

SCREENING OF CRY VARIANTS WITH TOXICITY AGAINST SUGAR CANE GIANT BORER (*CASTNIA LICUS*)

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Sugar cane is a crop of huge relevance in the Brazilian agricultural mainly because of the world oil crisis and the intense challenge for new alternative energy sources. Despite Brazil produces a large yield of sugar cane, regions such as Northeast presents problems related with insect-pests, mainly *Castnia licus*, which has caused several damage. This work aimed to generate new genes for entomotoxic proteins with high toxicity against this important insect-pest, using DNA Shuffling and Phage Display techniques. To accomplish that, the original gene (*Cry1Ia12*) was digested using *DNase I* and the recombination of the fragments was obtained by PCR in two different steps, generating a library containing 10^6 clones. The toxins Cry variants expressed onto phage surface were selected against the *C. licus* midgut (B.B.M.V.). The fourth selection round showed the highest enrichment of specific phages (10^5 clones) and among them, seven candidate genes were selected based on PCR and expression level analysis. These toxins Cry variants were then overexpressed and bioassayed against sugar cane giant borer larvae. This strategy showed a great potential to be used in the sugar cane plant transformation.

Key-words: sugar cane, sugar cane giant borer, Cry toxins.

Supported by EMBRAPA, CNPq, CAPES.