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Selection of Optimal Biotic Elicitor on Tropane Alkaloids Production in *Scopolia parviflora* Adventitious Hairy Root Cultures

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Objectives

We investigated the effects of biotic elicitors originated different fungus strains and yeast strain in order to the selection of optimal biotic elicitor on the production of valuable tropane alkaloids, hyoscyamine and scopolamine, in *S. parviflora* adventitious hairy root culture.

Materials and Methods

1. Materials

- Plant material: adventitious hairy roots of *S. parviflora*
- Strains of biotic elicitors: *Alternaria alterinata* KCTC 6972, *Botrytis cinerea* KCTC 6973, *Fusarium solani* KCTC 6326, *Candida albicans* KCTC 7121

2. Methods: Preparation of biotic elicitors as followed by the methods of Wang et al.¹⁾ and of Eilert et al.²⁾, and Quantification of tropane alkaloids by HPLC.

Results and Discussion

Both of supernatant and homogenate yeast elicitors of *C. albi-*

cans increased the production of scopolamine, but not hyoscyamine. The highest scopolamine production was achieved in treat with supernatant yeast elicitor at 24 exposure time, up to 2.2 fold (Figure 1). However fungal homogenate and supernatant elicitors did not increase neither scopolamine nor hyoscyamine production. In conclusion, *C. albicans* was proved the optimal biotic elicitor on tropane alkaloids production, and our results suggest that tropane alkaloid pathway could not be activated in response to fungal elicitors.

Acknowledgment

This research was supported by a grant (codePF003103-00) from Plant Diversity Research Center of 21st Frontier Research Program funded by Ministry of Science and Technology of Korean Government.

References

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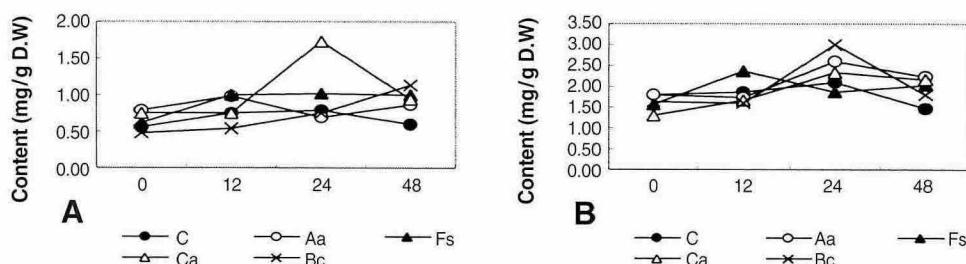


Figure 1. The effect of supernatant biotic elicitors on scopolamine (A) and hyoscyamine (B) production. (C: control, Aa: *A. alterinata*, Bc: *B. cinerea*, Fs: *F. solani*, and Ca: *C. albicans*)