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proof acs

rolling proof 2022

Module tea and spices

Garam masala
P2221-RT

Summary

The entire report is available to participants only.

The ring test was designed, realised, evaluated and authorised on behalf of PROOF-ACS GmbH by

Dr. Birgit Schindler
Managing Director PROOF-ACS GmbH
Project coordinator

The report was approved by

Dr. Birgit Schindler
11 July 2022

Participants with any comments or concerns related to this ring test are invited to contact:

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PROOF-ACS GmbH does not have any analytical laboratory facilities of its own. Homogeneity testing and stability testing are subcontracted to laboratories, accredited according to DIN EN ISO 17025. The subcontracted laboratory may also participate in the ring tests. If so, the laboratory is treated in exactly the same way as other participants and the same rules of confidentiality apply.

rolling proof is developed to support laboratories in meeting the requirements of accreditation bodies. According to advisory document EA-4/18:2010 analytical laboratories are requested to establish a PT participation plan for accredited analytical methods. ***rolling proof*** is an on-going scheme of ring tests.

The module "tea and spices" of ***rolling proof*** is designed for difficult or unique commodities (according to SANTE 11312/2021, Annex A) and includes

- teas like black tea, green tea, herbal tea, fruit tea, rooibos tea etc., and
- spices like pepper, curry powder, paprika powder, etc.

The module "tea and spices" covers all in all a minimum of 150 of the most relevant pesticides. The scope of pesticides covered by ***rolling proof*** is defined in a provided list. All pesticides are tested within a period of five years. Thus, the laboratories that take part in ***rolling proof*** are able to test their pesticide multi-methods for a large number of pesticides and a variety of matrices within one cycle of accreditation. However, it is up to the participants to join all tests of the 5-year programme of ***rolling proof***, or to book the tests individually.

rolling proof evaluates the performance of laboratories according to:

- the correct *identification* of the spiked pesticides. Pesticides, which are not reported and not marked as "not analysed" are considered false negative.
- the *comparability* of the results. The evaluation of the comparability is based on the z-score model. The z-score should be at least ≤ |2|.
- the *trueness* of the results. The trueness is expressed as the coverage of the spiked level in %. The coverage should be at least between 70 and 120 % of the spiked level.

In 2022, garam masala, a mixture of different spice like anise, bay leaf, cardamom, cinnamon, cloves, coriander, curcuma, fennel seeds, fenugreek, ginger, nutmeg, and black pepper is chosen as matrix of ***rolling proof*** – module "tea and spices". Seven laboratories across three countries (Austria, Greece and Germany) took part in the test.

The test material is prepared of organic garam masala. The raw material is a powder, which is homogenised, tested for incurred residues and spiked with 31 pesticides thereafter.

30 pesticides are considered for evaluation. The analytical challenge is to identify 30 pesticides and to identify and quantify 29 pesticides in the test material. The identity of the pesticides, the spiked levels and a summary of the overall performance of the laboratories are provided in the table below.

Summary of results

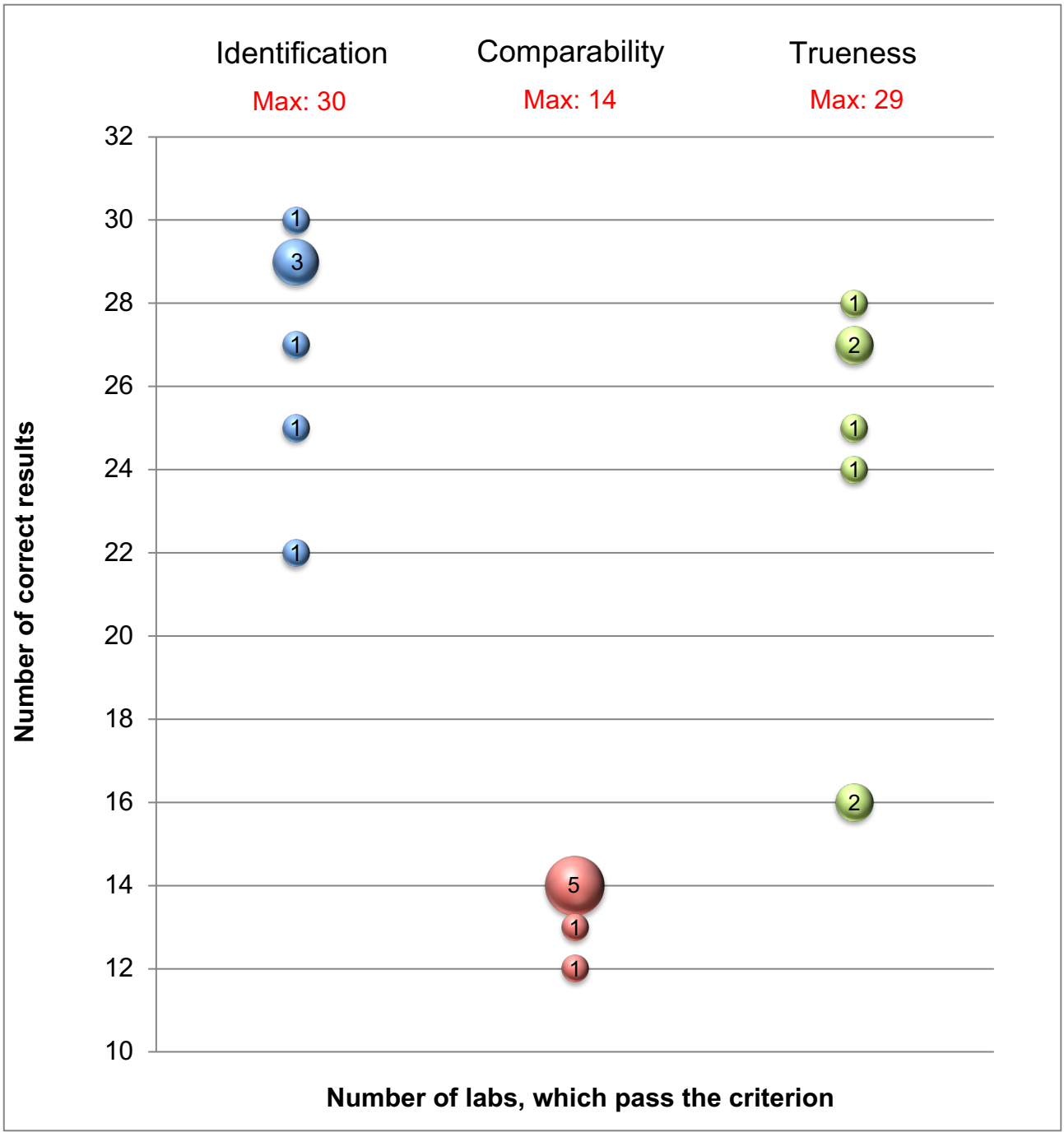
Pesticide	Spiked level [mg/kg]	Assigned value [mg/kg]	Total number of results	**Comparability criterion:** no. of participants, which pass the criterion (z-score ≤ |2|)	**Trueness criterion:** no. of participants which pass the criterion (70-120 % recovery of the spiked level)
2,4-DDT	0.067	-	7	Not applicable	4
Aldicarb sulfone	0.047	-	5	Not applicable	4
Aldrin	0.085	0.0744	7	7	7
Bifenazate*	0.18	-	6	Not applicable	5
Chlorothalonil**	0.082	-	6	Not applicable	Not applicable
Chlorpyrifos-methyl	0.045	-	6	Not applicable	5
Clomazone	0.029	0.0260	7	7	7
Demeton-S-methyl-sulfone	0.068	0.0655	7	7	6
Dichlorvos	0.062	-	6	Not applicable	4
Dimethoate	0.070	0.0609	7	7	7
Dimethomorph	0.45	0.425	7	6	6
Diuron	0.081	-	6	Not applicable	6
Endosulfan-α	0.033	0.0296	7	7	6
Epoxiconazole	0.088	0.0819	7	7	7
Ethoprophos	0.054	-	6	Not applicable	6
Etofenprox	0.094	-	6	Not applicable	5
Fenhexamid	0.15	-	5	Not applicable	4
Fludioxonil	0.069	0.0629	7	7	7
Flusilazole	0.022	-	5	Not applicable	4
Hexaconazole	0.088	-	5	Not applicable	4
Imidacloprid	0.12	0.115	7	7	7
Metolachlor	0.072	0.0621	7	7	6
Parathion	0.066	-	6	Not applicable	5
Phorate	0.028	-	6	Not applicable	5
Pirimiphos-methyl	2.1	1.70	7	6	6
Prometryn	0.036	0.0350	7	6	6
Propiconazole	0.10	-	6	Not applicable	5
Pyrimethanil	0.067	0.0621	7	7	7
Tebuconazole	0.32	0.286	7	7	7
Teflubenzuron	0.045	-	6	Not applicable	5
Thiophanate-methyl***	0.035	-	4	Not applicable	Not applicable

* Sum bifenazate and bifenazate-diazene, expressed as bifenazate.

** The spiked level related to chlorothalonil is presented for information only. The correct identification is applied as criterion for evaluation. The comparability criterion and the trueness criterion are not considered.

*** The spiked level related to thiophanate-methyl is presented for information only. Thiophanate-methyl is not considered for evaluation due to degradation.

Summary of the performance of the laboratories:



Total No. of labs: 7