P 53 Strategy for Enhancing Production of Recombinant Protein in Tobacco's Suspension Culture

LEE, Jae-Hwa[1] · LEE, Sang-Hyeon[1] · HA, Jong-Myung[1] · HA, Bae-Jin[1] · KWON, Tae-Ho[2] · YANG, Moon-Sik[2*]

[1]*Department of Bioscience and Biotechnology, Silla University, kwaebop-dong 1-1, Pusan 617-736*

[2]*Division of Biological Sciences, Chonbuk National University, Chonju, Chonbuk 561-756, Korea*

Objectives

Plant cell cultures have several advantages compared to microbial or animal cell cultures. However, plant cells produce very low concentration of target protein. This study was carried out to increase productivity of secreted recombinant protein. In this study, two methods were applied to transgenic tobacco's suspension culture. First, protein-stabilizing polymer was added to culture broth to enhance stability of secreted recombinant protein (1). Second, osmotic agents were introduced to cultures broth to excelerate secretion of recombinant protein (2). Finally, above two method were applied together to maximize the productivity.

Materials and Methods

1. Cell line - Nicotiana tabacum cv. Havana inserted foreign gene hGM-CSF
2. Culture condition- MS basal medium, 3% sucrose, 1 mg/L 2,4-D, 0.05 mg/L kinetin 100 mg/L kanamycin, 25℃ 100 rpm, subcultured every 7 days
3. Stabilizing polymer treatment: 0.5, 1, 2, 3, 5% Gelatin (type B)
4. Osmotic agent: 3, 6, 9% mannitol
5. Quantitative analysis of hGM-CSF : ELISA

Results and Discussion

The concentration of hGM-CSF was increased about 10-fold (2.5 mg/L) by the combination of above two method

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References

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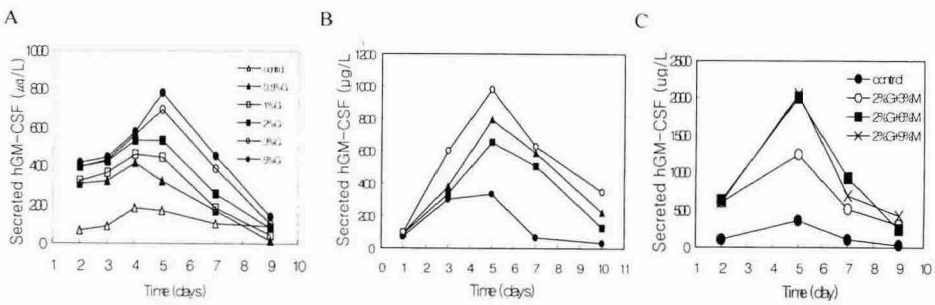

Figure 1. Effect of various concentration of gelatin(A), mannitol (B) on the extracellular hGM-CSF production during batch suspension cultured. Mixture (C) of gelatin and mannitol was added to culture broth.

*Corresponding author. Tel 063-270-3339 E-mail msikyang@moak.chonbuk.ac.kr