

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SML - 2021 - 009 - PCT		FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/IB2022/058494	International filing date (day/month/year) 09-09-2022	Priority date (day/month/year) 09-09-2021	
International Patent Classification (IPC) or national classification and IPC A01N59/00 Version=2023.01			
Applicant DOSHI, HITESHKUMAR ANILKANT, RATHOD, RAJIV			

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of <u>5</u> sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. ☒ a total of <u>13</u> sheets, as follows: ☐ sheets of the description, claims and/or drawings which have been amended and/or sheets containing rectifications authorized by this Authority, unless those sheets were superseded or cancelled, and any accompanying letters (see Rules 46.5, 66.8, 70.16, 91.2, and Section 607 of the Administrative Instructions). ☐ sheets containing rectifications, where the decision was made by this Authority not to take them into account because they were not authorized by or notified to this Authority at the time when this Authority began to draw up this report, and any accompanying letters (Rules 66.4bis, 70.2(e), 70.16 and 91.2). ☐ superseded sheets and any accompanying letters, where this Authority either considers that the superseding sheets contain an amendment that goes beyond the disclosure in the international application as filed, or the superseding sheets were not accompanied by a letter indicating the basis for the amendments in the application as filed, as indicated in item 4 of Box No. I and the Supplemental Box (see Rule 70.16(b)). b. ☐ a separate electronic file containing a sequence listing (sent to the International Bureau only). 4. This report contains indications relating to the following items: ☒ Box No. I Basis of the report ☐ 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 Article 35(2) 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
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Date of submission of the demand 11-03-2023	Date of completion of this report 04-08-2023
Name and mailing address of the IPEA/ Indian Patent Office Plot No. 32, Sector 14, Dwarka, New Delhi - 110075 Facsimile No.	Authorized officer Atul Kumar Verma Telephone No. +91-1125300200

Box No. I Basis of the report1. With regard to the **language**, this report is based on:

- ☒ 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)).
- ☐ publication of the international application (Rule 12.4(a)).
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a) and (b)).

2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):

- ☒ the international application as originally filed/furnished, or
- ☐ the description: pages _____ as originally filed/furnished.
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____
- ☐ the claims: Nos. _____ as originally filed/furnished.
Nos.* _____ as amended (together with any statement) under Article 19
Nos.* _____ received by this Authority on _____
- ☐ the drawings: pages _____ as originally filed/furnished.
pages* _____ received by this Authority on _____
pages* _____ received by this Authority on _____
- ☐ 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 report has been established as if (some of) the amendments annexed to this report and 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 report has been established:

- ☐ taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91 (Rules 66.1(d-bis) and 70.2(e)).
- ☐ without taking into account the **rectification of an obvious mistake** authorized by or notified to this Authority under Rule 91(Rules 66.4bis and 70.2(e)).

6. With regard to top-up searches (Rules 66.1ter and 70.2(f)):

- ☐ A top-up search was carried out by this Authority on _____
- ☐ Additional relevant documents have been discovered during the top-up search.
- ☒ No top-up search was carried out by this Authority because it would serve no useful purpose.

7. ☐ Supplementary international search report(s) from Authority(ies) _____ has/have been received and taken into account in establishing this report (Rule 45bis.8(b) and (c)).

* If item 4 applies, some or all of those sheets may be marked "superseded."

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step and industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-19</u>	YES
	Claims	<u>NONE</u>	NO
Inventive step (IS)	Claims	<u>1-19</u>	YES
	Claims	<u>NONE</u>	NO
Industrial applicability (IA)	Claims	<u>1-19</u>	YES
	Claims	<u>NONE</u>	NO

2. Citations and explanations (Rule 70.7)

The applicant filed a demand for International Preliminary Examination dated 16-03-2023 along with originally filed claims 1-19 dated 29-12-2022. The reply to the objections raised in the written opinion by the ISA has been duly considered and IPEA-408 was generated on 27-04-2023.

Further on demand of the agent for the applicant's personal interview was given dated 17-05-2023 and the request for the extension of one month to file the response to the observations communicated in IPEA-408 was also considered. Hence, in view of the response to the written opinion of IPEA-408 dated 09-06-2023 and upon evaluation of the original claims 1-19 under Article 33 of PCT, it was concluded by this IPEA that they meet the requirements of PCT Article 33(3).

Reference is made to the following documents:

D1: US10492489B2

D2: EP3766349A1

The present application relates to a pesticidal composition comprising elemental sulfur present in the range of 20% w/w to 90% w/w of the total composition and acynonapyr present in the range of 0.1%w/w to 50% w/w of the total composition and at least one agrochemically acceptable excipient.

The problem to be solved by the present application may be regarded as the provision to provide the Water dispersible granule composition for the purpose of pest control and yield improvement. The solution of the applicant resides in providing the pesticidal composition that exhibits surprisingly higher field efficacy at reduced dosages of Acynonapyr insecticides and use of higher dosages of sulfur where sulfur being organic in nature does not cause an adverse impact either to the environment or to the human population compared to the use of the Acynonapyr insecticides. Novelty under PCT Article 33(2)

Novelty under Article 33(2) PCT has already been acknowledged in the written opinion of ISA dated 29-12-2022 because the subject matter of the present claims 1-19 is new with respect to the disclosure of D1 as the present claims 1-19 discloses a pesticidal composition comprising 0.1% w/w to 50% w/w of Acynonapyr which is

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of:

Continuation of Citation and Explanation(Box5)

not disclosed in document D1.

Inventive step under PCT Article 33(3)

The written submission of the applicant is duly considered in view of the personal interview and upon re-evaluation; it has been concluded that the subject matter of claims 1-19 of the present application meets the requirements of Article 33(3) PCT in view of the cited documents D1-D2.

D1 discloses a water-disintegrable granular composition comprising: at least one agrochemical active, wherein the agrochemical active comprises any one of a water-insoluble nutrient or algae or a pesticidal active, in a concentration range of 0.1% to 95% by weight of the total composition; and, at least one agrochemically acceptable excipient (See abstract, page 18 line 20, figures 1-4, table 8).

Document D2 discloses a method for exterminating pests, the method including applying

3-endo-[2-propoxy-4-(trifluoromethyl)phenoxy]-9-[5-(trifluoromethyl)-2-pyridyloxy]-9-azabicyclo[3.3.1]nonane along with an insecticidally or acaricidally active component (See page 11 lines 51-52, paragraphs [0011], [0015]).

The difference between the subject matter of the present claims and D1-D2 is that D1-D2 does not explicitly disclose the specific combination of sulfur and Acynonapyr in the specific concentration as mentioned in the present claims. Further, it is observed that the present claims are directed to a higher concentration of sulfur (20-90%) and a lower concentration of Acynonapyr (0.1-10%) which D1-D2 fails to provide any indication.

Moreover, the comparative efficacy data with respect to the pesticidal composition of D1 comprising a lower concentration of sulfur (30%) in combination with at least one agrochemically acceptable excipient (i.e. Acynonapyr) does not exhibit the desired result (better control of spider mites for Tea and Chilly crops) when compared to the composition of the present invention. (See Tables 8 of D1)

Thus, it is evident from the comparative data ("Synergy" defined by Colby S. R.) that the composition of the present application comprising elemental sulfur (20-90%w/w), at least one Acynonapyr (0.1-50% w/w), and at least one agrochemical excipient in the specific concentration and having specific particle size provides superior field efficacy in terms of pest control and thereby provides better yield and plant growth at significantly reduced dosages of the composition.

As none of the cited prior documents D1-D2 disclose the compositions which manifest synergy at a lower dosage of Acynonapyr insecticides, thereby restricting the dependency on chemical insecticides, the person skilled in the art cannot arrive at the claimed subject matter of the present application from the existing knowledge of cited prior art documents D1-D2.

Hence, the subject matter claimed in claims 1-19 of the present application meets the requirements of PCT Article 33(3) and is thus inventive.

Industrial Applicability under PCT Article 33(4)

Claims 1-19 meet the criteria set out in Article 33(4) PCT and thus have industrial applicability because the subject matter claimed can be made or used in the industry.

Agent's Ref.: SML-2021-009-PCT

Kind Attn: Mr. Atul Kumar Verma (Authorized Officer)

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Dear Sir,

Date: June 7, 2023

Re: DOSHI, HITESHKUMAR ANILKANT; RATHOD, RAJIV

PCT International Application No: PCT/IB2022/058494

Filed on : September 09, 2022

Priority Date : September 09, 2021

RESPONSE TO WRITTEN OPINION OF IPEA

We enclose herewith a response to the Written Opinion of the International Preliminary Examining Authority.

The Ld. Examiner is kindly requested to take the same on record.

Yours sincerely,



Dipak Mundra

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Enclosures:

1. Response to Written Opinion

Agent's Ref.: SML-2021-009-PCT

Kind Attn: Mr. Atul Kumar Verma (Authorized Officer)

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PCT International Application No.: PCT/IB2022/058494

Applicants : DOSHI, HITESHKUMAR ANILKANT; RATHOD RAJIV

Filed on : September 09, 2022

Priority Date : September 09, 2021

Sub: Reply to the written opinion of International Preliminary Examining Authority

This is in reference to the written opinion dated April 27, 2023 issued by the International Preliminary Examining Authority (IPEA) for this application. We submit herewith our response to the same.

At the outset, the applicant is grateful to the Ld. Examiner for acknowledging the novelty and industrial applicability of all the pending claims of this application.

The applicant would also like to express its gratitude to the Ld. Examiner for granting an opportunity of hearing in this matter on May 17, 2023 so as to clarify the objections raised in the written opinion.

It is submitted that the aspect of lack of inventive step, clarity was clarified to the satisfaction of the Ld. Examiner during the course of hearing.

The Applicant herewith submits the reply to the written opinion in this regard.

1. Reply to Lack of Inventive step (Box No. V):

The Written Opinion outlines that claims 1-19 are considered to be lacking in inventive step under Article 33(3) PCT in light of the following document:

D1: US10492489B2

D2: EP3766349A1

The Applicant respectfully resists the objection and presents the following submission in this regard:

The subject matter of the present invention relates to a synergistic pesticidal composition comprising Elemental Sulphur in the range of 20% w/w to 90% w/w of the total composition; Acynonapyr in the range of 0.1% w/w to 50% w/w of the total composition; and at least one agrochemically acceptable excipient.

The Applicant humbly submits that none of the cited prior arts even remotely disclose, suggest or teach a pesticidal composition of the present invention comprising Elemental Sulphur, and Acynonapyr in the specified concentration along with excipients; wherein the composition is in the form of solid, liquid or gel; and wherein the composition comprises particles in the size range of 0.1 to 50 microns for the purposes of pest control and yield improvement.

It is to be noted that the novelty of the claimed composition has already been acknowledged and in this regard, it is submitted that the present composition is distinct from those disclosed in any of the cited references, not only in terms of its novel structural embodiments but also the effect exhibited on account of the same. It has been surprisingly found that the combination of Elemental Sulphur, and Acynonapyr demonstrated synergistic pesticidal activity compared to the activity of the individual active ingredient alone. Further, the composition of the present invention comprising pesticidally effective amounts of Elemental Sulphur and Acynonapyr when formulated in a manner such that it comprises particles in the size range of 0.1 to 50 microns is synergistic in nature and provides excellent results in terms of yield, pest control and improved nutrition to the plant.

To emphasize the importance and significance of the claimed composition, the applicant herein under outlines the efficacy data which is also provided in the specification. It may be noted that the data submitted in Tables 1-2, pages 50-63 of the as filed PCT specification clearly demonstrate the highly efficacious nature of the claimed composition. In fact, the data adduced in the specification in Tables 1-2 using the claimed combination in

various formulation types such as water dispersible granule (WDG), wettable powder (WP), suspension concentrate (SC) on various crops including tea and chilli clearly elucidates the highly inventive nature of the present invention. This data highlights significant improvement in pest control such as red spider mites and also provides significantly higher yield at reduced dosages of application with the claimed composition.

For instance, the data presented in Table 1 clearly indicates on comparing treatment T1 (Sulphur 60% + Acynonapyr 6% WDG as per embodiment of the present invention), T2 (Sulphur 30% + Acynonapyr 3% WDG as per embodiment of the present invention) with standalone treatments, T4 (Sulphur 80% WDG) and T5 (Acynonapyr 6% EC) applied at same dosage, that treatment T1 and T2 demonstrated control of 93.26% and 91.57% respectively whereas treatment T4 and T5 demonstrated 42.7% and 52.81% control against mites at 21 days after application. Furthermore, it was observed that treatment T3 (Sulphur 90% + Acynonapyr 5% WP as per embodiment of the present invention) applied at reduced dosage demonstrated better control on mites as compared to treatment T4. Also, on comparing treatments T1, T2 and T3 with T6, it was noted that treatments T1, T2 and T3 depicted better control on mites as compared to treatment T6 (Hexythiazox 5.45% EC which is a commercial pesticide against mites). Thus, the combination of Elemental Sulphur and Acynonapyr in the form of WDG and WP with particles in the size range of 0.1 micron to 50 microns is synergistic in nature and provides better control on insect pest even at reduced dosage of application as compared to application of individual actives and commercial pesticides.

Similar efficacy results can be observed from Table 2 which indicates the superior efficacy in terms of pest control and yield enhancement with the application of composition of Elemental Sulphur and Acynonapyr as compared to the application of individual actives on Chilli crop. In addition, the composition of the present invention also assisted in improving the crop physiological characteristics like root length, plant height, fruit size and improved foliage, etc. demonstrating the enhanced, efficacious and superior behaviour of the compositions of the present invention in the fields (Page 63, lines 4-12).

It is respectfully submitted that the cited prior arts D1 and D2 nowhere teach, suggest or motivate a skilled person to arrive at the specific composition as claimed in the pending application nor does it provide any reasonable expectation of success to arrive at an efficacious composition as claimed, which provide a surprisingly enhanced yield and pest control.

Before going into a detailed analysis distinguishing the present invention over the cited references it is respectfully submitted that for an obviousness analysis, the law requires that the prior art references must be considered in its entirety and it needs to be verified whether these references either taken singly or together as a whole, teach, suggest or motivate a skilled person on the date of filing of the invention, to arrive at the claimed composition with a reasonable expectation of success.

It is submitted that the documents D1-D2 cited in the Written Opinion of the International Preliminary Examining Authority either taken alone or in combination are not at all relevant and do not disclose, teach or suggest the composition claimed nor do they provide any motivation or any expectation of success for arriving at the present composition. In the absence of a clear teaching, suggestion and motivation that can be gleaned from the teachings in the prior art, a person skilled in the art cannot arrive at the present invention by arbitrarily picking and choosing elements from isolated prior arts. Any such act that is devoid of teaching, suggestion and motivation derived from the prior art references is impermissible under law on account of being based upon hindsight reasoning.

Submissions on lack of inventive step:

D1: US10492489B2

The Examiner states that the claimed invention is lacking in inventive step over D1 as it discloses a pesticidal composition comprising Sulphur and the pesticidal active wherein the pesticidal active can be selected as Acynonapyr as it discloses presence of Acynonapyr in the composition of D1 in column 18, line 20 and Table 8a.

The Applicant respectfully resists the objection and makes the following submissions:

The Applicant submits that D1 aims to provide a solid water disintegrable granular composition comprising: at least one agrochemical active, wherein the agrochemical active comprises any one of a water insoluble nutrient or an algae or a pesticidal active in a concentration range of 0.1% to 95% by weight of the total composition and at least one agrochemically acceptable excipient; wherein the water disintegrable granular composition is in a size range of 0.1 mm to

6 mm, comprising particles in a size range of from 0.1 micron to 50 microns; and wherein the water disintegrable granular composition has a bulk density of less than 1.5 gm/ml and a hardness of at least 1 Newton. It is pertinent to note that D1 aims to provide a novel formulation having the specific parameters of bulk density, hardness, particle size distribution and granule size disclosed therein which results in sustained disintegration of the granules whereby the actives such as water insoluble nutrients, algae or the pesticide made available to the plant for its entire duration of life cycle, eventually resulting in higher nutrition and yield (column 4, lines 6-11). Thus, it is clearly evident that D1 is a non-analogous reference related to an entirely different composition with an entirely different objective.

The invention of present application is at the outset different from that of the invention of D1 on the basis of the fact that present invention relates to a synergistic composition of Sulphur and Acynonapyr while there is no teaching or suggestion in D1 to select and combine Sulphur and Acynonapyr let alone in specific concentration as claimed in the present invention and expect a synergy.

The Applicant would like to draw attention of the Ld. Examiner to the fact that D1 discloses:

- a laundry list of water insoluble nutrients including at least 70 water insoluble nutrients (col. 7 lines 55 to 67 and col. 8 lines 1 to 41).
- a huge laundry list of hundreds of pesticides running into at least 4 pages(col. 18 to col. 26) including col. 18, line 20 referred to in the written opinion.
- a laundry list of hundreds of algae running into pages (refer col.9 to col. 17)

It is pertinent to note that D1 discloses a very broad selection of pesticides, algae and water insoluble crop nutrient and it neither suggests nor motivates a person of skill in the art to arrive at the presently claimed pesticidal composition comprising synergistic combination of Elemental Sulphur and Acynonapyr. Further, D1 nowhere illustrates nor exemplifies in the Tables 1 to 15, a composition comprising a combination of Elemental Sulphur with a pesticidal active, let alone specifically with Acynonapyr. It is submitted that the Table 8A referred by the Examiner discloses a water disintegrable composition comprising Elemental Sulphur with Zinc oxide, and nowhere suggests or teaches a composition comprising Elemental Sulphur and Acynonapyr as claimed in the present pending application.

The Applicant submits that D1 merely teaches a water disintegrable composition of an agrochemical active with an agrochemically acceptable excipient, but nowhere suggests or teaches a person of skill in the art to employ Acynonapyr as a preferred pesticidal active let alone in preferred combination with Elemental Sulphur as claimed in the present invention.

The Applicant further submits that D1 discloses a very broad concentration range of agrochemical active i.e. 0.1% to 95% by weight of the total composition. Column 44, lines 29-31 referred to in the written opinion by the Examiner for a concentration range of 0.1% to 60% is the general concentration range of pesticide that can be used in the composition of D1 and it does not suggest that the Acynonapyr in the range of 0.1% to 50% w/w of the total composition can be combined with Elemental Sulphur in the range of 20% to 90% w/w of the total composition as claimed in the present application and there is no expectation of success that it would result in synergistic and enhanced effect as exhibited by the present invention.

It is important to take note of the fact that out of thousands of possible combinations, D1 nowhere suggests or teaches a composition comprising a synergistic combination of Elemental Sulphur and Acynonapyr let alone in specific concentrations and specific formulations as claimed. It is submitted that in absence of any teaching or suggestion of the pesticidal composition comprising Elemental Sulphur and Acynonapyr, there is no reasonable expectation for a person of skilled in the art on reading D1 to arrive at the pesticidal composition as claimed in the present invention.

In view of the submissions made above, it is evident that D1 is not at all a relevant prior art for the purpose of lack of inventive step. The Ld. Examiner is therefore requested to reconsider and waive the objection in this regard.

D2: EP3766349A1

It is submitted that D2 aims to provide a method for exterminating pests by applying 3-endo-[2-propoxy-4-(trifluoromethyl)phenoxy]-9-[5-(trifluoromethyl)-2-pyridyloxy]-9-azabicyclo [3.3.1] nonane i.e. **Acynonapyr** along with an insecticidally or acaricidally active component (See page 11 lines 51-52, paragraphs [0011], [0015]).

The Applicant submits that D2 discloses a composition comprising Acynonapyr with insecticidally or acaricidally active component wherein Elemental Sulphur has nowhere been

mentioned in a laundry list of hundreds of insecticidally or acaricidally active components listed on pages 2-5 of D2.

With regards to the Examiner's objection that D2 discloses a method of applying the combination of Acynonapyr and Elemental Sulphur as disclosed on page 11, line 52, the Applicant would like to draw attention of the examiner to page 8, para 21 as well as page 9, para 25 and 26 which clearly states that in addition to the compound A (Acynonapyr) and the compound B (insecticidally or acaricidally active component), an optional active ingredient, referred to as compound C such as fungicides, plant growth regulators, synergists, fertilizers, soil improvers, animal feeds and the like, may be applied. D2 discloses 13 classes of bactericides based on FRAC under paragraphs 35 and 36 and discloses a laundry list of hundreds of actives, which includes Elemental Sulphur (on page 11, line 52) that can be employed as optional compound C. Thus, it is submitted that Elemental Sulphur disclosed in D2 under 'compound C' is an optional component and the same is evident throughout the specification.

The Applicant submits that without applying hindsight reasoning a person of skill in the art would not select the agents having multiple activities out of the 13 groups of bactericide class disclosed in D2, and then specifically select Elemental Sulphur from 30+ multi-active agents listed in the specification, and further eliminate the essential insecticidally or acaricidally active component i.e. compound B and then combine it with Acynonapyr, and further formulate it in a manner that the composition has particles in the size of 0.1 to 50 microns.

The Applicant draws attention of the Ld. Examiner to the fact that none of the examples in D2 disclose a pesticidal composition comprising Elemental Sulphur and Acynonapyr and at least one agrochemical excipient formulated in a manner as claimed in the present invention and that too in a pesticidally effective concentration with specific particle size.

It is submitted that in absence of any teaching or suggestion of the specific combination of particularly Elemental Sulphur and Acynonapyr, there is no expectation for a person of skilled in the art on reading D2 to arrive at a synergistic combination as claimed in the present invention which is delivered as a solid or liquid or gel formulation as claimed in the present invention.

It is to be noted that because D2 does not foresee the claimed composition comprising synergistic combination of Elemental Sulphur and Acynonapyr and at least one agrochemical excipient in the form claimed with specific particle size, on reading D2, a person of skill in the art would never be directed to prepare the claimed composition and expect to verify the efficacy and synergy of the as claimed composition. Thus, in the absence of any teaching, suggestion or motivation in D2 to arrive at a composition comprising Sulphur and Acynonapyr in a specific concentration and specific form, D2 cannot be stated as a prior art of relevance to a person skilled in the art.

Thus, in the absence of any teaching, suggestion or motivation D2 cannot be stated as a prior art of relevance to a person skilled in the art to arrive at the present invention with an expectation that the combination can bring unexpected synergistic and enhanced effect as exhibited by the present invention.

In view of the submissions made above, it is evident that D2 is not at all a relevant prior art for the purpose of lack of inventive step. The Ld. Examiner is therefore requested to reconsider and waive the objection in this regard.

With regard to the Ld. Examiner's observation that a person of skill in the art can arrive at the claimed composition by a small variation in the amount of Sulphur in the composition of D1-D2 which can be easily attained by the common general knowledge in the art without special effort, the Applicant respectfully resists the objection and submits that based upon the distinctions provided on D1 and D2 it is evident that both the references teach inventions which are not even remotely associated with the claimed invention i.e. a synergistic composition of Elemental Sulphur and Acynonapyr formulated in a manner such that the composition has synergistic effect.

As submitted during the course of hearing the Applicant reiterates that, synergy is an unexpected phenomenon and the interaction between two or more chemical compounds cannot be predicted. Every chemical entity has its own characteristic properties. Not all the actives need to be compatible in presence of each other or behave synergistically with each other. It is difficult to say which actives would provide a synergistic effect with another active unless tried and tested as some actives depending on the nature of interaction and properties may be antagonistic.

For obviousness analysis, it is very important to evaluate the overall teachings of the prior art rather than indulge in arbitrary picking and choosing of individual compounds disclosed in the claimed invention and then applying the benefit of hindsight reasoning to arrive at the claimed invention.

It is submitted that on reading D1, a person of skill in the art would be motivated to prepare a water disintegrable composition having one agrochemical active selected from water insoluble nutrient or algae or pesticidal, or a combination of Elemental Sulphur with water insoluble nutrient or algae as evident from the efficacy data provided in table 1-15 of D1. It is submitted that on reading D1 there is no suggestion or teaching or motivation for a person skilled in the art to arrive at a composition comprising Elemental Sulphur and a pesticide, let alone Acynonapyr specifically as claimed in the present application.

It is to be noted that because D1 does not foresee a composition comprising a synergistic combination of Elemental Sulphur and Acynonapyr in specific concentration with specific particle size and granule size, on reading D1, a person of skill in the art would never be directed to prepare the claimed composition and expect to verify the efficacy and synergy of the claimed pesticidal composition. The applicant reiterates that mere disclosure of the components in a large laundry list does not suggest or motivate that the composition comprising these two claimed components is synergistic in nature.

Furthermore, D1 is completely silent on the other formulations types such as water dispersible granules, extruded granules, flowable concentrate, liquid suspension, suspoemulsion or a combination of capsulated suspension and suspension concentrate (ZC). Thus, D1 does not teach, suggest or motivate to develop a composition comprising Elemental Sulphur and Acynonapyr and formulate the composition in a manner as claimed in the present invention

Similarly as submitted in the preceding paragraphs, D2 discloses a composition comprising Acynonapyr and insecticidally or acaricidally active ingredient. In addition to combination of these two types of actives, it also suggests an addition of an optional component C wherein the laundry list of this optional component includes Elemental Sulphur. As discussed in the preceding paragraphs D2 nowhere suggest or motivate a person of skilled in the art to

specifically combine Elemental Sulphur with Acynonapyr let alone a specific concentration and specific particle size.

Thus, in absence of any teaching, suggestion or motivation in D1 or D2, why would a person skilled in the art select Acynonapyr and combine it with Elemental Sulphur in a specific ratio and formulate a pesticidal composition as claimed in the present application and simultaneously expect a synergism. The Applicant submits that a person of skill in the art on combined teachings of D1 and D2, will not be directed to arrive at the claimed composition of Elemental Sulphur and Acynonapyr unless he is allowed the impermissible hindsight reasoning after reading the claimed invention. It is submitted that for an obviousness analysis, it is very important to evaluate the overall teachings of the prior art rather than indulge in arbitrary picking and choosing of individual compounds disclosed in the claimed invention and then applying the benefit of hindsight reasoning to arrive at the claimed invention.

Without prejudice to the aforesaid submission, which clearly establishes the distinctiveness of the claimed invention over the cited references, the applicant would like to invite the attention of the Ld. Examiner to the surprising results observed in the field trial with regard to the composition of the claimed invention. It may be noted that the claimed compositions clearly demonstrate the highly efficacious nature of the claimed composition and in this regard, reference is made to the data submitted in Tables 1 and 2 of the specification for controlling Red Spider Mites in Tea crop and Chilli respectively, detailed submission for which has been made in the preceding paragraph and not repeated herein for the sake of brevity. It is respectfully submitted that extensive experimentation and field trials as adduced in the specification conclusively establishes the surprising and unexpected effect of the claimed composition over the compositions known in the art. The composition was found to be effective in demonstrating significant improvement in pest control and at the same time providing ease of application. The data also clearly demonstrates the surprising benefit of delivery of the claimed combination in the form of water dispersible granules, water disintegrable granules, suspension concentrate, liquid suspension, suspoemulsion and ZC formulation.

The Applicant submits that such surprising results clearly rebut doubt pertaining to obviousness, if any.

In view of the above submissions and surprising results, it is reiterated that the teachings recited in prior art D1 and D2 nowhere teaches, suggests or motivates a skilled person to arrive at the specific composition as claimed in the pending application nor does it provide any reasonable expectation of success to arrive at an efficacious composition as claimed, which provide a surprisingly enhanced yield and pest control. It is humbly submitted that from the overall teachings of the non-analogous references, one cannot cite the lack of inventive step by merely identifying one or two common features present therein and extrapolating it to argue obviousness by ignoring the overall teachings of these references. Such an analysis is regarded as based on hindsight reasoning and is not permitted under the law.

Therefore, it is humbly submitted that the composition of the present application is inventive over alone or combined teachings of the cited arts D1 and D2.

Furthermore, since Claim 1 is inventive, the dependent claims 2 to 19 (currently presented) are also mutatis mutandis inventive over the cited prior art references considered alone or in combination.

In view of the above submissions, the Applicant requests the Ld. Examiner to reconsider and withdraw this objection.

Objection on Clarity (Box No. VIII):

The Ld. Examiner states that Claim 1 lacks clarity and is too broad and that the percentage of the active ingredient should be restricted according to working examples of the present invention.

The applicant respectfully reiterates that the novelty and inventiveness of the pending application lies in composition comprising Elemental Sulphur and Acynonapyr in the specified concentration along with excipients; wherein the composition is in the form of solid, liquid or gel; and wherein the composition comprises particles in the size range of 0.1 to 50 microns and as submitted during the course of hearing the preparation examples 1-14 on pages 50-56, clearly elaborate the compositions comprising Elemental Sulphur in the range of 20% to 90% w/w of the total composition and Acynonapyr in the range of 0.1% to 50% w/w of the total composition along with different excipients and formulation types such as water dispersible

granules, water disintegrable granules, suspension concentrate, liquid suspension, suspoemulsion and ZC formulation encompassed within the scope of claims 1-19 of the pending application. Further, the specification also highlights the effectiveness of the claimed composition of Elemental Sulphur and Acynonapyr in Tables 1-2, page 56-63 of the specification. The applicant during the course of hearing made a detailed submission taking the Controller through these examples and data to enumerate that the examples are sufficient to enunciate the novelty and inventiveness of the invention.

Moreover, it is respectfully submitted that under the Patent Law, examples are required for exemplification of the best mode of carrying out the invention and it is neither required nor practically possible to provide data for an entire concentration range. It is further submitted that limiting the claims to specific concentration of the examples would be unduly restrictive and prejudice the interest of the scope of the invention. The Ld. Controller is therefore requested to reconsider and withdraw the objection.

With regard to the objection on the use of the term “at least” in claims 1, 8-9 and 12-19 rendering the scope of the claim unclear and indefinite, it is submitted that the term “at least: is standard and widely used term in the field of patents. It is further submitted that it do not broaden the scope of the invention but instead limit the scope of the protection in a reasonable way to specific components claimed and also impart clarity to the scope of the invention. The Ld. Controller is therefore requested to withdraw these objections.

The Ld. Examiner is respectfully requested to take the above submissions on record and withdraw the objection raised in the Written Opinion of International Preliminary Examining Authority with regards to the Lack of Inventive Step with respect to the cited prior arts and clarity.

Yours sincerely,



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