

Dow AgroSciences LLC Study Titles: Comparison of the Amino Acid Sequence of the *Bacillus thuringiensis* var. *aizawai* Cry1F(synpro) Insect Control Protein as Expressed in Cotton to Known Protein Allergens, Unpublished Report of Dow AgroSciences LLC (Study ID GH-C 5745). Comparison of the Amino Acid Sequence of the *Bacillus thuringiensis* var. *kurstaki* Cry1Ac(synpro) Insecticidal Crystalline Protein as Expressed in Cotton to Known Protein Allergens, Unpublished Report of Dow AgroSciences LLC (Study ID GH-C 5746).

Introduction

The purpose of these studies was to compare the amino acid sequence of the Cry1F(synpro) protein and the Cry1Ac(synpro) protein to known protein allergens.

Materials and Methods

Test Sequence. The queries or test sequences used in these analyses were translations of the Cry1F(synpro) gene and Cry1Ac(synpro) gene. The amino acid sequence of Cry1F protein consists of 1148 amino acids. The amino acid sequence of Cry1Ac protein consists of 1156 amino acids.

Database Construction. A non-redundant protein allergen database was generated using the FARRP Protein Allergen Database (Release 1.01; <http://www.allergenonline.com>) and other publically available databases and sequences.

Sequence Comparisons.

1. Pattern Matching. The Cry1F(synpro) protein sequence and Cry1Ac(synpro) protein sequence were parsed into all possible overlapping eight letter words. These words were then compared using computer software against the non-redundant protein allergen database.
2. Local Alignments. Local amino acid alignment comparisons were made in order to assess whether there was an identity of at least 35% over any 80 amino acid residues between the Cry1F(synpro) protein sequence or the Cry1Ac(synpro) protein sequence and the non-redundant protein allergen databases.

Results

Analyses showed no identity of 8 or more contiguous amino-acid residues between the Cry1F(synpro) sequence or the Cry1Ac(synpro) sequence and any of the sequences in the non-redundant protein allergen database. In addition, analyses revealed no identity of 35% or greater over 80 amino-acid residues between the Cry1F(synpro) sequence or the Cry1Ac(synpro) sequence and any of the sequences in the non-redundant protein allergen databases.

Conclusion

The results of this study find no immunologically significant sequence identity between the amino acid sequence of the Cry1F(synpro) protein or the Cry1Ac(synpro) protein and known protein allergens.