

Study on Factors Influencing *Agrobacterium*-mediated Transformation of CPT Antisense Gene in Soybean

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Abstract:

During biosynthesis of soybean oil, diacylglycerol (DAG) is a branch point for TAG and phosphatidylcholine (Ptdcho) biosynthesis. It is possible that soybean-oil (monounsaturated fatty acid) biosynthesis may be promoted if CPT biosynthesis in cells is blocked. Transferring CPT antisense gene may block CPT biosynthesis because the mRNA of antisense gene can bind the mRNA of sense gene during gene expression. Therefore, a hypothesis can be reasoned: the expression of CPT antisense gene transferred may improve both content and quality of soybean oil. The purpose of this experiment is (1) to transfer CPT antisense gene into soybean by *Agrobacterium*-mediated transformation and (2) to investigate the factors influencing this transformation. For transformation, Plasmid pCB-GF1 in which a CPT antisense gene and an herbicide resistance gene (*bar*) were harbored by borders was directly transferred into *Agrobacterium tumefaciens* EHA105 using freeze-thaw method. The cotyledonary nodes of soybean were co-cultured with *Agrobacterium* carrying plasmids. Transgenic shoots were selected using herbicide. The effects of concentration of *Agrobacterium*, AS concentration, light, and genetic difference of T-DNA on transformation and the effect of auxins and antibiotics on rooting were investigated and analyzed.