

***rolling proof* 2015**

Module tea and spices

Black tea (P1508-RT)



Summary

The entire report is made available to participants only.

Designed, realised and evaluated by

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Summary

The ring test is part of *rolling proof* 2015 – module tea and spices.

The proficiency test evaluates the performances of laboratories with respect to their ability to identify and quantify pesticides in black tea. Nine laboratories across three European countries (Austria, Germany, and Spain) took part.

The test material was prepared of organic black Darjeeling tea, free of incurred residues of pesticides at a level of 0.01 mg/kg. The raw material was milled, homogenised and spiked thereafter. The spiked pesticides are summarised in the table below.

150 pesticides were defined as the scope of the *rolling proof* module “tea & spices”. A list of this scope of pesticides was provided to the participants in advance. All pesticides in the list are typical for tea and spices. The spiked levels were selected taking into consideration:

- the concentration levels currently measured in black tea and
- the maximum residue levels (MRL) according to Regulation (EU) 395/2005.

Eight laboratories kept the term of submission of results and were considered for evaluation.

The ring test was evaluated with respect to:

- the correct *identification* of the spiked pesticides.
- 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.
- the *comparability* of the results. The evaluation of the comparability is based on the z-score model. The z-score should be at least $\leq |2|$.

Summary of the performance of the laboratories in the test:

- Three laboratories identified all 28 pesticides correctly (labs 2, 5, 8), while three more laboratories missed just one of the pesticides (labs 1, 3, 6).
- Two laboratories provided excellent results (labs 2, 8). They passed the comparability criterion for all 28 pesticides and the trueness criterion for 27 resp. 26 pesticides.
- The assigned values of all parameters in the test - except dicofol - are in good accordance with the spiked levels (74-104%).
- The most challenging parameter in the test is dicofol. Dicofol is known to degrade during the analytical procedures. Thus the correct quantification is difficult, especially in complex matrices like tea. The assigned value of dicofol is 50 % of the spiked level. Dicofol was evaluated with respect to the comparability criterion only.

The results with respect to the individual pesticides are summarised in the table below:

Pesticide	Spiked level [µg/kg]	Assigned value [µg/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 (results within 70-120 % recovery of the spiked level)
4,4'-DDE	45	38.1	8	8	5
4,4'-DDT	110	86.1	8	7	6
Acetamiprid	65	67.0	8	8	7
Buprofezin	32	28.1	8	8	8
Carbendazim	84	77.6	8	7	7
Chlorfenapyr	232	200	8	8	6
Chlorpyrifos	25	22.1	8	7	7
α-Cypermethrin	180	165	8	8	8
Deltamethrin	56	47.8	8	8	7
p,p-Dicofol	76	37.8	6	5	-
Diuron	36	33.8	8	7	7
Endosulfan sulfate	140	114	8	8	6
Ethion	220	194	8	8	7
Etofenprox	29	25.2	7	7	6
Fenpropathrin	100	83.8	8	8	7
Fenpyroximate	80	75.9	7	7	7
Fenvalerate	190	141	8	8	6
Fipronil	12	12.5	8	6	6
Hexachlorobenzene (HCB)	26	22.3	8	7	6
Imidacloprid	45	43.8	7	7	7
Metalaxyl	76	73.1	8	8	7
Methomyl	55	54.0	6	6	5
Monocrotophos	28	24.8	6	6	6
Myclobutanil	52	48.1	8	8	8
Propargite	460	439	8	7	7
Tebuconazole	42	36.6	8	8	8
Teflubenzuron	33	30.0	8	8	6
Thiamethoxam	350	346	7	7	7