

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

To:

see form PCT/ISA/220

PCT

WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY
(PCT Rule 43*bis*.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/EP2019/050140

International filing date (day/month/year)
04.01.2019

Priority date (day/month/year)
09.01.2018

International Patent Classification (IPC) or both national classification and IPC
INV. C07D237/16 A01N43/58

Applicant
SYNGENTA PARTICIPATIONS 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 43 <i>bis</i> .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 66.1 *bis*(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

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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 (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:
 - ☐ 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:

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>1-18</u>
	No: Claims	
Inventive step (IS)	Yes: Claims	<u>1-18</u>
	No: Claims	
Industrial applicability (IA)	Yes: Claims	<u>1-18</u>
	No: Claims	

2. Citations and explanations

see separate sheet

re item V:

1. Prior art

Reference is made to the following documents:

- D1 WO 2016/008816 A1 (SYNGENTA PARTICIPATIONS AG [CH]) 21 January 2016 (2016-01-21)
- D2 WO 2012/091156 A1 (SUMITOMO CHEMICAL CO [JP]; KURAGANO TAKASHI [JP]; SOUMA SHIN-ICHIRO [J]) 5 July 2012 (2012-07-05)

2. Novelty

The present pyridazinone derivatives differ in principle from those disclosed in document D2 by the (hetero)aromatic residue D connected to the phenyl ring by the alk(en,in)yl bridge and from those according to D1 by the ethyl, ethenyl or ethinyl bridge instead of a methoxybridge -O-CH₂-. Thus the subject matter of present claim 1 to 13 is considered to be novel. The same applies for the dependent claims 14 to 18. Thus the present claims are considered to fulfil the requirements of Art. 33 (2) PCT.

3. Inventive step

Documents D1 and D2 are concerned with herbicidal 4-phenyl substituted 5-hydroxy-pyridazin-3-on derivatives as is the present application. Since document D1 discloses also such compounds wherein a phenyl residue is connected to the phenyl residue in position 4 of the pyridazinone via a bridge consisting of two atoms, this document is considered to represent the closest prior art. The claimed 4-phenyl substituted 5-hydroxy-pyridazin-3-on derivatives differ structurally from those according to D1 due to the nature of the bridge: an ethyl, ethenyl or ethinyl moiety instead of an -O-CH₂- moiety connecting the two cycles.

Therefore, if the problem underlying the present application were to be seen in the provision of further herbicidal compounds, the solution of this problem, as set out in the present application and as far as demonstrated by the examples, is to be seen in the provision of compounds of formula (I) according to claim 1. This solution is considered to involve an inventive step, since document D1 concerned with pyridazin-3-on derivatives having the same activity, but structurally different from the present pyridazin-3-on derivatives, could not have taught the skilled person to replace

the -O-CH₂- bridge by an ethyl, ethenyl or ethynyl moiety. Therefore the subject matter of present claims 1 to 18 is considered to fulfil the requirements of Art. 33 (3) PCT.

4. Industrial applicability

No problem arises, since the claimed compounds may be used in agriculture.