

OB4. Development of Herbicide-Resistant Transgenic *Perilla frutescens*.

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Objectives

Development of herbicide - resistant perilla plant by *Agrobacterium tumefaciens*-mediated transformation of *bar* gene.

Materials and Methods

1. Material : *Perilla frutescens* cultivar Yeopsil
2. Methods : *Agrobacterium*-mediated transformation via organogenesis from hypocotyl segments with pCKBAR vector harboring *bar* gene encoding phosphinothricin acetyltransferase

Results and Discussion

A rapid and reproducible transformation method has been developed for perilla using *Agrobacterium tumefaciens*-mediated gene delivery system. Hypocotyl segments from seedlings cultured for 6-8 days in dark condition were used as explants. A vector (pCKBAR) harboring two genes encoding neomycin phosphotransferase and phosphinothricin acetyltransferase was used for transformation of perilla via organogenesis. Transgenic shoots were selected on the MS basal medium supplemented with 125 mg/L kanamycin and then transferred to the second selection medium containing 2 mg/L phosphinothricin. Southern and Northern blot analyses illustrated that the transgenes were stably maintained and expressed in the plants. The transgenic plants were resistant to the herbicide Basta^R when sprayed with practical concentration used in field. The transgenic perillas were grown in greenhouse and their progeny showed a typical Mendelian inheritance pattern from Basta^R spray test.

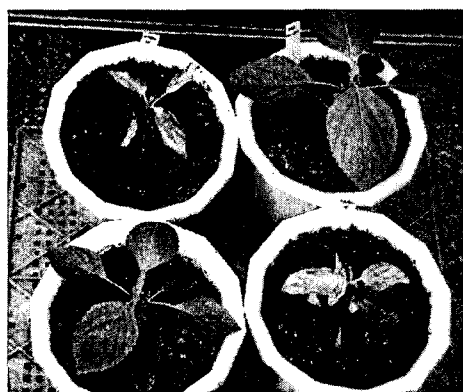


Fig.1. Basta^R spray test on transgenic and nontransgenic plants

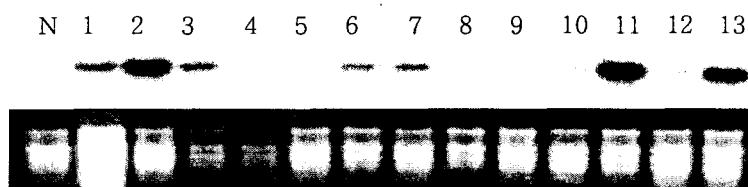


Fig.2. northern blot analysis of transgenic plants
N; Nontransgenic plant 1-13; transgenic plants

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