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(54) Title: CODON OPTIMIZED SYNTHETIC NUCLEOTIDE SEQUENCES ENCODING CRY2AI PROTEIN AND USES THEREOF

(57) Abstract: The present disclosure provides codon optimized synthetic nucleotide sequences encoding *Bacillus thuringiensis* (Bt) insecticidal crystal Cry2Ai protein having insecticidal activity against insect pests including, but not limited to insect pests belonging to the order Lepidoptera. The present disclosure also relates to expression of these sequences in plants. The disclosure further provides a DNA construct, a vector, and a host cell comprising the codon optimized synthetic nucleotide sequences of the invention. Also it provides use of the codon optimized synthetic nucleotide sequences for production of insect resistant transgenic plants, and a composition comprising *Bacillus thuringiensis* comprising the codon optimized synthetic nucleotide sequence of the present invention.



WO 2020/217252 A1