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(71) Applicants: **THE UNITED STATES OF AMERICA** as represented by **THE SECRETARY OF AGRICULTURE** [US/US]; 1400 Independence Avenue, S.W., Washington, DC 20250-0302 (US). **THE UNIVERSITY OF MAINE** [US/US]; Orono, Maine 04469 (US).

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(72) Inventors: **DICKENS, Joseph, C.**; 4430 Columbia Road, Ellicott City, MD 21042 (US). **ALFORD, Randall, A.**; 23 Pond Street, Orono, Maine 04473 (US).

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(74) Agents: **PENDORF, Stephan, A.** et al.; Pendorf & Cutliff, P.O. Box 20445, Tampa, FL 33622-0445 (US).

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: ATTRACTANTS AND REPELLANTS FOR COLORADO POTATO BEETLE

(57) Abstract: A method has been discovered for attracting Colorado potato beetles to an area of object or area, which method involves treating the object or area with a Colorado potato beetle attracting composition (with or without an insecticide) containing a carrier material and a Colorado potato beetle attracting effective amount of (a) (Z)-3-hexenyl acetate, (±)-linalool, nonanal, and methyl salicylate, (b) (Z)-3-hexenyl acetate, (±)-linalool, and methyl salicylate, (c) (Z)-3-hexen-1-ol, (E)-2-hexen-1-ol, and (±)-linalool, (d) (Z)-3-hexenyl acetate and methyl salicylate, or (e) (Z)-3-hexenyl acetate and (±)-linalool. Furthermore, a method has been discovered for repelling Colorado potato beetles from an object or area, comprising treating the object or area with a Colorado potato beetle repelling composition (with or without an insecticide) containing a carrier material and a Colorado potato beetle repelling effective amount of (Z)-3-hexen-1-ol, (E)-2-hexen-1-ol, (±)-linalool, nonanal, methyl salicylate, and β-caryophyllene.

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INTERNATIONAL SEARCH REPORT

 International application No.
PCT/US01/25857

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A01N 37/06, 37/10, 31/02, 35/02, 27/00.

US CL : 424/84, Dig. 10; 514/544, 546, 693, 739, 766, 919.

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)

U.S. : 424/84, Dig. 10; 514/544, 546, 693, 739, 766, 919.

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 practicable, search terms used)

Please See Extra Sheet.

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WEISSBECKER, B. et al. Analysis of volatiles emitted by potato plants by means of a Colorado beetle electroantennographic detector. Talanta. 1997, Vol. 44, No. 12, pages 2217-2224.	1-16
A	DICKENS, J.C. Predator-prey interactions: olfactory adaptations of generalist and specialist predators. Agricultural and Forest Entomology. 1999, Vol. 1, pages 47-54.	1-16



Further documents are listed in the continuation of Box C.



See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier document published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"G" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

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 Name and mailing address of the ISA/US
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Box PCT
Washington, D.C. 20231

Facsimile No. (703) 305-3230

Authorized officer

JOHN PAK

Telephone No. 308-1235

INTERNATIONAL SEARCH REPORT

International application No.

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Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Please See Extra Sheet.

1. ☒ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐

The additional search fees were accompanied by the applicant's protest.

☐

No protest accompanied the payment of additional search fees.

B. FIELDS SEARCHED

Electronic data bases consulted (Name of data base and where practicable terms used):

STN ONLINE, FILES CAPLUS and CABA. Search Terms: Registry numbers 3681-71-8, 78-70-6, 119-86-8, 928-96-1 and 928-95-0, colorado potato beetle#, cpb, leptinotarsa decemlineata, decemlineata, attract?, bait?, trap?, repel?

BOX II. OBSERVATIONS WHERE UNITY OF INVENTION WAS LACKING

This ISA found multiple inventions as follows:

This application contains the following inventions or groups of inventions which are not so linked as to form a single inventive concept under PCT Rule 13.1. In order for all inventions to be searched, the appropriate additional search fees must be paid.

Group I, claims 1-14, drawn to composition and method for attracting Colorado potato beetles.

Group II, claims 15-16, drawn to composition and method for repelling Colorado potato beetles.

The inventions listed as Groups I and II do not relate to a single inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reasons: Group I is directed to attracting Colorado potato beetles, whereas Group II is directed to obtaining a diametrically opposite effect, repelling Colorado potato beetles; and therefore, the two inventions lack the same or corresponding special technical features.