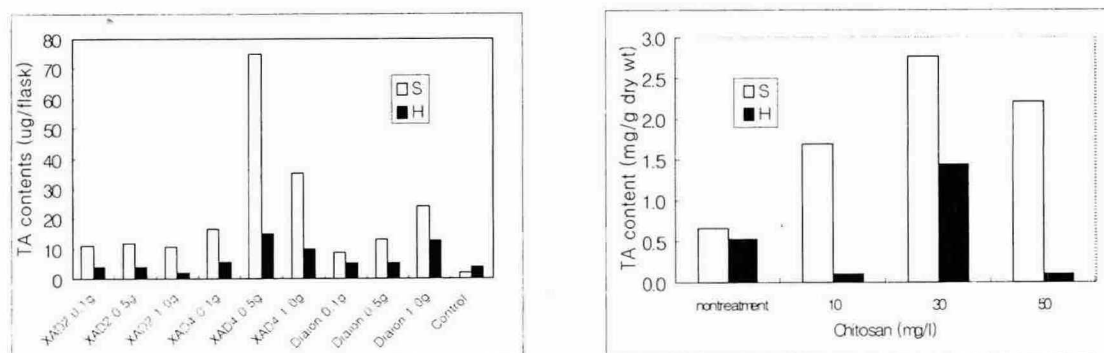


Figure 1. Enhancement of TA production by elicitation. Right: TA production by XAD treatment, Left: TA production by chitosan treatment.