

P 39 Improved Triterpene Glycosides Production in *Centella asiatica* whole Plant Cultures by Chemicals and Methyl Jasmonate

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Objectives

Centella asiatica (Gotu Kola), originally found in India and Pakistan, which proliferates in hot and humid climates, have been used around the world to treat skin disorders, arthritis, mental disorders and vein problems. So, several pharmaceutical companies in Korea have been attempted to breed this plant on the ground, but most of the companies depend on import from foreign countries, since none of the previsions trials were profitable. In this paper, we reported on the influence of chemicals and methyl jasmonate on the accumulation of triterpene glycosides in plant cultures of *C. asiatica*.

Materials and Methods

Seeds from Jeju-do in Korea were used and *in vitro* cultured plantlets were preserved at Plant Physiology Lab. in Chonnam National University. Media were prepared with B5 medium supplemented with sucrose 3% (w/v) and chemicals: Control (without chemicals), Yeast extract, cadium, cupric, methyl

jasmonate. After 7 days in cultured, the samples were analyzed with HPLC for triterpene glycosides production.

Results and Discussion

After analyzing the cultured plantlets in conditions supplemented with various chemicals, it was clear that metyle jasmonate (MeJA) and yeast extract markedly promoted madecassoside and asiaticoside production. By comparing the effect of MeJA and yeast extract on triterpene glycosides production, we showed that MeJA increased asiaticoside production than yeast extract and control, 25% and 50% respectively. The difference between yeast extract and methyl jasmonate treatment may be that fungal elicitor caused various defense responses in plant culture, such as elicitor signaling, oxidative burst, lipid peroxidation and biosynthesis of defense compounds, but methyl jasmonate could directly act as a permeable second messenger to activate triterpene glycosides biosynthesis-related genes and thereby improve triterpene glycosides accumulation.