P 104

Effects of Conditioning Factors on Production of Tropane Alkaloids in *Scopolia parviflora* Adventitious Hairy Root Cultures

Hee Young Jung, Seung Mi Kang, Young Min Kang, Won Jung Kim, Ji Yun Min, Dong Jin Bahk, Dae Jin Yun[1], Jung Dong Bahk[1], Myung Suk Choi*

Department of Forest Science and [1]Department of Applied Life Science, Gyeongsang National University, Jinju 660-701, Korea

Objectives

The aim of our study is to increase the production of tropane alklaoids by addition of conditioning factors which is originated from the cultured medium and the root extract of hyoscyamine-rich species, *Hyoscyamus niger*.

Materials and Methods

1. Materials: adventitious hairy roots of *S. parviflora* and *H. niger*
2. Methods: The cultured medium (conditioned medium, CM) and the root extract of 30-day-old cultures of *H. niger* were supplied into the 21-day-old cultures of *S. parviflora* in different volume (all CM, all FM, 1:1, 1:2, and 2:1) or concentration (0.01, 0.05, 0.1, and 0.5 ml in 10,000 ppm stock). Tropane alkaloids were quantified by HPLC.

Results and Discussion

HPLC profile of the cultured medium of 30-day-old *H. niger* showed an unidentified major peak (data not shown). The unidentified compound was more abundant when the cultured roots were wounded before 2-day of harvest. The production of hyoscyamine was stimulated and increased in response to the supply of both CM and root extract. In particular, when the root extract was added in 0.5 ml concentration, the production of hyoscyamine was enhanced up to 3.2 fold whereas the production of scopolamine was not affected (Figure 1). As deduced these results, the CM and the root extract of *H. niger* may have unknown conditioning factor(s) which have ability to increase the production of hyoscyamine.

Acknowledgment

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

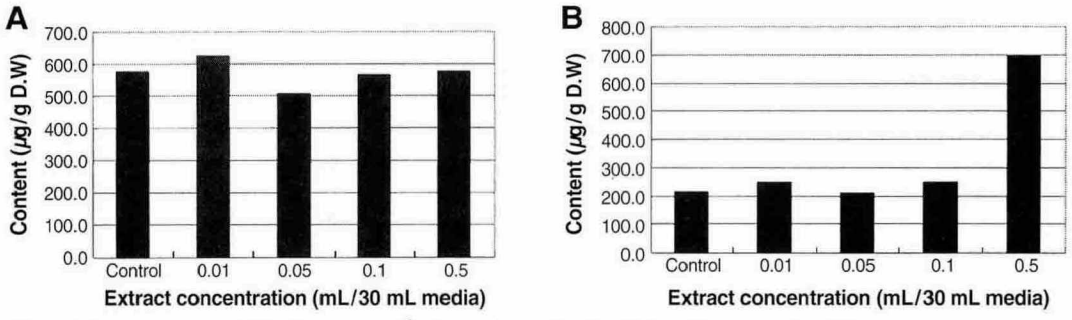

Figure 1. The effect of the root extract of H. niger on production of scopolamine (A) and hyoscyamine (B).

*Corresponding author. Tel 055-751-5493 E-mail mschoi@nongae.gsnu.ac.kr