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Development of Plasmid Capture System for the Cloning of Useful Insecticidal Genes

Jae Young Choi, Jong Yul Roh, Ming Shun Li, Hee Jin Shim, Joong Nam Kang and Yeon Ho Je

School of Agricultural Biotechnology, Seoul National University, Seoul 151-742, Korea.

We have developed plasmid capture system (PCS) in order to clone circular DNA segments in *Escherichia coli* cell. An *E. coli* origin of replication for amplification and a drug-resistant gene for selection were simultaneously inserted between Tn7 left (L) and right (R) end, and the final donor plasmids, pPCS-S and pPCS-L, were constructed. The pPCS-S may transfer a pUC19 origin of replication and an ampicillin resistance marker, and the pPCS-L transfer a mini-F replicon and a kanamycin resistance marker. These PCS donors were applied to clone plasmids of *Bacillus thuringiensis* subsp. *israelensis* (Bti) and segments of *Cotesia plutellae* polydnavirus (CpPDV) genome by *in vitro* transposition using TnsABC* transposase. In result, 4 plasmids from Bti and 22 genome segments from CpPDV were cloned. Therefore, these techniques can be successfully applied to clone useful insecticidal genes.