

PATENT COOPERATION TREATY

From the:
INTERNATIONAL SEARCHING AUTHORITY

To:

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PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing (*day/month/year*)
11 October 2019

Applicant's or agent's file reference
PCT00835

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/IB2019/055746

International filing date (*day/month/year*)

05 July 2019

Priority date (*day/month/year*)

10 July 2018

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

A01N 43/707 (2006.01) A01N 43/56 (2006.01) A01N 51/00 (2006.01)

Applicant

UPL LTD

1. This opinion contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| ☒ | Box No. I | Basis of the opinion |
| ☐ | Box No. II | Priority |
| ☐ | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| ☐ | Box No. IV | Lack of unity of invention |
| ☒ | Box No. V | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement |
| ☐ | Box No. VI | Certain documents cited |
| ☐ | Box No. VII | Certain defects in the international application |
| ☒ | Box No. VIII | Certain observations on the international application |

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

Name and mailing address of the ISA

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Date of completion of this opinion

11 October 2019

Authorised Officer

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/IB2019/055746

Box No. I	Basis of this opinion
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- | | |
|----|--|
| 1. | With regard to the language , this opinion has been established on the basis of:
<div style="margin-left: 20px;">☒ The international application in the language in which it was filed
☐ A translation of the international application into, , which is the language of a translation furnished for the purposes of international search (under Rules 12.3(a) and 23.1(b)).</div> |
| 2. | ☐ This opinion has been established taking into account the rectification of an obvious mistake authorized by or notified to this Authority under Rule 91 (Rule 43 <i>bis</i> .1(b)) |
| 3. | ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established on the basis of a sequence listing:
<div style="margin-left: 20px;">a. ☐ forming part of the international application as filed:
<div style="margin-left: 20px;">☐ in the form of an Annex C/ST.25 text file.
☐ on paper or in the form of an image file.</div>
b. ☐ furnished together with the international application under PCT Rule 13ter.1(a) for the purposes of international search only in the form of an Annex C/ST.25 text file.
c. ☐ furnished subsequent to the international filing date for the purposes of international search only:
<div style="margin-left: 20px;">☐ in the form of an Annex C/ST.25 text file (Rule 13ter.1(a)).
☐ on paper or in the form of an image file (Rule 13ter.1(b) and Administrative Instructions, Section 713).</div></div> |
| 4. | ☐ In addition, in the case that more than one version or copy of a sequence listing has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that forming part of the application as filed or does not go beyond the application as filed, as appropriate, were furnished. |
| 5. | Additional comments: |

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY		International Application No. PCT/IB2019/055746									
Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement										
1. Statement <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%; vertical-align: top;"> Novelty (N) </td> <td style="width: 40%; vertical-align: top;"> Claims NONE Claims 1-12 </td> <td style="width: 30%; vertical-align: top; text-align: center;"> YES NO </td> </tr> <tr> <td style="vertical-align: top;"> Inventive step (IS) </td> <td style="vertical-align: top;"> Claims NONE Claims 1-12 </td> <td style="vertical-align: top; text-align: center;"> YES NO </td> </tr> <tr> <td style="vertical-align: top;"> Industrial applicability (IA) </td> <td style="vertical-align: top;"> Claims 1-12 Claims NONE </td> <td style="vertical-align: top; text-align: center;"> YES NO </td> </tr> </table>			Novelty (N)	Claims NONE Claims 1-12	YES NO	Inventive step (IS)	Claims NONE Claims 1-12	YES NO	Industrial applicability (IA)	Claims 1-12 Claims NONE	YES NO
Novelty (N)	Claims NONE Claims 1-12	YES NO									
Inventive step (IS)	Claims NONE Claims 1-12	YES NO									
Industrial applicability (IA)	Claims 1-12 Claims NONE	YES NO									
2. CITATIONS AND EXPLANATIONS: <u>CITATIONS</u> D1: US 2013/0281458 A1 (SAKAMOTO et al.) 24 October 2013 D2: CN 105123739 A (HUANG S.) 09 December 2015 D3: CN 105519564 A (QINGDAO KANGHE FOOD CO LTD) 27 April 2016 D4: CN 106961959 A (INSTITUTE OF PLANT PROT FAAS) 21 July 2017, WPI Abstract 2017-514661 D5: WO 2012/080415 A1 (SYNGENTA PARTICIPATIONS AG) 21 June 2012 D6: CN 105052984 A (GUANGDONG ZHONGXUN AGRI TECH) 18 November 2015 D7: CN 104488949 A (ANHUI ZHONGBANG BIOLOG ENGINEERING CO LTD) 08 April 2015 D8: CN 104322536 A (QINGDAO KANGHEWEIYE COMMERCIAL CO LTD) 04 February 2015 D9: DORWEILER, K.J. et al., "Determination of Stability from Multicomponent Pesticide Mixes" Journal of Agricultural and Food Chemistry. 2016, Vol. 64, pages 6108-6124. D10: CN 106718455 A (INST OF PLANT PROT FAAS) 31 May 2017 <u>NOVELTY (N)</u> D1 discloses a composition comprising dinotefuran, chlorantraniliprole (insecticidal diamide compound) and an amide insecticide (considered the third insecticide with unknown mode of action) that can be used to control rice pests (Abstract, Test examples 1-2). The components are present at a weight ratio of 0.01-99% in the composition (paragraph [0018]). The composition contains agriculturally acceptable excipients such as surfactants or carriers and can be applied on plants or soil (at the locus) to control arthropod pests (paragraphs [0019]-[0023], [0039]). Therefore, claims 1, 2, 5-7, 9 and 10 lack novelty in light of D1. D2 discloses an insecticidal composition comprising dinotefuran, chlorantraniliprole (insecticidal diamide) and pyrethroid (third insecticidal compound of the class bio-insecticides) at a weight ratio of 1-5:13-20:10-35 along with agriculturally acceptable additives. The composition is applied to rice fields to control leaf rollers (Abstract, Examples). Therefore, claims 1, 2, 5-7, 9 and 10 lack novelty in light of D2. D3 discloses a pesticidal composition comprising flubendiamide (an insecticidal diamide), dinotefuran and spinetoram (third insecticidal compound that is a glutamate gated chloride channel (GluCl) allosteric modulator) at concentrations of 0.1-99% by weight. The composition in addition contains agriculturally acceptable excipients such as suspending agents (Abstract). Therefore, claims 1-3 and 5-7 lack novelty in light of D3. D4 discloses a method of controlling pest in potted flowers. The method involves treating seedlings with abamectin (third insecticidal active agent), <i>Bacillus subtilis</i> powder and spraying a pesticide solution of cyantraniliprole (insecticidal diamide) and dinotefuran. The insecticides are present at weight ratios as defined in current claim 6. The composition comprises agriculturally acceptable excipients such as suspending agents (WPI Abstract). Therefore, claims 1-7 lack novelty in light of D4. D5 discloses a combination comprising dinotefuran, cyantraniliprole or chlorantraniliprole (insecticidal diamide) and a third insecticidal compound (T1, that can be considered an insecticide with unknown mode of action; Abstract, page 25 lines 1-3, page 29 line 46, page 30 line 14). The composition can be present as agrochemical formulations with acceptable adjuvants at ratios of 1:50 to 50:1 (page 39 lines 6-15, page 42 lines 14-16). The composition can be used to treat pests at a locus (page 23 lines 29-33). The citation also discloses that the composition is present together in the form of a twin pack (considered a kit), concentrates or powders (page 42 lines 4-16). Therefore, claims 1, 2 and 5-10 lack novelty in light of D5.											

Form PCT/ISA/237 (Box V) (revised January 2019)

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D6 discloses insecticidal composition comprising dinotefuran, chlorantraniliprole (insecticidal diamide) and ethyl spinosad (third insecticidal compound of the class glutamate gated chloride channel (GluCl) allosteric modulator) that are present at a concentration as defined in current claim 6 (Abstract). The composition contains agriculturally acceptable excipients such as suspending agents and is applied on rice fields to control rice stem borer, leaf roller, plant hopper and the like. The composition can be provided as a finished composition or can be provided as single agents that can be mixed prior to use (considered a kit; Abstract, Table 1, claim 3, page 3 of description of machine based translation obtained from Espacenet). Therefore, claims 1, 2 and 5-10 lack novelty in light of D6.

D7 discloses insecticidal composition comprising flubendiamide (insecticidal diamide), dinotefuran and monosultap (or thiosultap, as the third insecticidal compound that is a nicotinic acetylcholine channel blocker). The components are present at a concentration of 0.1-99% of the composition along with agriculturally acceptable excipients such as suspending agents. The composition is applied to rice fields to control rice pests (Abstract, Examples, Page 3 of description of machine based translation obtained from Espacenet). Therefore, claims 1-3 and 5-7 lack novelty in light of D7.

D8 discloses a pesticide composition comprising 10-50 parts flubendiamide (insecticidal diamide), 20-40 parts dinotefuran, 30-60 parts imidacloprid (as the third insecticidal compound that is a nicotinic acetylcholine receptor competitive modulator). The composition further comprises agriculturally acceptable excipients and was used in field trials to test the efficacy on plant pests (Abstract, examples of machine based translation obtained from Espacenet). Therefore, claims 1-7 lack novelty in light of D8.

D9 discloses a composition comprising chlorantraniliprole, dinotefuran and pymetrozine as a mixture of pesticides labelled 1B that is present in ampoules (considered a kit; Abstract, Table 1, Page 6113 column 1 "Materials and Methods - Chemicals"). Therefore, claims 1-4 and 8-12 lack novelty in light of D9.

Therefore, claims 1-12 are not novel and therefore do not comply with PCT Article 33(2).

INVENTIVE STEP (IS)

Given the above novelty objection, claims 1-12 do not involve an inventive step and therefore do not comply with PCT Article 33(3).

Furthermore, the corresponding dependent claims not discussed in each of D1-D8 *vide supra* are considered to be obvious.

Therefore, the subject matter of claims 1-12 is obvious and does not meet the requirements of PCT Article 33(3).

INDUSTRIAL APPLICABILITY (IA)

The invention defined in the claims is considered to meet the requirements of Industrial Applicability under Article 33(4) of the PCT because it can be made by, or used in, industry.

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY Box No. VIII Certain observations on the international application	International Application No. PCT/IB2019/055746
The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made: Claims 3 and 11 do not comply with PCT Article 6 in regard to clarity. There are several clarity issues with respect to claim 3 (and claim 11) that are listed below. Claim 3 is not clear as I cannot find an antecedent to miscellaneous nonspecific (multi-site) inhibitor insecticides when the claim is appended to claim 2. The term probably refers to multi-site miscellaneous insecticides. Claim 3 is not clear as I cannot find an antecedent to oxidative phosphorylation when the claim is appended to claim 2. The term probably refers to uncouplers of oxidative phosphorylation. Claim 3 is not clear as I cannot find an antecedent to chordotonal organ modulators - undefined target site when the claim is appended to claim 2. The term probably refers to chordotonal organ modulators. Claim 3 is not clear as I cannot find an antecedent to biopesticide when the claim is appended to claim 2. The term probably refers to bioinsecticides. Claim 11 is not clear for the reasons outlined above when appended to claim 10. The applicant may wish to correct the presence of additional "ands" present in claims 3 and 11. Please also note the following discrepancies in the description. Example 1 indicates that trials were conducted to test efficacy of pesticide mixtures on stem borer in paddy (page 29 lines 20-21). However, the conclusion indicates the control of brown planthopper rather than stem borer (page 30 lines 4-6). The conclusion of Example 2 seems to be missing the word "ear" after white (page 31 line 4).	