LIVING MODIFIED ORGANISM (LMO)

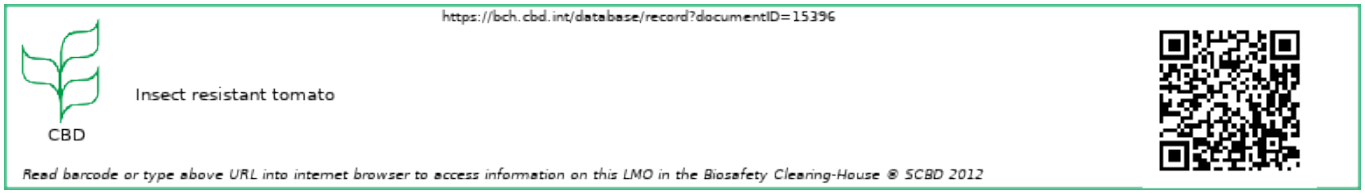
BCH-LMO-SCBD-15396-4

? Decisions on the LMO ? Risk Assessments

LAST UPDATED: 15 APR 2013

Living Modified Organism identity

The image below identifies the LMO through its unique identifier, trade name and a link to this page of the BCH. Click on it to download a larger image on your computer. For help on how to use it go to the LMO quick-links page.



Name

Insect resistant tomato | EN

Transformation event

5345

Developer(s)

- ORGANIZATION: MONSANTO | BCH-CON-SCBD-14925-3

ORGANIZATION

Monsanto
800 North Lindbergh Blvd.
St. Louis, MO
63167, United States of America
Phone: + 1 314 694-1000
Fax: +1 314 694-3080
Website: http://www.monsanto.com

Description

Tomato was modified for resistance against certain tomato feeding Lepidopteran insects via the insertion of a copy of the Cry1Ac gene. | EN

Recipient Organism or Parental Organisms

The term “Recipient organism” refers to an organism (either already modified or non-modified) that was subjected to genetic modification, whereas “Parental organisms” refers to those that were involved in cross breeding or cell fusion.

BCH-ORGA-SCBD-12079-5 ORGANISM | SOLANUM LYCOPERSICUM (TOMATO, SOLLC)

Crops

Characteristics of the modification process

Vector

PV-LEBK04 EN

Techniques used for the modification

Agrobacterium-mediated DNA transfer

Genetic elements construct

P-35S-CaMV 0.320 kb	CS-nptII-ECOLX 0.790 kb	T-nos-RHIRD 0.260 kb
P-e35S-CaMV 0.620 kb	CS-cry1Ac-BACTU 3.500 kb	T-7Salpha-SOYBN 0.430 kb

Introduced or modified genetic element(s)

Some of these genetic elements may be present as fragments or truncated forms. Please see notes below, where applicable.

BCH-GENE-SCBD-14986-6 CRY1AC | BACILLUS THURINGIENSIS - BT, BACILLUS, BACTU

Protein coding sequence | Resistance to diseases and pests (Insects, Lepidoptera (butterflies and moths))

BCH-GENE-SCBD-100287-7 CAMV 35S PROMOTER

Promoter

BCH-GENE-SCBD-15001-5 NEOMYCIN PHOSPHOTRANSFERASE II | (BACTERIA)

Protein coding sequence | Resistance to antibiotics (Kanamycin)

BCH-GENE-SCBD-100269-8 NOPALINE SYNTHASE GENE TERMINATOR

Terminator

BCH-GENE-SCBD-100366-6 CAMV ENHANCED 35S PROMOTER

Promoter

BCH-GENE-SCBD-103856-6 A' SUBUNIT OF B-CONGLYCININ GENE TERMINATOR | (SOYBEANS)

Terminator

Notes regarding the genetic elements present in this LMO

The Cry1Ac coding sequence was modified for plant optimised codons and resulted in a single amino acid change at L766S.

Southern blot analysis indicated that a single intact copy of the T-DNA was inserted into the host genome EN

LMO characteristics

Modified traits

Resistance to diseases and pests
Insects
Lepidoptera (butterflies and moths)
Resistance to antibiotics
Kanamycin

Common use(s) of the LMO

Food

Additional Information

Additional Information

Insect-resistant tomato line 5345 was developed using recombinant DNA techniques to express the insecticidal protein, Cry1Ac, encoded by the cry1Ac gene from the soil bacterium Bacillus thuringiensis subsp. kurstaki strain HD73.

Insecticidal activity is caused by the selective binding of Cry1Ac protein to specific sites localized on the brush border midgut epithelium of susceptible lepidopteran species. Following binding, cation-specific pores are formed that disrupt midgut ion flow thereby causing gut paralysis and eventual death from bacterial sepsis.

Delta-endotoxins, such as the Cry1Ac protein expressed in tomato line 5345, exhibit highly selective insecticidal activity against a narrow range of lepidopteran pests. The specificity of action is directly attributable to the presence of specific receptors in the target insects. There are no receptors for delta-endotoxins of B. thuringiensis on the surface of mammalian intestinal cells, therefore, livestock animals and humans are not susceptible to these proteins.

Other relevant website addresses and/or attached documents

? CERA GM Database *(English)*

? Tomato 5345 - Monsanto.pdf *(English)*

BCH-LMO-SCBD-15396-4

Further Information

Questions about the Cartagena Protocol on Biosafety or the operation of the Biosafety Clearing-House may be directed to the Secretariat of the Convention on Biological Diversity.

Secretariat of the Convention on Biological Diversity
413 rue Saint-Jacques, suite 800
Montreal, Québec, H2Y 1N9
Canada
Fax: +1 514 288-6588
Email: secretariat@cbd.int