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Changes of Tropane alkaloid contents based on shoot differentiation stage of *Scopolia parviflora* callus

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Objectives

Biosynthesis of secondary metabolites affected on differentiation of plant tissues. In this study, the tropane alkaloid level of organogenic calli of *Scopolia parviflora* were determined at various shoot differentiation stages.

Materials and Methods

1. Plant materials - *Scopolia parviflora*

2. Methods - Adventitious root derived callus (0.58 g F.W.) was transferred to Petri dishes containing B5 solid medium supplemented with 8.87 μM BA. After 8 weeks of cultures, organogenic calli were selected, and then transferred into the liquid 1/2 B5 medium supplemented with 8.87 μM BA. The liquid cultures were maintained at 100 rpm and 25°C under dark condition. Tropane alkaloids contents in of *S. parviflora* calli were analysis by HPLC equipped with ODS column, 220 nm UV detector.

Results and Discussion

The shoot regeneration system from organogenic calli were established (Fig. 1, left), tropane alkaloid content were determined at various development stages (Fig. 1. right). Changes of tropane alkaloids in culturing of organogenic callus were observed. The tropane alkaloids content in cultured calli varied from 0.48 to 10.37 mg/g DW. The level of tropane alkaloid was dramatically increased with differentiation stage. Especially, level of tropane alkaloid in premordia emergence stage was higher than that of other stage. Thus, biosythesis of tropane alkaloid are strongly influenced differentiation of cultured organ of *S. parviflora*.

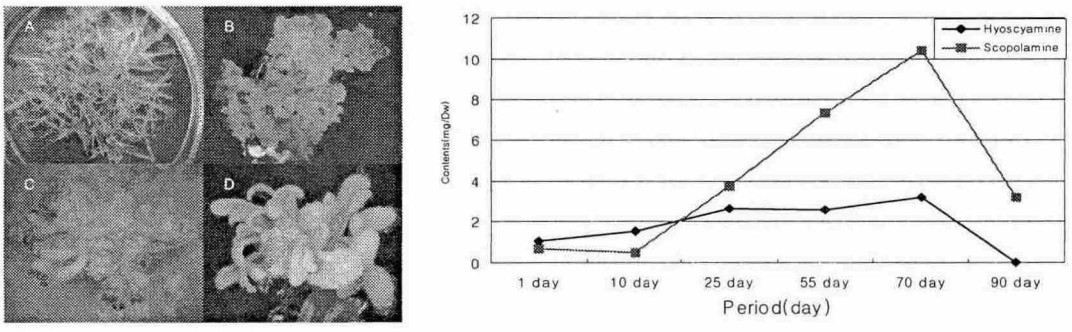

Fig. 1 Shoot organogenesis from hairy root derived calli of *S. parviflora (left)*, and change of tropane alkaloid based on differentiation stages. (A) Hairy root (B) Non-organogenic calli (C) Induction of primordium from organogenic calli (D) developed shoot from calli.

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