

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2024/077971

International filing date (day/month/year)
04.10.2024

Priority date (day/month/year)
04.10.2023

International Patent Classification (IPC) or both national classification and IPC
INV. A01N43/40 A01N43/653 A01P3/00 A01N25/04 A01N25/24 A01N25/30

Applicant
SYNGENTA CROP PROTECTION AG

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 usually 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

see form
PCT/ISA/210

Authorized Officer

Sawicki, Marcin

Telephone No. -0



Box No. I Basis of the 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 (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 43bis.1(a))
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.
 - b. ☐ furnished subsequent to the international filing date for the purposes of international search (Rule 13ter.1(a)),
 - ☐ accompanied by a statement to the effect that the sequence listing does not go beyond the disclosure in the international application as filed.
4. ☐ With regard to any nucleotide and/or amino acid sequence disclosed in the international application, this opinion has been established to the extent that a meaningful opinion could be formed without a WIPO Standard ST.26 compliant sequence listing.
5. Additional comments:

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

Novelty (N)	Yes: Claims	<u>4, 13, 16</u>
	No: Claims	<u>1-3, 5-12, 14, 15</u>
Inventive step (IS)	Yes: Claims	<u>4, 16</u>
	No: Claims	<u>1-3, 5-15</u>
Industrial applicability (IA)	Yes: Claims	<u>1-16</u>
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

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:

see separate sheet

Reference is made to the following documents:

- D1** CN 114 176 087 A (QINGDAO VINE GLIDING DETECTION AND EVALUATION LTD COMPANY) (2022-03-15)
- D2** WO 2023/118372 A1 (SYNGENTA CROP PROTECTION AG [CH]) (2023-06-29)
- D3** WO 2023/072784 A1 (SYNGENTA CROP PROTECTION AG [CH]) (2023-05-04)

Re point V

1. Relates to a fungicidal composition comprising cyclotrifluram and difenoconazole at a ratio 1000:1 to 1:1000 (e.g. 1:1) and to the seed treatment comprising said composition, to the coated seed comprising said composition and to related methods and uses in particular against *Corynespora cassiicola*, *Alternaria alternata* and *Cochliobolus heterostrophus*.

2. Novelty (Art. 33(2)PCT):

D1 discloses a synergistic composition against *Fusarium* fungi comprising: Cyclobutrifluram and difenconazole at the ratio 30:1 to 1:3 preferably 20:1 to 1:2, e.g. 1:1 or 1:5 and its efficacy in soybean applied as seed treatment (see claims 1-10, par. 148-151, 173-176, Tab. 3, 5). It can be used as well against melon fusarium wilt (see par. 46). Takes away novelty of claims 1-3, 5-7, 9-11, 14-15.

D2 discloses a fungicidal composition e.g. for coating seeds comprising as active ingredients : Cyclobutrifluram 10.43 %; difenconazole 5.35 %; fludioxonil 4.35 %; Metalaxyl-M 4.31 % (see par. 186, Tab. 1). The typical seed treatment rates are 10-100 g per 100 kg seeds (see par. 120) and soil treatment rates 50-300 g/ha (see par. 117). Takes away novelty of claims 1-2, 8-10, 12, 14-15.

D3 discloses a fungicidal composition comprising cyclobutrifluram (A) and a further fungicide (B) e.g. difenconazole (*selection from a long list*) at a ratio 10:1 to 1:50 for use against multiple fungi including *Corynespora cassiicola*, *Alternaria alternata* (*selection from a long list of two fungi from the same not preferred order Plesosporales would be necessary*) but preferably *Fusarium graminearum* or *Fusarium asiaticum* (order *Hypocreales*), in multiple plants including cucumber (*selection from a long list*) but preferably in wheat and rice (see claims 1-15, p. 9-10). The component (A) is generally applied at 10-1000 g/ha and 0.1-10 g/kg seeds and component (B) at 2 to 2000 g/ha and 0.01-10 g/kg seeds (see p. 25). Takes away novelty of claims 1-3, 5, 7-12, 14-15.

Consequently claims 1-3, 5-12, 14-15 are not new and do not fulfil the requirements of Art. 33(2)PCT. On the other hand claims 4, 16 and 13 are new and fulfil the requirements of Art. 33(2)PCT.

3. Inventive step (Art. 33(3)PCT):

D1 can be seen as the closest prior art in respect to the subject matter of claims 4, 16 and 13. The difference for claim 4 and 16 is that the composition was applied against a different fungi (*all the fungi are from the same order (Plesosporales) and different than Fusarium (Hypocreales)*). The difference for claim 13 is a specific application rate per seed.

The applicant showed that currently claimed composition are synergistic against *Corynespora cassiicola* (see Tab. 3), *Altemaria alternata* (see Tab. 4) and *Cochliobolus heterostrophus* (see Tab. 5)(*all in vitro, the method used to show synergy is stricter than classical Colby*)(*it is noted that EC values for A and B in Tab. 4 and 5 are incorrect, probably just copied from Tab. 3*).

Therefore the problem to be solved for claim 4 can be defined as a provision of improved fungicidal method, wherein the problem to be solved for claim 13 can be seen as an alternative.

As far as **claims 4 and 16** is concerned the person skilled in the art knows that currently claimed combination is synergistic against *Fusarium* fungi. **D3** suggest that compositions comprising cyclobutrifluram (A) and a further fungicide (B) e.g. difenconazole (*selection from a long list*) can be used against *inter alia Corynespora cassiicola, Altemaria alternata* (*selection from a long list and different order than Fusarium*). However currently claimed combination was not singled out and was not tested and the tested fungi (*for Phenamacril as (B)*) was once again *Fusarium*. Therefore there is no enabling disclosure that currently claimed combination can provide synergistic control to any other fungi than *Fusarium*. As synergy is considered unpredictable this aspect and thus corresponding claims can be seen as inventive.

As far as **claim 13** is concerned the person skilled in the art knows from **D1** that currently claimed combination can be used on seeds and finding optimal application rates within the ranges disclosed in **D2** and **D3** will be the matter of an standard optimisation which does not require inventive skills.

Re point VII

1. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in **D1-D3** is not mentioned in the description, nor are these documents identified therein.

Re point VIII

1. The name "*cyclobutrifluram*" relate normally to the mixture comprising 80-100 % isomer S whereas the structure in claim 1 is racemic (Art. 6 PCT).
2. The expression "*at most 1:X*" and following examples of ratios in claim 10 are unclear in particular in view of preferred and tested ratios which seems to be outside (Art. 6 PCT).
3. The application rate per seed in claim 13 is an "*unusual parameter*" and is hard to compare with the values usually used in the art ("*g/unit mass of seeds*" e.g. "*g/kg of seeds*") (Art. 6 PCT).
4. Claim 16 is unclear (*probably "against" or "for combating" was meant and not "for"*) (Art. 6 PCT).
5. EC values for A and B in Tab. 4 and 5 seems incorrect (*probably just copied from Tab. 3*) as it is unlikely that they are the same till 4 digits after comma for 3 different fungi (Art. 6 PCT).