

2-12. Molecular Characterization of Novel Insecticidal *Cry1*-Type Genes from *Bacillus Thuringiensis* K1

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A new *Bacillus thuringiensis* strain (K1), having high toxicities to *Plutella xylostella* and *Spodoptera exigua* was isolated from Korean soil sample. It was determined to belong to subsp. *kurstaki* (H3a3b3c) and produced bipyramidal inclusion. PCR-RFLP analysis showed that this isolate contains three novel *cry1*-type crystal protein genes in addition to *cry1Aa* and *cry1E* genes. To clone the toxic domain of these novel *cry1*-type genes, we designed *cry1*-type specific primers, ATG1-F and N400-R, which probe active regions of all known *cry1*-type genes. About 2.4 kb PCR fragments from the K1 were amplified with this primer set, and cloned into pGemT-easy vector. The cloned three novel genes were named *cry1-44*, *cry1-20* and *cry1-7*, and sequenced partially. The *cry1-44* and *cry1-20* were showed 96% and 95% of maximum homologies with *cry1Ac*, respectively, and *cry1-7* was showed 99% with *cry1Be*. For further characterization of these novel genes, their expression using baculovirus expression systems and bioassay will be performed.