

Optimization of Regeneration Condition Under *Agrobacterium*-mediated Transformation in *in vitro* Cultured Korean Soybean

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Soybean is the important crop in Asian countries as protein source, oil production and animal feed. Improving soybean using genetic transformation is the principal tool in nowadays. Developing herbicide resistant transgenic soybean plants through *Agrobacterium*-mediated transformation has been worked in many previous studied. However, the transformation efficiency is still low. Many attempts try to find the optimum media condition for plant regeneration after infection. After transformation, the plant regeneration is very important condition to promote growth of transgenic plant. In this study, we optimized a regeneration condition for two Korean soybean cultivar, Dawonkong and Pungsannamulkong using cotyledon, cotyledonary nodes and hypocotyl as explant. The results showed that shoot regeneration of cotyledonary nodes on B5 medium containing 2 mg/L 6-benzylaminopurine showed the highest percentage of regeneration in Dawonkong (75.8%) while Pungsannamulkong presented high number of shoots 2.12 shoots per explant. For transformation condition, co-cultivation in 7 days showed a high number of GUS positive expression. Most of explants can survived under media including 5 mg/L of glufocinate which refers phosphinotricin for 2-week selection. Washing with 400 mg/L of cefotaxime in several times and selection in plant regeneration media with 400 mg/L of cefotaxime can prevent bacteria growth, effectively.

Key words: *Agrobacterium*, Plant regeneration, Plant transformation, Soybean