

Ring test

Glycoalkaloids in potato wedges

P2505-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

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

PROOF-ACS GmbH
Gottlieb-Daimler-Str. 1
28237 Bremen
Phone: +49 421 388 928 50
E-mail: proof@proof-acs.de
www.proof-acs.de



PROOF-ACS is a DAkkS accredited proficiency testing provider according to DIN EN ISO 17043:2010 (D-EP-22211-01-00). This ring test is covered by the scope of accreditation.

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 the same way as other participants and the same rules of confidentiality apply.

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The proficiency test evaluates the performances of laboratories with respect to their ability to quantify glycoalkaloids in potato wedges. 15 laboratories across ten countries (Austria, China, Czechia, Denmark, Germany, France, Ireland, Italy, Sweden, and USA) took part in the proficiency test.

Glycoalkaloids within the scope of the test are α -solanine, β -solanine, γ -solanine, α -chaconine, β -chaconine, γ -chaconine, and solanidine in accordance with the recommendation of the EU CONTAM Panel for the monitoring of glycoalkaloids in potato and potato products (Commission Regulation (EU) 2022/561). However, the glycoalkaloids β -solanine, γ -solanine, and β -chaconine are not within the scope of the participants and are thus not considered for evaluation.

The test material is prepared of commercially available potato wedges. The wedges are homogenised and tested for naturally occurring levels of glycoalkaloids. The raw material contains α -solanine and α -chaconine at relevant concentration levels as well as solanidine at a low concentration level. The raw material is spiked with γ -chaconine and solanidine to prepare the test material.

The naturally occurring levels of α -solanine and α -chaconine as well as the spiked levels of γ -chaconine and solanidine are considered for evaluation.

The laboratories were free to report results related to all glycoalkaloids or related to a selection of it. All labs submitted results and are considered for evaluation.

The report contains an assessment related to

- 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 the spiked parameters γ -chaconine and solanidine.
- the *comparability* of the results. The evaluation of the comparability is based on the z-score model. The absolute values of z-scores should be at least ≤ 2 . The comparability criterion is applied to α -solanine, α -chaconine, and solanidine. It is not applicable to γ -chaconine due to the limited number of reported results.

Results

Parameter	Spiked level [mg/kg]	Assigned value [mg/kg]	Assigned value in % of the spiked level	No. of results	No. of results with a z-score ≤ 2	No. of results within 70-120 % of the spiked level
α -Solanine	Naturally occurring	41.7	-	15	10	Not applicable
α -Chaconine	Naturally occurring	60.3	-	15	8	Not applicable
γ -Chaconine	2.1	-	-	4	Not applicable	3
Solanidine	2.4	2.69	112*	9	8	8

* The raw material contains solanidine at a low level of 0.23 mg/kg, which are considered for evaluation.

To summarise:

- 15 laboratories took part in the tests. The laboratories were free to choose if they report results related to all glycoalkaloids or a selection of it. All labs reported results related to α -solanine and α -chaconine, while 4 labs reported results related to γ -chaconine, and 9 labs related to solanidine.
- 8 out of 15 labs quantified α -solanine and α -chaconine correctly.
- 3 out of 4 labs quantified γ -chaconine within 70 to 120 % of the spiked level.
- 8 out of 9 labs quantified solanidine correctly with respect to the comparability criterion and the trueness criterion. The low level of solanidine in the raw material is considered for evaluation.