CIPAC

COLLABORATIVE INTERNATIONAL PESTICIDES ANALYTICAL COUNCIL LIMITED

Commission Internationale des Méthodes d'Analyse des Pesticides (CIMAP)

Minutes of the 65th Annual meeting

The 65th meeting was held on Monday 14th June 2021 using on-line communication tools

Those attending
- Items 1 to 7 on 14th June: members, correspondents, observers and expert witnesses.
- Items 8 to 12 on 14th June: members, correspondents and observers (representatives of industry and commercial laboratories, by special invitation only)

1. Welcome and introductory remarks
The chair, Mr R. Hänel, opened the 65th CIPAC virtual meeting, and welcomed all the participants.

2. Apologies
There weren't any apologies received.

3. Adoption of the agenda
The agenda was adopted without changes.

4. Reports of expert witnesses on collaborative trials
4.1 28-homobrassinolide by Mr. Jason Zhang (5269, 5270)
Mr Jason Zhang presented the results of a full scale collaborative trial for 28-homobrassinolide as a follow up of the small scale trial in the previous year. 16 laboratories originating from Europe, China, Japan, and Indonesia participated with a method based on HPLC (C18) with UV detection (220 nm) after phenylboronic acid derivatization and external standardization. The deviations from the original method as applied by the participants were assessed as minor.
Two technical materials, two soluble concentrates, and one emulsifiable concentrate were investigated. The TCs fulfilled the statistical criteria (RSDR < RSDR(Horwitz) and HorRat ≤1.0) however both SCs and the EC showed RSDR > RSDR(Horwitz) and HorRat 1.0<x≤2.0, even after removal of stragglers and/or outliers. This would be acceptable if appropriate reasoning was presented. However this remained unclear.
Mr Zhang proposed adoption as a full method.
The following comments were received from the meeting:

- Mr de Rijk made a remark concerning the traceability of the participating laboratories. This should not be possible.
- Mr Garvey asked whether the optimization of the derivatization was also carried out, and if yes, how. Mr Zhang answered that 25 mg of phenylboronic acid was used and in 30 min the derivatization was complete. Mr Garvey asked for some data concerning the derivatization including the derivatization reaction products. The answer will be given in written after the meeting.

- Mr Perez Albela questioned whether there is no underestimation using the derivatization process in comparison with the determination by DAD or MS/MS?

4.2 14-hydroxylated brassinosteroid by Mr. Jason Zhang (5271, 5272)

Mr Jason Zhang presented the results of a small scale collaborative trial for 14-hydroxylated brassinosteroid with four participants from China. The method was based on HPLC (C18) with UV detection (222 nm) after phenylboronic acid derivatization and external standardization. The method included a dry-down step and a triple washing step with methanol. The deviations of the original method as applied by the four participants were assessed as minor.
Two technical materials, and three soluble concentrates were investigated. All samples fulfilled the statistical criteria (RSDR < RSDR(Horwitz) and HorRat ≤1.0).
Mr Zhang proposed to proceed to a full scale trial.
The following comments were received from the meeting:

- Mr Garvey asked the same question as for the previous method and why the derivatization is necessary. Mr Zhang answered that without derivatization the peak is not detected and that 20 min was enough for the derivatization reaction, however they requested 30 min, to be sure that the reaction is complete.
- Mr Mink asked if DAD or MS detection was also tried.
- Mr Perez Albela remarked that no control for complete derivatization or comparison with another method (e.g. LC-MSMS) was performed. Mr Zhang answered that derivatization was performed over a prolonged period however that after 0.5 hours no higher UV signal was obtained indicating the completeness of the derivatization.
- Ms Vinke asked what is the product after the derivatization step. Furthermore an explanation has to be added why the dry-down and triple washing steps are necessary.

The answer will be given in written after the meeting.

4.3 matrine by Mr. Jason Zhang (5273, 5274)

Mr Jason Zhang presented the results of a small scale collaborative trial for matrine with four participants from China. The method was based on HPLC (C18) with UV detection (215 nm) and external standardization. The deviations of the original method as applied by the four participants were assessed as minor.
Two technical materials and three soluble concentrates were investigated. All samples fulfilled the statistical criteria (RSDR < RSDR(Horwitz) and HorRat ≤1.0).
Mr Zhang proposed to proceed to a full scale trial.
There weren't comments received from the meeting:

4.4 trifluralin by Ms Junhua Song (5275, 5276)

Ms Junhua Song presented the results of a small scale collaborative trial for trifluralin with four participants from China. The method was based on HPLC (C8) with UV detection (280 nm) and external standardization. The deviations of the original method as applied by the four participants were assessed as minor.
Two technical materials and three emulsifiable concentrates were investigated. All samples fulfilled the statistical criteria (RSDR < RSDR(Horwitz) and HorRat ≤1.0 with actual HorRat values <0.5).
Ms Song proposed to proceed to a full scale trial.
The following comments were received from the meeting:

- A remark was made whether it is acceptable to deviate from the prescribed HPLC column. Two of the participating laboratories used the prescribed C8 HPLC column reversed phase but the other two laboratories used a C18 HPLC column reversed phase. Ms Song should make clear what column phase is requested.

4.5 chlorpyrifos by Ms Junhua Song (5277, 5278)

Ms Junhua Song presented the results of a full scale collaborative trial for chlorpyrifos with 20 participants from Europe, China, Colombia, India and Indonesia. The analytical method was based on HPLC (C18) with UV detection (290 nm) and external standardization. One participant applied a GC-based method and the results were not accepted. The deviations of the original method as applied by the 19 remaining participants were assessed as minor.
Three technical materials and two emulsifiable concentrates were investigated. All samples fulfilled the statistical criteria (RSDR < RSDR(Horwitz) and HorRat ≤1.0) even when identified stragglers and/or outliers were not removed.
Ms Song proposed to accept the method as provisional.
There weren't comments received from the meeting.

4.6 ethephon by Mr Steven Tian (5281, 5282)

Mr Steven Tian presented the results of the method development and single lab validation of a new analytical method for the analysis of ethephon followed by a small scale collaborative trial. The method was based on ion chromatography using electrolytic conductivity detector and external standardization.
After satisfying results were obtained from the single lab validation a small scale collaborative trial was organized with three participants and two technical materials, two technical concentrates and two soluble concentrates.
All samples fulfilled the statistical criteria (RSDR < RSDR(Horwitz) and HorRat ≤1.0 with actual HorRat values <0.5).
Mr Tian proposed to proceed to a full scale trial.
The following comments were received from the meeting:

- Mr Garvey asked for the reason of using the carbonates. The answer was that it is needed to have good separation from the impurities.
- A remark was made about the relative large amount of reference material which was used. High quality reference material is expensive.
- Furthermore it was noted that applying ion chromatography with electrolytic conductivity detection will not be available for many laboratories so the actual number of participants in the full scale trial could be low.

4.7 propineb by Ms Xu Mei (5285, 5286)

Ms Xu Mei presented the results of a small scale collaborative trial for propineb with five participants from China. The method was based on HPLC (C18) with UV detection (280 nm) after complexation with EDTA and external standardization. The deviations of the original method as applied by the four participants were assessed as minor.
Two technical materials and three wettable powders were investigated. All samples fulfilled the statistical criteria (RSDR < RSDR(Horwitz) and HorRat ≤1.0 with actual HorRat values <0.5).
Ms Mei proposed to proceed to a full scale trial.
The following comments were received from the meeting:

- Mrs Nováková asked whether EDTA or its sodium salt was used? The answer was that the Na salt was used. This should be included in the description of the method.
- Mr Mink experienced problems with the repeatability of the mancozeb method, because of the stability of the solution, in comparison with the titration method (injection should be made within 30 min) and asked if stability of the solution was tested in this case? The answer was that the stability of propineb is much higher, this is why the temperature conditions are not so strict as in the case of mancozeb.
- Mr Mink asked if this is an intrinsic property. The answer was that it seems to be the case.

4.8 difenoconazole by Mr Christian Mink (5179, 5180)

Mr Christian Mink presented the results of a small scale collaborative trial for the determination of difenoconazole in TC, WG and EC formulation (5280/R) with a capillary GC method using a 60 m x 0.25 mm internal diameter DB-5 phase, with film thickness of 0.5 µm. Four participants took part in the DAPA collaborative trial. One laboratory had technical difficulties and was not considered, 3 laboratories used 30 m column instead of 60 m. One laboratory conducted the trial twice (60 m and 30 m Column). All method deviations, noted by the participants, were deemed not to affect the analytical results significantly. The between laboratory experimental relative reproducibility standard deviation (% RSDR) was below the acceptance limit based on the Horwitz curve calculation for all samples tested, even without elimination of outliers or stragglers. The method simultaneously allows the determination of the ratio of the *cis*- and *trans*-diastereomers of difenoconazole.
The organizers proposed the method to go for a CIPAC full scale collaborative trial.
The following comments were received from the meeting:

- Mr Haustein noted that the HorRat value should be included in the full scale report.
- Mr. Pigeon asked if differences in resolution were seen using 30 or 60 m long column and He or H_2 as eluent. Mr Mink answered that there weren't differences, however he would recommend the 60 m long column, as validation was done with this column.
- Mr Garvey questioned the necessity of using the internal standard. The answer was that the position in the chromatogram of the internal standard would allow it, however the method was developed with the Istd.

4.9 tebuconazole by Mr Friedhelm Schulz (5287, 5288)

Mr Friedhelm Schulz presented the results of a small scale trial for the extension of the CIPAC method 494 to demonstrate that is suitable for the determination of tebuconazole in EC formulations. The method extension was conducted by two independent laboratories and five batches of a tebuconazole EC formulation were used. For the analysis of the EC formulations there was no need to adapt the sample preparation of the CIPAC method. The relative standard deviation results (RSD (r)) obtained for the five individual EC batches were far below the modified Horwitz criterion, the HorRat-value was <=1.
The organizers proposed to accept the extension as a provisional CIPAC method.
There weren't comments received from the meeting.

4.10 ametryn by Mr William Meyerhoffer (5265, 5266)

Mr William Meyerhoffer presented the results of a full scale collaborative trial for ametryn with 15 laboratories originating from Europe, China, El Salvador, India and Indonesia participated with a method based on GC-FID on a DB-WAX column after acetone extraction, with internal standardization.
Two technical materials, one water dispersible granule and two suspension concentrates were investigated. All samples fulfilled the statistical criteria (RSDR < RSDR(Horwitz) and HorRat ≤1.0 after removal of Mandel's h and k stragglers and outliers. When including the stragglers and outliers the HorRat values ranged from 1.03-1.49.
Mr William Meyerhoffer proposed to accept the method as provisional
There weren't comments received from the meeting.

4.11 deltamethrin + chlorfenapyr by Ms Marie Baes (5291, 5292)

Ms Marie Baes presented the results of a small scale collaborative trial for the determination of Deltamethrin and chlorfenapyr in technical material and long lasting insecticidal net (2 chlorfenapyr TC of same purity, 3 long lasting nets, coated onto plyester , containing 2.1 g/kg of deltamethrin and 5.0 g/kg of chlorfenapyr , from 3 different batches. Three laboratories could send back the results from the five volunteers, one from Asia and 2 from Europe. In the case of the LN2 sample the Horrat value was not acceptable. This was explained by possible significant inhomogeneity of the LN2 and also with difficulty to make statistical claims on only 3 sets of

results.
Ms Marie Baes proposed to conduct a full scale collaborative trial.
There weren't comments received from the meeting.

5. Reports of expert witnesses on other matters

5.1 Determination of the relevant impurity CGA 344605 in trifloxystrobin formulations by Mr Friedhelm Schulz (5289, 5290)

Mr Friedhelm Schulz presented the results of a small scale collaborative trial for the relevant impurity CGA 344605 in trifloxystrobin formulations with five participants from Germany. The method was based on HPLC (C18) using UV detection (210 nm) and external standard calibration.
A technical material, a water dispersible granule, a suspension concentrate and an emulsifiable concentrate were investigated. Furthermore, spiking experiments were performed with blank formulation.
Statistical evaluation was performed on five quality parameters: specificity and interferences, linearity, precision, accuracy (on two levels), and a limit of quantification (LOQ) was established. All criteria were easily met with RSDr based HorRat values below 0.5 for each laboratory and each formulation type. Detection limits ranged from 0.0026% (w/w) for the EC formulation to 0.040% (w/w) for the technical material.
Mr Schulz recommended the acceptance of the method.
There weren't comments received from the meeting.

5.2 Revision of the Technical Monograph 17 by Mr Burkhard Wiese (5283)

Mr Burkhard Wiese presented a new CropLife International Technical Monograph regarding guidelines for specifying and managing shelf life and expiry date of crop protection products (Technical Monograph n°17, 3rd ed, CropLife International).
No decision was requested from the meeting.

6. Revision/update of CIPAC guidelines

6.1 Validation of analytical methods (draft guidance) by Ms Angela Santilio (5259)

Postponed as Ms Angela Santilio was not present.

7. Replacement of obsolete methods, comments to existing methods, errata

7.1 Summary of New & Revised CIPAC MT methods status:
The last update of the CIPAC MT methods revised by DAPF is dated April 30, 2021 (v1.1)
7.2 Comments to existing methods
One small comment was received concerning the IUPAC name of tebuconazole.

8. Minutes of the 64th meeting (5264/P)

The minutes were circulated to the participants by e-mail and were available on the website. No comments were received, as a conclusion the minutes are accepted as a true record of the last year meeting.

9. Secretary's report (5267/P)

Mr Bura presented the Secretary's report. The report was previously circulated to members by e-mail. No comments were received. It was accepted.

10. Discussion of individual compounds

616 florasulam
At the previous meeting, the method was accepted as provisional. No further comments were received. The method can be promoted to a **full CIPAC method**.

283 metribuzin
At the previous meeting, the method was accepted as provisional. No further comments were received. The method can be promoted to a **full CIPAC method** with the HorRat values resulted from the data sets using helium as eluent gas.

641.202 quizalofop-P-ethyl
A second identity test was required after last year meeting as the IR spectrum doesn't distinguish between the *R* and *S* isomer. The company proposes the identity test by both HPLC with chiral column and IR. HPLC can be used to separate the *R* and *S* isomers, the retention time of the *R* isomer is about 15.1 min and the retention time of the *S* isomer is 16.2 min. The retention time of the test substance is the same as that of the *R* isomer, which confirms that it is quizalofop-P-ethyl. The chemical structure of quizalofop-ethyl can be confirmed by measuring IR, the latter method. It was proposed that this method is accept as full method after editorial modification as follows:
Use the HPLC method below. After confirming that the *R* and *S* isomers can be completely separated, the relative retention time of quizalofop-P-ethyl in the sample solution should not deviate by more than 1.5% from that of calibration solution.
The chiral phase HPLC method can be promoted to **full CIPAC method**, with additional modifications in the description of the method concerning the identity test.

802 spinetoram
At the previous meeting, the method was accepted as provisional with some amendments, that were provided by the organizer. The method can be promoted to **full CIPAC method**.

Active substances discussed this year:
4.1 28-homobrassinolide
Questions were raised about the completeness of the derivatization. It appeared that Mr Zhang had reported that the derivatisation was >99% complete but no correlation with another method without derivatisation (e.g. LC-MSMS) was performed. Furthermore more information about the structure of the derivatised molecule is needed.
A further explanation will be requested from Mr Zhang about the HorRat values >1.0. It was mentioned that the very low concentrations of the active might have contributed to the somewhat larger RSD_R. It was mentioned that the analytical method as described at 4.2 (4-hydroxylated brassinosteroid) was more or less similar but resulted in much lower HorRat values, suggesting that better results would be possible.
Questions were also raised about the availability of representative chromatograms in the method. Two trial participants reported the presence of an interfering compound eluting close to 28-homobrassinolide which resulted in complicated peak integration. They will send examples of the chromatograms to the chairman and secretary
Finally a request will be send to Mr Zhang to explain why derivatization was deemed to be necessary.
The meeting decided to promote the method to **provisional CIPAC method**, pending on the above clarifications.

4.2 14-hydroxylated brassinosteroid
A small scale trial was presented and the method was proposed for a **large scale collaborative trial** with similar comments concerning the derivatization as under 4.1.

4.3 matrine
A small scale trial was presented and the method was proposed for a **large scale collaborative trial.**

4.4 trifluralin
A small scale trial was presented and the method was proposed for a **large scale collaborative trial,** with the requirement to clarify what kind of column should be used for the trial: C8 or C18**.**

4.5 chlorpyrifos

A large-scale trial was presented and the method can be promoted to **provisional CIPAC method.**

4.6 ethephon
A small scale trial was presented and the method was proposed for a **large scale collaborative trial** with the remark to reduce the amount of the standard needed.

4.7 propineb
A small scale trial was presented and the method was proposed for a **large scale collaborative trial** with the remark to amend the method description concerning the type of EDTA salt to be used.

4.8 difenoconazole
A small scale trial was presented and the method was proposed for a **large scale collaborative trial** with the remark to clearly define in the method description the column length, the eluent and the internal standard.

4.9 tebuconazole
A small scale trial was presented for the extension of the CIPAC method 494 to demonstrate that is suitable for the determination of tebuconazole in EC formulations and the method was accepted as **provisional CIPAC method**.

4.10 ametryn
A large-scale trial was presented and the method can be promoted to **provisional CIPAC method**.

4.11 deltamethrin + chlorfenapyr
A small-scale trial was presented and the method was proposed for a **large scale collaborative trial.**

5.1 Determination of the relevant impurity CGA 344605 in trifloxystrobin formulations.
A small scale collaborative trial for the relevant impurity CGA 344605 in trifloxystrobin formulations was presented The reversed phase HPLC method for the determination of the relevant impurity CGA 344605 in trifloxistrobin TC, SC, EC and WG formulations was noticed and adopted.

5.2 Revision of the Technical Monograph 17
No decision was requested from the meeting.

11. Matters related to FAO and WHO specifications

Mrs YongZhen Yang expressed her gratitude for the excellent collaboration between CIPAC and FAO/WHO and stressed the importance of CIPAC methods for industry, food security and health.

She also informed the meeting that because of the actual situation, two JMPS virtual sessions are organized in this year, in June and in October. Mme Yang proposed to have a teleconference. Mr Hänel expressed his willingness to participate to the teleconference.

12. Any other business

No remarks, comments, questions were received.

13. Closure

Mr Hänel thanked the participants for their contribution to the success of the meeting and closed the meeting.

Ralf Hänel	László Bura	Theo de Rijk
chairman	secretary	assist. secretary