LIVING MODIFIED ORGANISM (LMO)

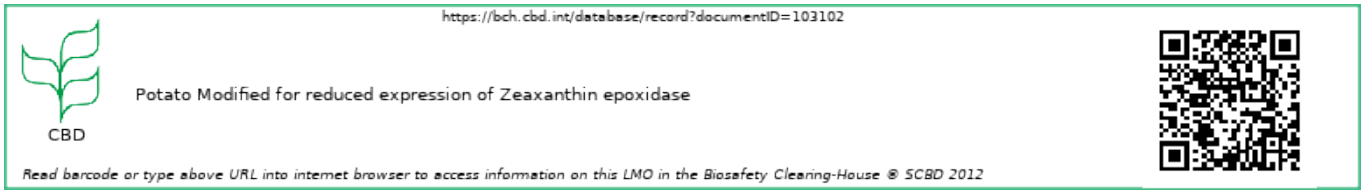
BCH-LMO-SCBD-103102-3 EN DE

? Decisions on the LMO ? Risk Assessments

LAST UPDATED: 17 AUG 2012

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

Potato Modified for reduced expression of Zeaxanthin epoxidase EN

Transformation event

Clone SR 48/00#17

Developer(s)

- PERSON: TU MÜNCHEN | BCH-CON-SCBD-103100-2

PERSON

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RELATED ORGANIZATION

Description

A fragment of the coding sequence of zep is expressed in potato tubers. Thereby mRNA EN

homologous to the endogenous zep transcript is synthesized in potato tubers which thereby mRNA homologous to the endogenous zep transcript is synthesized in potato tubers that leads to gene knock-down via sense suppression.

Reduced levels of zep mRNA cause missing synthesis of ZEP protein that is synonymous with an accumulation of zeaxanthin in potato tubers due to missing ZEP enzymatic activity. This may have an effect on carotenoid biosynthesis (also abscisic acid levels) and may impair the photoprotection during photosynthesis where ZEP is involved in the xanthophyll cycle. Phenotypically transgenic potato tubers can be distinguished by their altered colour compared to non-transgenic tubers.

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-12106-6 ORGANISM | SOLANUM TUBEROSUM (POTATO, SOLTU)

Crops

Point of collection or acquisition of the recipient organism or parental organisms

Cultivar/breeding line baltica EN

Related LMO(s)

BCH-LMO-SCBD-103101-2 | Potato Modified for reduced expression of Zeaxanthin epoxidase | TU München Changes in quality and/or metabolite content - Pigmentation / Coloration Resistance to antibiotics - Kanamycin Tolerance to abiotic stress

Characteristics of the modification process

Vector

pPGBzep, derivate of pBIN19 EN

Techniques used for the modification

Agrobacterium-mediated DNA transfer

Genetic elements construct

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-14997-6 GRANULE BOUND STARCH SYNTHASE GENE PROMOTER | (POTATO)

Promoter

BCH-GENE-SCBD-100278-6 ZEAXANTHIN EPOXIDASE GENE | (POTATO)

Protein coding sequence | Changes in quality and/or metabolite content (Pigmentation / Coloration),Tolerance to abiotic stress

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

Terminator

BCH-GENE-SCBD-100270-6 NOPALINE SYNTHASE GENE PROMOTER

Promoter

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

Protein coding sequence | Resistance to antibiotics (Kanamycin)

LMO characteristics

Modified traits

Resistance to antibiotics
- Kanamycin
- Neomycin

Changes in quality and/or metabolite content
- Pigmentation / Coloration

Other
- accumulation of health improving secondary plant compounds (zeaxanthin)

Other gene(s) whose expression was affected by the transformation

BCH-GENE-SCBD-100278-6 ZEAXANTHIN EPOXIDASE GENE | (POTATO)

Protein coding sequence | Changes in quality and/or metabolite content (Pigmentation / Coloration),Tolerance to abiotic stress

How the expression of the gene(s) was affected

By sense-suppression the endogeneous zep gene is silenced.	EN

Common use(s) of the LMO

Research

Detection method(s)

Additional Information

PCR-based methods, to be developed on information on the transformation vector.	EN

Additional Information

Other relevant website addresses and/or attached documents

? GeneticEngineering of a Zeaxanthin-richPotato by AntisenseInactivation and Co-suppression of CarotenoidEpoxidation *(English)*

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.

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