

Studies on the *Bt* Genes Transformation by *Agrobacterium* Mediated Transformation for Tomato ‘Hualien AVRDC No. 5’¹

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Abstract

To transfer *Bt* genes into tomato cultivar ‘Hualien AVRDC No. 5’ mediated by *Agrobacterium*, the 8-10 days old cotyledons of tomato were used as explants and infected with *Agrobacterium* carrying *CryIAC* or *CryIIIC*. The explants were infected with two bacterial densities ($O.D_{600}=0.3-0.4$ or $O.D_{600}=0.6-0.8$) and then cocultured and regenerated. The regeneration efficiency in the lower bacteria density treatment was higher (20.4-34.5%) than the higher bacteria density treatment (13.5-28.2%), and *Bt* genes positive plantlets were obtained if the explants infected with lower bacteria density. Transgenic plants 3, 22, and 22-2 contain three *Bt* (*CryIIIC*) copies and transgenic plants 9 and 20 with four *Bt* copies as confirmed by Southern blot analysis. *Bt* genes were expressed in five transgenic plants proofed by northern blot analysis. Transgenic plants 3, 20 and 22 had higher resistance for armyworm according to bioassay data. The leaf consumption rates (14.2%, 14.6% and 19.8%) were lower than wild types. Those transgenic plants with insect resistance may be served as the breeding materials in the future.

Key words: tomato, *Bt* genes, gene transformation.

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