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Genotypic differences in callus formation and plant regeneration from the cultured tissues of *Perilla frutescens*

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objectives

This study was carried to select a genotype with good culturability in tissue culture of perilla.

Materials and Methods

1. Materials

Cultivars tested : five cultivars including 'Manbaekdelggae'.

Explants : seeds, hypocotyl and cotyledon.

2. Methods :

- Callus induction : MS + 1.0~5.0 mg/L 2,4-D + 30 g/L sucrose + 5 g/L gelrite.
- Plant regeneration : MS + 1.0 mg/L NAA + 3.0 mg/L kinetin + 30 g/L sucrose +5 g/L gelrite.

Results and Discussion

Table. Varietal difference in culturability from different explants of perilla

Cultivars	Explants	% of callus formation	% of plant regeneration
Manbaekdelggae	Seeds	27.5	0.0
	Hypocoty	l0.0	0.0
	Cotyledon	61.9	8.3
Manchudelggae	Seeds	15.3	0.0
	Hypocoty	0.0	0.0
	Cotyledon	43.0	5.0

To determine the proper concentration of 2,4-D in the medium, the hypocotyl and cotyledon tissues excised from in vitro perilla plants were cultured on the MS medium with various levels of 2,4-D. The ability of callus formation was higher in 1.0mg/l 2,4-D than those of other 2,4-D concentrations. Among 5 cultivars tested, 'Manbaek- delggae' produced more callus compared to other cultivars. The best result in callus formation was obtained from the cotyledon tissues cultured on the MS medium supplemented with 1.0mg/l 2,4-D. The frequency(8.3%) of plant regeneration was higher in the cotyledon tissues of 'Manchudelggae°Æ than that of 'Manbaekdelggae'.

This results will be applied to increase the efficiency of *Agrobacterium*-mediated transformation in perilla.

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