

Ring test

Pyrrrolizidine alkaloids in oregano

P2014-RT



Summary

The entire report is made available to participants only.

Designed, realised and evaluated by

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The proficiency test evaluates the performances of laboratories with respect to their ability to quantify pyrrolizidine alkaloids (PA) in oregano. 28 Pyrrolizidine alkaloids, the so-called “BfR 28”, are within the scope of the test.

Dried oregano without incurred residues of the spiked pyrrolizidine alkaloids (PA) was used as raw material for the preparation of the test material.

The dried oregano is milled to a fine powder, homogenised and spiked with nine PAs thereafter:

europine, europine-N-oxide, heliotrine, lasiocarpine, lasiocarpine-N-oxide, retrorsine, senecionine-N-oxide, seneciphylline, and senecivernine-N-oxide.

20 laboratories across seven countries (Austria, Belgium, France, Germany, Netherlands, Spain, and Switzerland) took part in the test. All 20 laboratories reported results and are considered for evaluation.

The performance of laboratories is evaluated according to:

- the correct identification of nine spiked pyrrolizidine alkaloids.
- the comparability of the results. The evaluation of the comparability is based on the z-score model. The z-score should be at least $\leq |2|$. The comparability criterion is applied to all nine pyrrolizidine alkaloids.
- 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 trueness criterion is applied to all nine spiked PAs.

Incurred residues of further PAs, which were reported by the participants sporadically, were not considered for evaluation and are not considered false positive.

Results

Pyrrolizidine alkaloid	Spiked level [µg/kg]	Assigned value [µg/kg]	Total number of results	Comparability criterion: no. of participants, which pass the criterion (z-score $\leq 2 $)	Trueness criterion: no. of participants which pass the criterion (70-120 % recovery of the spiked level)
Europine	2400	2334	20	13	13
Europine-N-oxide	900	900	20	15	13
Heliotrine	200	192	19	17	16
Lasiocarpine	800	619	20	17	11
Lasiocarpine-N-oxide	1300	1133	19	17	15
Retrorsine	33	26.3	20	18	15
Senecionine-N-oxide	18	16.8	19	17	13
Seneciphylline	25	21.2	20	15	14
Senecivernine-N-oxide	16	14.6	19	16	13