Facing analytical quality.

rolling proof 2021

Module tea and spices

Black tea
P2121-RT

Summary

The entire report is available to participants only.

Designed, realised and evaluated by

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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 12682/2019, 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 2021, black tea is chosen as matrix of ***rolling proof*** – module ”tea and spices”. Ten laboratories across five countries (Austria, France, Germany, South Africa, and Turkey) took part in the test.

The test material is prepared of organic black tea. The raw material is milled to a fine powder, homogenised, tested for incurred residues and spiked with 29 pesticides thereafter.

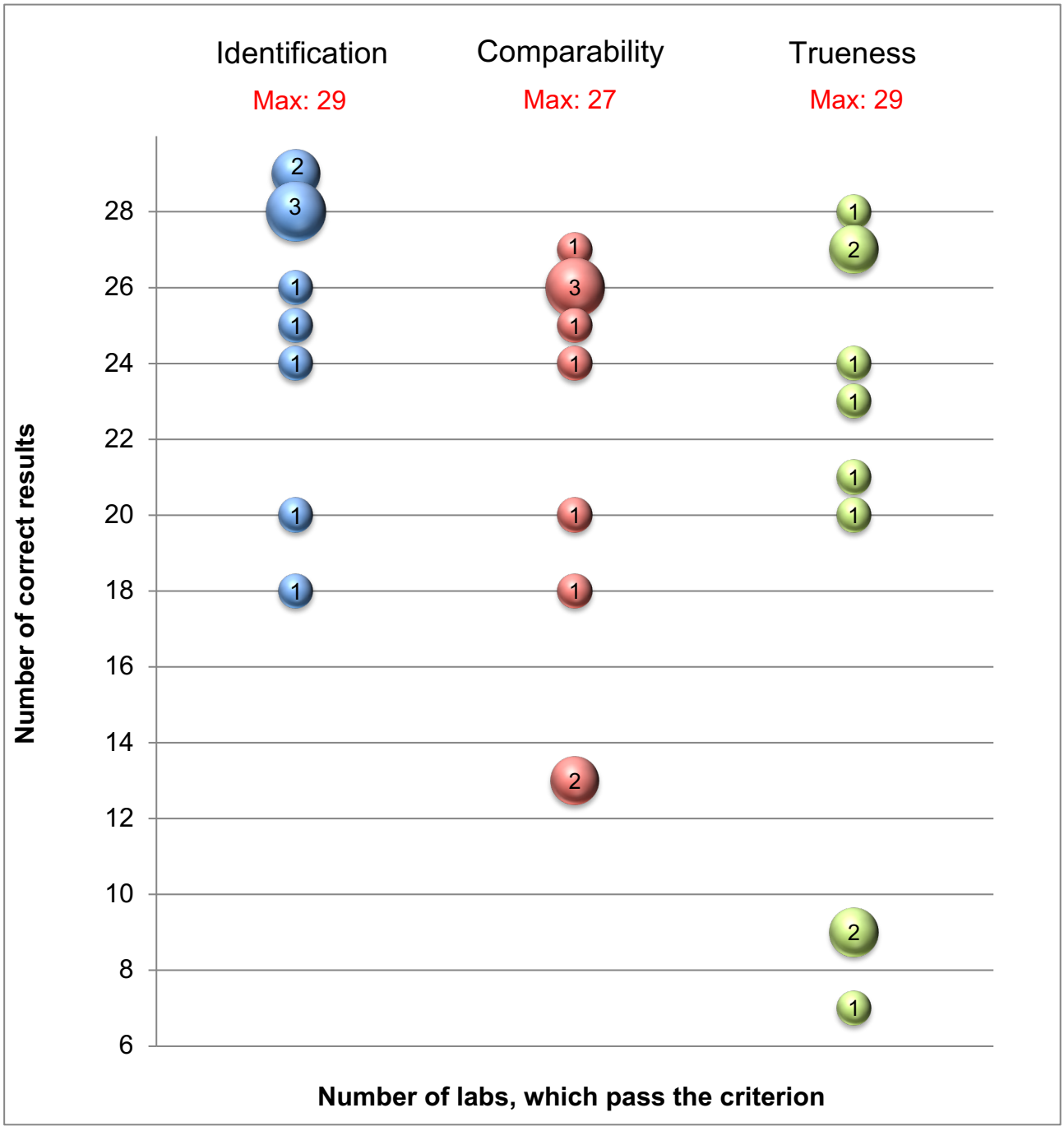
The analytical challenge is to identify and quantify 29 pesticides in the test material. The identity of the pesticides, the spiked levels and a summary of the overall performance of the laboratories are provided in the table below.

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)
Acephate	0.082	-	6	not evaluated*	5
Bentazone	0.052	0.0544	9	8	7
Buprofezin	0.026	0.0217	10	10	7
Clothianidin	0.21	0.200	9	7	7
Cyprodinil	0.088	0.0786	10	9	9
DEET (Diethyltoluamide)	0.045	0.0423	8	8	8
4,4`-Dicofol	0.068	0.0541	8	7	4
Diphenylamine	0.061	0.0610	8	8	6
Dodine	0.058	0.0501	9	7	7
Endosulfan sulfate	0.19	0.160	9	9	7
Ethion	0.077	0.0718	10	9	8
Fenazaquin	0.039	0.0302	9	8	6
Fenvalerate	0.037	0.0352	9	9	6
Haloxyfop (free acid)	0.031	0.0249	10	9	7
Hexythiazox	0.18	0.147	9	8	8
Isoprocarb	0.028	0.0299	7	6	6
Linuron	0.22	0.204	9	8	7
Metalaxyl-M	0.023	0.0199	9	9	8
Monocrotophos	0.045	-	6	not evaluated*	3
Omethoate	0.065	0.0544	9	7	7
Propargite	0.22	0.223	8	8	7
Pyraclostrobin	0.053	0.0507	9	9	8
Pyridaben	0.037	0.0334	10	10	9
Quizalofop-ethyl	0.091	0.0706	8	7	5
Spinosad	0.069	0.0611	10	8	7
Tebuconazole	0.038	0.0359	10	9	8
Thiacloprid	0.33	0.268	10	7	5
Thiamethoxam	0.27	0.255	9	5	5
Triadimefon	0.030	0.0274	9	9	8

* The comparability criterion is not applicable to acephate and monocrotophos due to the limited number of reported results.

Summary of the performance of the laboratories:



Total No. of labs: 10