LIVING MODIFIED ORGANISM (LMO)

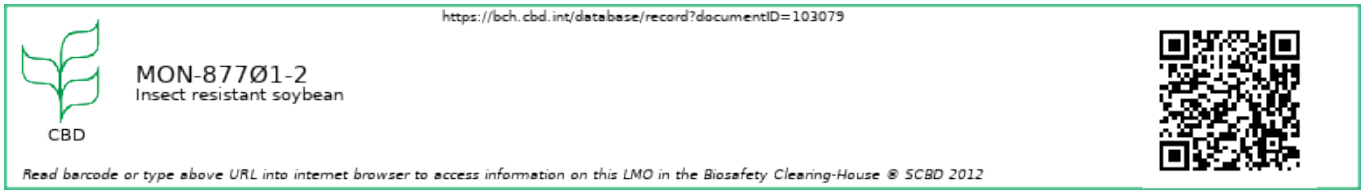
BCH-LMO-SCBD-103079-11

? Decisions on the LMO ? Risk Assessments

LAST UPDATED: 08 FEB 2019

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 soybean | EN

Transformation event

MON87701

Unique identifier

MON-877Ø1-2

Developer(s)

- ORGANIZATION: MONSANTO CANADA INC. | BCH-CON-CA-9841-2

ORGANIZATION

Monsanto Canada Inc.

Description

The soy plant was modified with the insertion of the Cry1Ac protein which provides protection from feeding damage caused by targeted lepidopteran pests, such as primary target pests velvetbean caterpillar (Anticarcia gemmatalis), soybean looper (Pseudoplusia includens), soybean anxil borer (Epinotia aporema), and sunflower looper (Rachiplusia nu). | 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-10453-6 ORGANISM | GLYCINE MAX (SOYBEAN, SOYA BEAN, SOYA, SOYBN)

Crops

Characteristics of the modification process

Vector

PV-GMIR9 EN

Techniques used for the modification

Agrobacterium-mediated DNA transfer

Genetic elements construct

P-rbcS-ARATH	TP-rbcS	CS-cry1Ac-BACTU	T-7Salpha-SOYBN
1.720 kb	0.260 kb	3.540 kb	0.440 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-101416-6 TI PLASMID RIGHT BORDER REPEAT

Plasmid vector

BCH-GENE-SCBD-103851-5 RBCS PROMOTER | (THALE CRESS)

Promoter

BCH-GENE-SCBD-101902-4 RBCS TRANSIT PEPTIDE | (THALE CRESS)

Transit signal

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

Terminator

BCH-GENE-SCBD-101415-9 TI PLASMID LEFT BORDER REPEAT

Plasmid vector

Notes regarding the genetic elements present in this LMO

MON 87701 was developed through transformation of soybean meristem tissues using the binary transformation plasmid PV-GMIR9 which contains two T-DNAs delineated by left and right border sequences which facilitate transformation. The first T-DNA, designated as T-DNA I, contains the cry1Ac expression cassette. The second T-DNA, designated as T-DNA II, contains the cp4 epsps expression cassette.

The Cry1Ac coding sequence was modified for plant optimised codons and resulted in a single amino acid change at L766S with four additional codons at the N-terminus from the CTP2 genetic element.

Molecular characterization of MON 87701 by Southern blot analyses demonstrated that the DNA inserted into the soybean genome is present at a single locus and contains one functional copy of the cry1Ac expression cassette. No TDNA II (cp4 epsps gene expression

EN

cassette) genetic elements or backbone sequences from the transformation plasmid were detected in MON 87701. In addition, no partial genetic elements, linked or unlinked to the inserted expression cassette were detected.

T-DNA II expression Cassette: FMV 35S promoter >> EPSPS Leader >> CTP2 >> EPSPS gene >> rbcS-E9 gene terminator

LMO characteristics

Modified traits

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

Common use(s) of the LMO

Food
Feed

Detection method(s)

External link(s)

? MON87701 - EU Database of Reference Methods for GMO Analysis *(English)*

Additional Information

Additional Information

Utilizing a vector with two T-DNAs is the basis for an effective approach to generate marker-free plants. It allows for the TDNA with the traits of interest (T-DNA I) and the T-DNA encoding the selectable marker (T-DNA II) to be inserted into two independent loci within the genome of the plant. Following selection of the transformants, the inserted T-DNA encoding the selectable marker can be segregated from progeny through subsequent traditional breeding and genetic selection processes, while the inserted T-DNA containing the trait(s) of interest is maintained resulting in an LMO that marker-free and contains only the cry1Ac expression cassette.

Other relevant website addresses and/or attached documents

MON87701 - CERA *(English)*

? MON87701 - Monsanto.pdf *(English)*

? MON-877Ø1-2 - OECD *(English)*

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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

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