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Expression of isoprenoid pathway genes during saikosaponin biosynthesis by some major ion nutrient in the *Bupleurum falcatum* hairy root culture

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Objectives

Effect of differnet levels of nitrogens, phosphoric acid and potassium on saikosaponin content from *Bupleurum falcatum* L.root culture and expression of isoprenoid pathway genes during saikosaponin biosynthesis were investigated.

Materials and Methods

1. Plant materials : BFHR2, hairy root line was induced from *Bupleurum falcatum* cv, Sikshiho using *Agrobacterium rhizogenes* A4 was used (Ahn et al., 1999 Plant Biotechnology)
2. Methods : root culture, cloning of 5 genes : partial genes by using degenerate primer (RT-PCR), saikosaponin analysis (TLC and HPLC)

Results and Discussion

Modified 3RCM medium was used to examine the growth of hairy roots on different culture media. The effect of 3 major minenals, nitrogen, phophoric acid and potassium, on the growth and saikosaponin a,c,d contents in *B. falcatum* hairy root cultures using 3RCM medium was studied. The more nitrogen and phosphoric acid concentration increased ,the less saikosaponin contents produced. But potassium concentration did not change at the same level. The increase of phosphoric acid and nitrogen concnetration decreased, potassium was showed almost similar contents in SS and β-amyrin synthase of major isoprenoid pathway. Consequently, saikosaponin contents in hairy roots were inhibited at the high level of phosphoric acid and nitrogen. And HMGR, IPPI and FPP in isoprenoid pathway did not confirmed the effect of macronutrients on the levels of mRNA and saikosaponin contents.

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