Establishment of the System for *Agrobacterium* -Mediated Transformation of Tomato 'Hualien ADRVC No. 5'[1]

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Abstract

The aim of this research is to establish the plant gene transformation system for tomato cultivar 'Hualien AVRDC No. 5'. The 8-10 days old cotyledons and hypocotyls of tomato were used as explants. The better regeneration media were BA5, S1-1, and MSG1. Regeneration rate was not siginificant different between regeneration media with and without Timetin 150mg/l. The plasmids and the *Agrobacterium* strain was binary vector PBI121 and LBA4404. The transformation efficiency would be better if the $O.D._{600}$ of bacteria infection medium was 0.6-0.8, infection time was 30 min., and the cocultured period was 2 days. The regeneration media B5(added with BA 5 mg/L), SI-1(added with kinetin 2mg/L，NAA 0.02mg/L) and MSG1(added with zeatin 1mg/L) were used as selection media combined with different selection methods. There were 1.5-3.4 regenerated shoots per explant after selection. The transformation efficiency was highest when explants were selected on the MSG1 medium. It could be obtained the transformants expressed the GUS gene in the whole plants under the selection methods that treated with low concentration antibiotic first and high concentration antibiotic latter. This technique was proved f by histochemical GUS assay, PCR and Southern blot assay. It is expected that insect resistance genes will be transferred into tomato plants by employing this technique.

Key words: tomato, regeneration, *Agrobacterium*, gene transformation

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