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(54) Title: BACILLUS THURINGIENSIS PROTEINS AND VARIANTS THEREOF WITH PESTICIDAL ACTIVITY AGAINST COLEOPTERANS

(57) Abstract: The invention provides nucleic acids, and variants and fragments thereof, obtained from strains of *Bacillus thuringiensis* encoding δ-endotoxins having pesticidal activity against pests of the order Coleoptera. The invention further provides mutagenized nucleic acids that have been modified to encode endotoxins having improved pesticidal activity and/or altered pest specificity. Particular embodiments of the invention provide isolated nucleic acids encoding pesticidal proteins, pesticidal compositions, expression cassettes, and transformed microorganisms and plants comprising a nucleic acid of the invention. These compositions find use in methods for controlling pests, especially plant pests.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER
IPC 7 C12N15/31 C12N15/63 C12N15/82 C07K14/325 A01H5/00
A01H5/10 A01N63/00 A01N63/02

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 7 C07K C12N A01H A01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
EMBL, EPO-Internal, WPI Data, BIOSIS, MEDLINE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 554 534 A (TRACY E. MICHAELS ET AL.) 10 September 1996 (1996-09-10) column 2, line 66 -column 3, line 62 column 5, line 19 -column 10, line 34; examples 2-9 ---	1-19,23, 24,27, 28,31-36
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[X] Further documents are listed in the continuation of box C. [X] Patent family members are listed in annex.

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Date of the actual completion of the international search	Date of mailing of the international search report
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Name and mailing address of the ISA	Authorized officer
European Patent Office, P.B. 5818 Patentlaan 2 NL – 2280 HV Rijswijk Tel. (+31–70) 340–2040, Tx. 31 651 epo nl, Fax: (+31–70) 340–3016	Montero Lopez, B

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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INTERNATIONAL SEARCH REPORT

Int al Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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