

PATENT COOPERATION TREATY

From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To: De Clercq & Partners Edgard Gevaertdreef 10a 9830 Sint-Martens-Latem BELGIQUE

PCT

**WRITTEN OPINION OF THE
INTERNATIONAL PRELIMINARY
EXAMINING AUTHORITY**
(PCT Rule 66)

Applicant's or agent's file reference BIPA-008-PCT	REPLY DUE within <u>2</u> month(s) from the above date of mailing
International application No. PCT/EP2022/057720	International filing date (day/month/year) 24.03.2022
Priority date (day/month/year) 25.03.2021	
International Patent Classification (IPC) or both national classification and IPC INV. A01N37/02	
Applicant BIPA NV	

1.	☒ The written opinion established by the International Searching Authority: ☒ is ☐ is not considered to be a written opinion of the International Preliminary Examining Authority.
2.	This <u>second</u> 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 66.2(a)(ii) with regard to novelty, inventive step or 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
3.	The applicant is hereby invited to reply to this opinion. When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(e). How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 55.3 and 66.8. Also: For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4bis. For an informal communication with the examiner, see Rule 66.6. For an additional opportunity to submit amendments, see Rule 66.4. If no reply is filed , the international preliminary examination report will be established on the basis of this opinion.
4.	The final date by which the international preliminary report on patentability (Chapter II of the PCT) must be established according to Rule 69.2 is: <u>25.07.2023</u>

Name and mailing address of the international preliminary examining authority: European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Fax: +49 89 2399 - 4465	Authorized Officer Davies, Maxwell Telephone No. +49 89 2399-4259
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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 (under Rules 12.3(a) and 23.1(b)).
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a) and (b))
2. With regard to the elements of the international application, this opinion has been established on the basis of
(*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"*):

Description, Pages

1-54 as originally filed

Claims, Numbers

1-30 as originally filed

- ☐ a sequence listing - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
4. ☐ This opinion has been established as if (some of) the amendments listed below had not been made, since either they are considered to go beyond the disclosure as filed, or they were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in the Supplemental Box (Rules 70.2(c) and (c-*bis*)):
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing (*specify*):
5. ☐ 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 66.1(d-*bis*)).
 - ☐ without taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rule 66.4*bis*).
6. ☐ Supplementary international search report(s) from Authority(ies) have been received and taken into account in drawing up this opinion (Rule 45*bis*.8(b) and (c)).

Box No. V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	No:	Claims	1, 3-8, 14-16, 18-23, 29, 30
Inventive step (IS)	No:	Claims	1-30
Industrial applicability (IA)	No:	Claims	

2. Citations and explanations:

see separate sheet

Item I

The application concerns a method for increasing the yield of rice by applying choline pelargonate or a composition thereof (claims 1-14) and related use (claim 15); a related method for preventing or controlling blast disease, sheath blight, or both by the application of choline pelargonate (claims 16-29) and related use (claim 30).

Item V

Reference is made to the following documents:

- D1 WO 2020/104645 A1 (BIPA NV [BE]) 28 May 2020 (2020-05-28) cited in the application
- D2 WO 03/059063 A1 (SUMMERDALE INC [US]; COLEMAN ROBERT D [US]) 24 July 2003 (2003-07-24)

Novelty (Art. 33(2) PCT)

Document D1, which was cited by the applicant, discloses the use of a composition comprising a choline salt of a C8-C10 fatty acid as a fungicide on a plant or plant part (D1, claim 1). The preferred embodiment is choline pelargonate (D1, claim 9). The composition is an aqueous composition (D1, claim 2; c.f. claims 3 and 18 of the current application) and can be formulated as a sprayable liquid or concentrate (D1, claim 3; c.f. claims 4 and 19 of the current application). The composition comprises between up to 70% w/v of active ingredient (D1, claim 4, c.f. claims 5 and 20 of the current application) and the concentrate comprises between 5 and 70% w/v of active ingredient (D1, claim 5, c.f. claims 6 and 21 of the current application). Claim 6 of D1 overlap with claims 7 and 22 of the current application, and claim 7 of D1 overlaps with claims 8 and 23 of the current application.

The bridging paragraph of pages 14-15 describes certain embodiments of the pathogenic fungus to be controlled, which includes "Magnaporthe grisea (rice blast)", see D1, page 15, line 2.

D1 teaches clearly and unambiguously teaches that the compounds can be used to control Magnaporthe grisea and in particular "rice blast", which is the name of the disease when Magnaporthe grisea is found on rice. D1 does not mention "wheat blast", which is the disease caused by Magnaporthe grisea on wheat. D1 does not mention "rye blast" and it does not mention "barley blast".

Since rice blast is the infection of rice by Magnaporthe grisea, there is no "double selection" from two lists to arrive at this subject matter.

The breadth of the spectrum of activity shown in D1 for choline pelargonate renders the claim of activity on rice plausible.

The aim of applying a fungicide to a plant is to increase the plant health and yield. The only increase in the yield of rice that has been demonstrated in the current application arises from the control of fungal disease that would otherwise reduce yields. The claimed effect of the current application, i.e. the increase in yield, arises as a direct result of the antifungal effect.

The applicant has not demonstrated a separation of the increase in yield and the antifungal effect, so these effects are not treated separately. Thus, the increase in yield is a direct consequence of what is taught in D1, namely that choline pelargonate controls *Magnaphorthe grisea* on rice, i.e. rice blast.

Consequently, the disclosure of D1 is considered to be implicitly novelty destroying for the subject matter of claims 1, 3-8, 14, and 15 as well as explicitly for the subject matter of claims 16, 18-23, 29, and 30.

Document D1 does not disclose all of the features in combination of the subject matter of claims 2, 9-13, 17, and 24-28. These claims are considered as being new.

Inventive Step (Art. 33(3) PCT)

Concerning the control of sheath blight in rice, which is caused by *Rhizoctonia solani*, D1 is the closest prior art. This document teaches the use of choline pelargonate as a fungicide in rice (D1, claims 1 and 9; page 14, line 7). D1 also teaches that the compositions choline pelargonate controls *Rhizoctania* diseases (D1, page 14, lines 23, 28, 33).

The difference between the subject matter of the claims (insofar as it concerns sheath blight) and that of D1 is that the disease to be controlled is sheath blight on rice (*Rhizoctonia solani*). There is no effect arising from this difference. The objective technical problem to be solved is the provision of an alternative method for controlling a fungal disease in rice. Since D1 teaches choline pelargonate can control *Rhizoctania* diseases and can be used on rice, it would be obvious to use choline pelargonate to control *Rhizoctonia solani* in this crop.

The teachings of D1 are supported by D2. This document shows the inhibition of *Rhizoctania solani* by using the closely related caprylic acid (D2, example 16) and D2 justifiably treats pelargonic acid as a functional equivalent (D2, example 17; claim 5).

Incidentally, D2 also shows that pelargonate acid is active against fungi on raspberries (Table 10, group 5; see entries for 1-9 days, with the effectiveness of the fungicide wearing off as time progresses as with all of the fungicides tested).

The teachings of D1 are that choline pelargonate has the same activity of pelargonic acid while being less phytotoxic. From the teachings of D2 and D1, the skilled person would expect pelargonic acid and its choline salt to have activity against *Rhizoctania solani*, with the latter being less phytotoxic.

Concerning the type of rice (claims 2 and 17), the skilled person would reasonably expect an antifungal activity against rice blast and sheath blight to be found with different kinds of rice.

Concerning claims 9 and 24: it is normal practice in the art to treat the above-ground parts of the rice.

Claims 10-12 and 25-27: no unexpected effects are associated with the application timings featured in these claims, which represent normal practice in the art, especially as preventative application is usually more successful than curative.

Claims 13 and 27: it is within the normal competence of the skilled person to establish a suitable application rate, depending on the circumstances, to control a disease in rice. The application rates of these claims are not associated with any inventive activity.

Consequently, no inventive step is acknowledged for the claimed subject matter.

The applicant has shown in the examples that choline pelargonate is as effective as commercially available products. However, a comparison with these products cannot be formulated within the objective technical problem to be solved. The objective technical problem is formulated with respect to the closest prior art. The prior art, insofar as the claimed subject matter is new, already provides a strong pointer to the solution provided in the current application. The skilled person already knows from D1 that choline pelargonate is a powerful broad-spectrum fungicide suitable for use on rice against the target fungi, as demonstrated in the above-cited passages.