

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*)
01 November 2019

Applicant's or agent's file reference
PCT00842

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/IB2019/057186

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

27 August 2019

Priority date (*day/month/year*)

28 August 2018

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

A01N 53/00 (2006.01) A01N 43/56 (2006.01) A01N 47/24 (2006.01) A01N 43/54 (2006.01) A01N 37/36 (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

1 November 2019

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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

PCT/IB2019/057186

Box No. I Basis of this opinion

1. With regard to the **language**, this opinion has been established on the basis of:
 - ☒ 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)).
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*bis*.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:
 - a. ☐ forming part of the international application as filed:
 - ☐ in the form of an Annex C/ST.25 text file.
 - ☐ on paper or in the form of an image file.
 - 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:
 - ☐ 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).
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/IB2019/057186									
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: 50%; vertical-align: top;"> Claims 1-6 Claims NONE </td> <td style="width: 20%; text-align: center; vertical-align: top;"> YES NO </td> </tr> <tr> <td style="vertical-align: top;"> Inventive step (IS) </td> <td style="vertical-align: top;"> Claims NONE Claims 1-6 </td> <td style="text-align: center; vertical-align: top;"> YES NO </td> </tr> <tr> <td style="vertical-align: top;"> Industrial applicability (IA) </td> <td style="vertical-align: top;"> Claims 1-6 Claims NONE </td> <td style="text-align: center; vertical-align: top;"> YES NO </td> </tr> </table>			Novelty (N)	Claims 1-6 Claims NONE	YES NO	Inventive step (IS)	Claims NONE Claims 1-6	YES NO	Industrial applicability (IA)	Claims 1-6 Claims NONE	YES NO
Novelty (N)	Claims 1-6 Claims NONE	YES NO									
Inventive step (IS)	Claims NONE Claims 1-6	YES NO									
Industrial applicability (IA)	Claims 1-6 Claims NONE	YES NO									
2. CITATIONS AND EXPLANATIONS: <u>CITATIONS</u> D1: CN 107668063 A (PLANT PROTECTION RES INSTITUTE GUANGDONG ACADEMY OF AGRICULTURAL SCIENCES) 09 February 2018 D2: CN 106342875 A (HUATE WESTERN SHAANXI SCIENCE AND TECH IND CO LTD) 25 January 2017 D3: CN 103190435 A (BEIJING ACAD AGRIC & FORESTRY) 10 July 2013 D4: CN 107148973 A (ZHEJIANG RES INSTITUTE OF CHEMICAL INDUSTRY LTD; SINOCHEM LANTIAN CO LTD) 12 September 2017 D5: US 2012/0214857 A1 (REINHARD et al.) 23 August 2012 <u>NOVELTY (N)</u> The subject matter of claims 1-6 appears to meet the requirements of Article 33(2) of the PCT with regard to novelty. The present claims are directed to an insecticidal combination, composition, or kit-of-parts, comprising a diamine or pyridylpyrazole insecticide (component A), a pyrethroid (component B), and at least one mitochondrial complex III electron transport inhibitor (component C), selected from the respective lists provided therein. Please note that each of D1-D4 have been read as a machine translation obtained from ESPACENET. D1 and D2 each disclose insecticidal compositions comprising chlorantraniliprole and bifenthrin (i.e. components A and B of the present claims), as well as other additives and adjuvants (see abstract and examples of D1 and D2). D3 discloses a pesticide formulation comprising bifenthrin and bifenazate (i.e. components B and C of the present claims), and various additional adjuvants and carriers such as propylene glycol and water (see abstract and formulation and preparation processing example). D4 discloses an insecticidal composition comprising cyhalodiamide and bifenazate (i.e. components A and C of the present claims - see abstract and examples). D5 discloses an insecticidal polymer particle comprising at least one sparingly soluble insecticides from those listed therein, including chlorantraniliprole, bifenthrin and hydramethylnon, as well as other adjuvant species (see abstract, claim 13 and 18). However, all examples and preferred embodiments of D1 only utilize one insecticide (fipronil) incorporated within the polymer particle (see examples and claim 15). Therefore, none of the prior art on record provides an explicit disclosure a <i>ternary</i> composition comprising all three of components A-C as defined by claims 1-6, and thus appear to meet the requirements of Article 33(2) of the PCT with regard to novelty. <u>INVENTIVE STEP (IS)</u> The subject matter of claims 1-6 are considered to lack an inventive step in view of any one of D1-D5. The problem to solve is the provision of new anthranilamide containing insecticides further containing various other insecticide components to enhance the efficacy of the composition.											

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Any one of D1-D4 can be considered the closest prior art to the present claims, whereby the disclosure of these documents is discussed *supra*.

With regard to claims 1-6, each of the D1-D4 differs in that they contain only two of the three actives defined by these claims. However, each of the different classes of insecticide components defined by the present claims are well known in the art and are frequently interchanged or used in combination to manipulate the properties of said insecticide (see for example D5 - abstract). In addition, each of D1-D4 clearly teaches the enhancement in the mode of action of the insecticide when combining the specific components of the present claims (i.e. components A-C), further motivating the skilled addressee to incorporate these particular additional component with the expectation this would enhance the properties of the composition.

Therefore, it is considered that the skilled addressee would routinely vary the composition of any one of D1-D4 to incorporate an additional insecticide component, and thus arrive at the ternary composition, combination, or kit-of parts (which could be used to make said composition), defined by claims 1-6 of the present application.

It is further noted that the applicant has failed to provide any evidence to support any surprising or unexpected advantage from the ternary compositions of the present application (see Box VIII), further lending weight to the lack of inventiveness of such a composition as presently claimed.

It is also considered that D5 deprives claims 1-6 of an inventive step for substantially the same reasons discussed above. Specifically, D5 discloses a polymer particle comprising a variety of insecticide compounds, including those falling within categories A-C defined by the present claims. It is considered that the skilled addressee would routinely chose between these listed insecticides and arrive at the combination / composition, or kit-of parts (which would be used to make said composition), defined by the present claims. Therefore, in the absence of any surprising or unexpected advantage of such a specific combination of these three classes of actives, an inventive step cannot be acknowledged.

Consequently, the subject matter of claims 1-6 is considered obvious and does not meet the requirements of Article 33(3) of the PCT with regards to inventive step.

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/IB2019/057186
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 1-6 do not comply with PCT Article 6 because they are not fully supported by the description. The scope of the claims must not be broader than is justified by the description, and they must be enabled by the description across their entire scope. However it is considered that it is not reasonable to predict that all variants covered by the claim will possess the properties or uses suggested by the description, that is, a sound prediction cannot be made in respect of the entire scope of the claim. The present description is directed to the provision of new combinations of diamide or pyridylpyrazole insecticides, pyrethroids and mitochondrial complex III electron transport inhibitors defined therein, whereby the addition of said mitochondrial complex III electron transport inhibitor leads to a surprising, unexpected and synergistic enhancement in the efficacy of the combination of the pyrethroid and diamide or pyridylpyrazole insecticide component (see page 5, lines 25-30). It is noted that both the description and claims provide extensive lists of potential components covering the above class of insecticides, but only exemplify one combination (i.e. Chlorantraniliprole, Bifenthrin and Bifenazate) at only two different concentrations (yet at effectively the same ratio of c.a. 1:2:4), for the control of two pest species. This combination is only compared against the <i>individual</i> components of the combination at <i>different</i> concentrations to that used in the combination, and thus it is not possible to deduce that a synergistic enhancement has occurred. As such, it is not considered that these two disclosed treatment combinations (against only two pest species) permit the skilled artisan to make a sound prediction that every possible pesticide combination encompassed by the present claims would provide the synergistic enhancement identified in the present description as per the described invention. Therefore, it is considered that the scope of the claims is broader than is justified by the description. It is further not clear if treatment combinations disclosed by the examples in the present application are either (i) applied at once as part of a single composition of all components, (ii) applied at once as part of multiple separate compositions of the different components or (iii) applied consecutively as part of multiple separate compositions applied one after the other at different points in time. Consequently, claims 1-6 do not meet the requirements of PCT Article 6. Claims 1 and 3-5 are further unclear with regard to the feature "combination" as defined by the present claim. The present description does not provide an explicit definition of the term "combination", and has thus been broadly considered to include a kit of parts, according to the direction of the present description (see page 30 lines 11-12), wherein a "kit of parts" is said to encompass embodiments wherein the active ingredients "may be mixed before spraying". However, it is noted that claim 6 is already directed to a kit-of-parts comprising an identical list of components defined by claim 1, and thus appear to be redundant. Alternatively, the term "combination" must have a different interpretation which is not consistent with that mentioned within the current description. Consequently, clarification of the term "combination" defined by claims 1 and 3-5 is therefore necessary to ascertain the full scope of these claims.	