

# Gene Transformation of Tobacco by Cytochrome P450 Gene Isolated from Ginseng

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The anti-oxidative effect and antimutagenic capacity of chloroplasts were studied for suggestion of prevention of diseases and development of anti-oxidative and anti-mutagenic functional gene by employing biological. Reactive oxygen species and their metabolites, which initiate the lipid peroxidation, are closely related to mutagenesis and aging. Fast assay system have been developed for anti-oxidative responses of tobacco (*Nicotiana tabacum* cv. Br21) transformant introduced with ginseng cytochrome P450 (CYP) gene. The ginseng CYP gene was introduced into the binary vector pRD400 and transformed into *Agrobacterium tumefaciens*. To introduce CYP gene into tobacco plant, tobacco leaf explants were co-cultured with *Agrobacterium tumefaciens* strain GV3101. The transgenic tobacco plants were regenerated and successfully identified by the PCR analysis. Regenerated seedlings were transferred on the MS medium containing 2 mg/ℓ BA, 0.1 mg/ℓ NAA, 100 mg/ℓ kanamycin sulfate, and 500mg/ℓ cefotaxime. Upon transfer to MS medium containing 0.1mg/ℓ NAA, transgenic seedlings developed plantlets. The regenerated tobacco seedlings were survived at the concentration of 200μg/ml of kanamycin. Also, introduced NPT II and CYP gene in the candidates of transgenic tobacco plants were successfully identified by the PCR analysis.