

Characterization of a *cry2A* Gene Cloned from an Isolate of *Bacillus thuringiensis* serovar *sotto*

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Abstract

A *cry2A*-type gene, designated as *cry2(SKW)*, was cloned from *Bacillus thuringiensis* serovar *sotto* SKW01-10.2-06, and some unique features of the gene were revealed. The *cry2(SKW)* gene encoded a polypeptide of 635 residues with a predicted molecular mass of 71,137 Da. Cry2(SKW) had 95.4% identity with Cry2Aa in amino acid sequence and was two residues longer than Cry2Aa. Two open reading frames (ORFs), designated as *orf1* and *orf2*, were present upstream of the *cry2(SKW)* and showed high homology with the corresponding ORFs in the *cry2Aa* operon. The *orf2* from SKW01-10.2-06 contained a region of repeated sequences. However, unlike Cry2Aa, Cry2(SKW) formed the cuboidal crystalline inclusions when the *cry2(SKW)* gene was expressed in an acrySTALLIFEROUS *B. thuringiensis* strain in the absence of the upstream ORFs. Furthermore, Cry2(SKW) was less toxic to a lepidopteran species, *Bombyx mori*, than Cry2Aa in spite of high homology between the two proteins.