FINAL REGISTRATION REPORT

Part B

Section 7

Metabolism and Residues

Detailed summary of the risk assessment

Product code: SHA 123000 A

Product name: AZA

Chemical active substance:

Azadirachtin, 10 g/L

Central Zone

Zonal Rapporteur Member State: Poland

CORE ASSESSMENT

Applicant: Sharda Cropchem España S.L.

Submission date: October 2020

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Version history

When	What
05/2021	Assessment
06/2022	Assessment after commenting period
06/2022	Applicant update
07/2022	Assessment of the completed document

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7 Metabolism and residue data (KCA section 6)

7.1 Summary and zRMS Conclusion

zRMS corrections and comments are market in grey.

Stability of Residues

The storage stability study demonstrates that Azadirachtin A is stable in tomato for 24 months and potato in 21 months.

Default conversion factor (CF) from enforcement to risk assessment can be used. Therefore no further data are required to support the proposed uses.

Metabolism in plants

No new data submitted in the framework of this application.

Summary of the nature of residues in commodities of plant origin (confirmatory data: *EFSA Journal 2018;16(9):5234*):

Endpoints	
Plant groups covered	No metabolism study available. Surrogate decline study (no labelling) on known components in the technical neem extract available in lettuce.
Rotational crops covered	No data available on the nature of residues in soil.
Metabolism in rotational crops similar to metabolism in primary crops?	No data available on the nature of residues in soil.
Processed commodities	No data available on the nature of residues in processed commodities.
Residue pattern in processed commodities similar to pattern in raw commodities?	No data available on the nature of residues in processed commodities.
Plant residue definition for monitoring	Azadirachtin A
Plant residue definition for risk assessment	Provisional: Azadirachtin (sum of active components in the extract, determined as Azadirachtin A x CF 9) (default)) The nature of the residues which are forming from the degrading neem extract in the field is largely unknown and should be further addressed (data gap)
Conversion factor from enforcement to RA	Default CF: 9

Metabolism in livestock: No data available on the nature of residues in livestock. Currently not triggered.

Magnitude of residues in plants

Based on the available confirmatory data, azadiracthin A may be considered as a relevant analytical marker component to characterize residue levels in field samples.

No new data were submitted in the framework of this application. Applicant refers to unprotected EU data.

Proposed uses:

2 applications; interval: 7-10 days; BBCH 12-85 (tomato), BBCH 12-91 (potato), BBCH 12-89 (ornamentals); Application rate per treatment: 0.03 kg as/ha (tomato and ornamentals), 0.025 kg as./ha (pota-

to), PHI: 3 (potato and tomato)

Potatoes

Applicant refers to the unprotected EU data.

EU supported GAP for potato (SANTE/11848/2019, 17 July 2020, Rev.1):

1 application, during the vegetation period (independent from growth stage), 0.025 kg as./ha, PHI: 4 days

EFSA, 2018: *As for the representative use in potatoes, one overdosed residue trial investigated potential transport of azadirachtin A from the leaves to tubers, which was not observed (< LOQ). Only three independent field trials in potato are available, all analysing only for azadirachtin A.*

Residues: 3 x<0.01 mg/kg

RA = 3 x< 0.09 mg/kg (CF= 9 following *EFSA Journal 2018;16(9):5234*)

EFSA, 2018: *Risk assessment is indicative but was conducted for residues of known components in the technical neem extract only, while the nature of the residues which are forming from the degrading neem extract in the field is largely unknown and should be further addressed to finalise the assessment (data gap). The use of a conversion factor to the field trials is adding additional uncertainty.*

Residue input values for risk assessment were generated by use of a conversion factor (CF 9)

GAP on which first a.s. assessment was based: 1 x 0.025 – 0.625 kg as/ha, BBCH 41-70, PHI 4d, outdoor (Germany, 2008)

Residues: 5x <0.01 mg/kg (Azadirachtin A according to enforcement residue definition)

RA = 5 x< 0.09 mg/kg (CF= 9 following *EFSA Journal 2018;16(9):5234*)

EU critical GAP includes 1 treatment while the applied GAP includes two treatments. Only one treatment with PHI=4 days can be supported by the available data.

The results from field trials indicated that an exceedance of the current MRL of 1 mg/kg for Azadirachtin in potatoes is not expected (provided 1 application is used and PHI is 4 days).

According to SANTE/2019/12752 8 trial for major crops per zone is required. However, the number of trials can be reduced to 4 in case of residues below LOQ. Therefore, the number of trials on potatoes is acceptable.

July 2022

Applicant submits new residue trials on potatoes to cover uses with 2 applications 0.025 kg a.s./ha and PHI of 3 days. Field phase and analytical methods used are acceptable.

Residues: 4 x <0.003 mg/kg (<LOD)

Samples were stored more than 21 months (demonstrated stability time for high starch content matrix) (data gap). Therefore, these studies cannot be used to evaluate the proposed use on potatoes.

Tomatoes (F)

Outdoor N-EU study can support the proposed uses

Germany, 2008 (Ruch, B., 2005)	N-EU	GAP on which EU a.s. assessment is based: 1-3 x 0.025 kg a.s./ha, BBCH 82-84, PHI 3 days, outdoor: 4x <0.1 mg/kg

Indoor studies and studies performed in S-EU are not accepted to cover this application.

The results from field trials indicated that an exceedance of the current MRL of 1 mg/kg for Azadirachtin in tomatoes is not expected.

According to SANTE/2019/12752 8 trial for major crops per zone is required. However, the number of trials can be reduced to 4 in case of residues below LOQ. Therefore, the number of trials on tomatoes is acceptable.

Ornamentals

Residue data are not required

Information about residue level in pollen and bee products should be provided by the applicant (minor data gap).

Magnitude of residues in livestock

No data available on the nature of residues in livestock. Currently not triggered (EFSA Journal 2018;16(9):5234).

Following explanation provided by applicant is accepted:

The use of Azadirachtin A does not generate significant residues in potential feeding stuffs and is not likely to accumulate in animal matrices. Moreover, no metabolism data for livestock animal is available and no residue definition in animal matrices is proposed (Germany, 2007).

Therefore, dietary burden is currently not triggered

Under consideration of the low residues of Azadirachtin A found in supervised residue trials and the absence of residue definition in animal matrices, livestock feeding studies are not required.

Magnitude of residues in processed commodities

On the basis of the results of the residue studies provided in the DAR (Germany, 2007) showing that residues at harvest are below 0.1 mg/kg, studies on the effect of industrial processing or house-hold preparation are not considered as relevant and therefore no further study is required.

No data available on the nature of residues in processed commodities (active substance data gap) .

Magnitude of residues in representative succeeding crops

No data available on the nature of residues in soil.

According to the information provided during the EU review of Azadirachtin (Germany, 2007), soil degradation studies show that Azadirachtin A degrades rapidly with a mean DT50 value of 10.7 days (median: 3.5 days) and a mean DT90 values of 35.7 days (median: 11.5 days). Thus, no relevant residues are expected in the soil in cases where succeeding crops are planted or sown after harvest of the treated crops. It can therefore be assumed that residues do not accumulate in the plant and that no significant residues will occur in the plant material at harvest of succeeding crops. Studies on residues in succeeding crops are therefore not required.

Estimation of exposure through diet and other means

The proposed uses of Azadirachtin in the formulation Azadirachtin 1% EC do not represent unacceptable acute and chronic risks for the consumer (see also Appendix 3).

1. TMDI

The exposure values were calculated by using all MRLs and a very conservative conversion factor of 9 to extrapolate from the residue levels of azadirachtin A to the plant residue definition for risk assessment (zRMS calculation, first tier).

The Highest TMDI was 401% ARfD (NL toodler, highest contribution: 97% apples)

Highest intake of Tomatoes: 32% (GEMS/Food G06)

Highest intake of Potatoes: 48% (PT general)

Refined calculation (TMDI)

STMR values derived from the available trials were considered in the risk assessment. conservative conversion factor of 9 was used (refined calculation).

The Highest TMDI was 3% ARfD (GEMS/Food G06)

2. IESTI

HR values derived from the available trials were considered in the risk assessment. Conservative conversion factor of 9 was used.

IESTI (%ARfD):

9% Tomatoes

2% Potatoes

2.3% Tomatoes / juice

1.1% Tomatoes / sauce/puree

1.4% Potatoes / fried

0.7% Potatoes / dried (flakes)

7.1.1 Critical GAP(s) and overall conclusion

Selection of critical uses and justification

The critical GAPs with respect to consumer intake and risk assessment for the preparation Azadirachtin 1% EC are presented in Table 7.1-1. They have been selected from the individual GAPs in the Central zone for tomato, potato and ornamentals. A list of all the intended uses within the Central zone is given in Part B, Section 0.
No justification for the selection of the critical GAP is needed since all the intended uses are considered in the risk assessment.

Overall conclusion

The data available are considered sufficient for risk assessment. An exceedance of the current MRL of 1 mg/kg (tomato, potato) for Azadirachtin as laid down in Reg. (EU) 396/2005 is not expected.
The chronic and the short-term intakes of Azadirachtin residues are unlikely to present a public health concern.
As far as consumer health protection is concerned, authority, zRMS agrees with the authorization of the intended uses.

According to available data, no specific mitigation measures should apply.

Data gaps

Data gaps should be listed in the summary to give an overview (especially for cMS).

Noticed data gaps are:

- ~~Appendix 2, Table List of data submitted or referred to by the applicant and relied on, but already evaluated at EU peer review should be completed (minor deficiencies)~~
- Freezer storage stability study demonstrating stability of the samples from the new field trials on potatoes.
- Data on the effects on the residue level in pollen and bee products for ornamentals (post-registration requirement)

Table 7.1-1: Acceptability of critical GAPs (and respective fall-back GAPs, if applicable)

1	2	3	4	5	6	7		8				9			10	11
GAP number (see part B.0)*	**Crop and/ or situation ****	**Zone**	**Product code**	**F, Fn, Fpn G, Gn, Gpn or I*****	**Pests or Group of pests controlled**	**Formulation**		**Application**				**Application rate per treatment**			**PHI (days)**	**Conclusion**
						Type	**Conc. of as**	**method kind**	**growth stage & season**	**number min max**	**interval between applications (min)**	**kg as/hL min max**	**water L/ha min max**	**kg as/ha min max**		
1	**Tomato**	CEU	SHA123000A	F	*Aleuroids, Thrips, Aphids*	EC	10 g/L	Foliar spray	Apply at pest presence BBCH 12-85	a) 2 b) 2	7-10	0.003- 0.004	750-1000	a) 0.03 b) 0.06	3	A
2	**Potato**	CEU	SHA123000A	F	Collorado beetle *(Leptinotarsa decemlineata)*	EC	10 g/L	Foliar spray	Apply at pest presence BBCH 12-91	~~a) 2~~ ~~b) 2~~ 1	~~7-10~~	0.0025- 0.005	500-1000	a) 0.025 ~~b) 0.05~~	~~3~~ 4	R 1 application PHI=4
3	**Ornamentals**	CEU	SHA123000A	F	*Aleuroids, Thrips, Aphids*	EC	10 g/L	Foliar spray	Apply at pest presence BBCH 12-89	a) 2 b) 2	7-10	0.003- 0.004	750-1000	a) 0.03 b) 0.06	--	A

* Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1

** Use also code numbers according to Annex I of Regulation (EU) No 396/2005

*** F: professional field use, Fn: non-professional field use, Fpn: professional and non-professional field use, G: professional greenhouse use, Gn: non-professional greenhouse use, Gpn: professional and non-professional greenhouse use, I: indoor application

Explanation for Column 11 "Conclusion"

A	Exposure acceptable without risk mitigation measures, safe use
R	Further refinement and/or risk mitigation measures required
N	Exposure not acceptable, no safe use

7.1.2 Summary of the evaluation

The preparation Azadirachtin 1% EC is composed of Azadirachtin.

Table 7.1-2: Toxicological reference values for the dietary risk assessment of Azadirachtin

Reference value	Source	Year	Value	Study relied upon	Safety factor
Azadirachtin - Parent compound					
ADI	EFSA Journal 2018;16(4):5234	2018	0.1 mg/kg bw/d	Rat, 90-day (Trifolio, Sipcam, Mitsui extracts)	300
ARfD	EFSA Journal 2018;16(4):5234	2018	0.75 mg/kg bw/d	Rat, teratogenicity (Trifolio, Sipcam, Mitsui extract)	300

7.1.2.1 Summary for Azadirachtin

Table 7.1-3: Summary for Azadirachtin

Use-No.*	Crop	Plant metabolism covered?	Sufficient residue trials?	PHI sufficiently supported?	Sample storage covered by stability data?	MRL compliance	Chronic risk for consumers identified?	Acute risk for consumers identified?
1	Tomato	Yes	Yes	Yes	Yes	Yes		No
2	Potato	Yes	Yes	Yes	Yes	Yes		No
3	Ornamental	Yes	Yes	Yes	Yes	Yes		--

* Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0 should be given in column 1

As residues of Azadirachtin do not exceed the trigger values defined in Reg (EU) No 283/2013, there is no need to investigate the effect of industrial and/or household processing.

Considering dietary burden and based on the intended uses, no significant modification of the intake was calculated for livestock. Further investigation of residues as well as the modification of MRLs in commodities of animal origin is therefore not necessary.

7.1.2.2 Summary for Azadirachtin 1% EC

Table 7.1-4: Information on Azadirachtin 1% EC (KCA 6.8)

Crop	PHI for Azadirachtin 1% EC proposed by applicant	PHI/ Withholding period* sufficiently supported for	PHI for Azadirachtin 1% EC proposed by zRMS	zRMS Comments (if different PHI proposed)
		Azadirachtin		
Tomato	3 days	Yes	-	-
Potato	3 days	Yes	-	-
Ornamental	--	--	--	--

NR: not relevant
* Purpose of withholding period to be specified
** F: PHI is defined by the application stage at last treatment (time elapsing between last treatment and harvest of the crop).

Table 7.1-5: Waiting periods before planting succeeding crops

Waiting period before planting succeeding crops		**Overall waiting period proposed by zRMS for Azadirachtin 1% EC**
Crop group	**Led by Azadirachtin**	
Root vegetables	NR	
Fruiting vegetables	NR	
Ornamentals	NR	

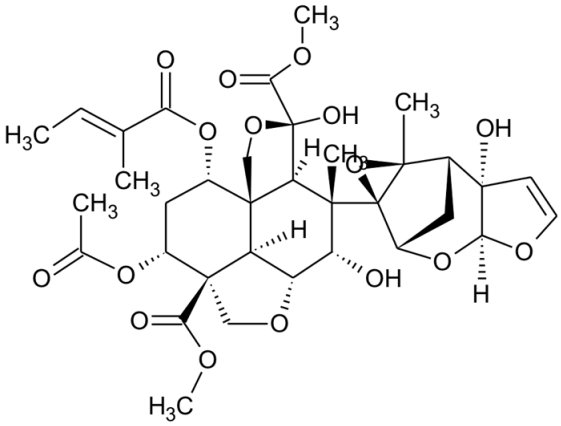
NR: not relevant

Assessment

7.2 Azadirachtin

General data on Azadirachtin are summarized in the table below (last updated 2018/09/14)

Table 7.2-1: General information on Azadirachtin

Active substance (ISO Common Name)	Azadirachtin
IUPAC	Azadirachtin A (lead component): dimethyl (2aR,3S,4S,4aR,5S,7aS,8S,10R,10aS,10bR)-10- acetoxy-3,5-dihydroxy-4-[(1aR,2S,3aS,6aS,7S,7aS)-6a- hydroxy-7a-methyl-3a,6a,7,7a-tetrahydro-2,7- methanofuro[2,3-b]oxireno[e]oxepin-1a(2H)-yl]-4- methyl-8-{[(2E)-2-methylbut-2-enoyl]oxy}octahydro- 1H-naphtho[1,8a-c:4,5-b′c′]difuran-5,10a(8H)- dicarboxylate. For the other biologically active components of the neem extracts see appendix B of EFSA, 2018 conclusion for details.
Chemical structure	 (Azadirachtin A) For the other biologically active components of the neem extracts see appendix B of EFSA, 2018 conclusion for details.
Molecular formula	Azadirachtin A: $C_{35}H_{44}O_{16}$ Azadirachtin B: $C_{33}H_{42}O_{14}$ 6-desacetylnimbin: $C_{28}H_{34}O_8$ 3-desacetylsalannin: $C_{32}H_{42}O_8$ Nimbin: $C_{30}H_{36}O_9$ Salannin: $C_{34}H_{44}O_9$ 11-epiazadirachtin D: $C_{34}H_{44}O_{14}$ Ohchinolide B: $C_{35}H_{44}O_{10}$ azadiradione: $C_{28}H_{34}O_5$ 14,15-epoxy-azadirachtin: $C_{38}H_{34}O_6$
Molar mass	Azadirachtin A: 720.7 Azadirachtin B: 662.7 6-desacetylnimbin: 498.5 3-desacetylsalannin: 554.7 Nimbin: 540.6 Salannin: 596.7 11-epiazadirachtin D: 676.6 Ohchinolide B: 624.7 azadiradione: 450.6

	14,15-epoxy-azadirachtin: 466.6
Chemical group	Limonoid
Mode of action (if available)	Suppress hemolymph ecdysteroid and juvenil hormone titers on the neuroendocrine level by contact action.
Systemic	Yes
Companies	Trifolio-M GmbH, Sipcam S.p.a. and Mitsui Agriscience International S.A/B.V*
Rapporteur Member State (RMS)	Germany
Approval status	Approved Date of (01/06/2011) and reference to decision (2011/44/EU, Reg. (EU) No 2018/1266 and Reg. (EU) No 540/2011) https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011L0044&from=EN https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32018R1266&from=EN https://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32011R0540&from=EN
Restriction	Only uses as insecticide may be authorised. (Commission Implementing Regulation (EC) No 540/2011)
Review Report	SANCO/10311/2011 – final 11/03/2011 SANCO/10311/2011 – final 11/03/2011 rev2 19 May 2020
Current MRL regulation	Reg. (EC) No 149/2008
Peer review of MRLs according to Article 12 of Reg No 396/2005 EC performed	Not available
EFSA Journal: Conclusion on the peer review	Yes, EFSA Journal 2018;16(4):5234
EFSA Journal: conclusion on article 12	No
Current MRL applications on intended uses	EFSA-Q-2009-00085 All commodities

* Notifier in the EU process to whom the a.s. belongs

7.2.1 Stability of Residues (KCA 6.1)

7.2.1.1 Stability of residues during storage of samples

Available data

No new data submitted in the framework of this application.

Table 7.2-2: Summary of stability data achieved at ≤ - 18°C (unless stated otherwise)

Matrix	Characteristics of the matrix	Acceptable Maximum Storage duration	Reference
Data relied on in EU			
Azadirachtin A			
Plant products			
Tomato, ~~potato~~	High water content	24 months	EFSA, 2018 / DAR (Ruch, B. 2003; Ruch, B. 1999)
Potato	high starch content	21 months	EFSA, 2018 / DAR (Ruch, B. 2003; Ruch, B. 1999)
Animal Products			
No data available	No data available	No data available	EFSA, 2018

Conclusion on stability of residues during storage

Storage stability was investigated during the first EU review of Azadirachtin (Germany, 2007 and additional reports) on commodities with high water (tomato, apple and spinach) and high starch content (potato).

Storage stability was demonstrated on commodities with high water and high starch content for 24 and 21 months for Azadirachtin A.

7.2.1.2 Stability of residues in sample extracts (KCA 6.1)

Available data

Residue stability in sample extracts was not investigated during the EU review of Azadirachtin.

7.2.2 Nature of residues in plants, livestock and processed commodities

7.2.2.1 Nature of residue in primary crops (KCA 6.2.1)

Available data

No new data submitted in the framework of this application.

Table 7.2-3: Summary of plant metabolism studies

Crop Group	Crop	Label position	Application and sampling details					Reference
			Method, F or G (a)	Rate (kg a.s./ha)	No	Sampling (DAT)	Remarks	
EU data								
Pomefruits	Apple tree	No labelling (decline study)	F	0.300 kg Azadirachtin A/ha	1	0, 1, 7, 14, 28, 42, 74, 95	Supervised trials as surrogate for a metabolism study	Germany, 2007 (Ruch, B., 2005)
Fruiting vegetables	Tomato	No labelling (decline study)	F	0.250 kg Azadirachtin A/ha	1	0, 1, 2, 3, 6 9, 13, 16		Germany, 2007 (Ruch, B., 2005)
Leafy vegetables	Spinach	No labelling (decline study)	F	0.090 kg Azadirachtin A/ha	1	0, 3, 7		Germany, 2007 (Ruch, B., 2005)

Summary of plant metabolism studies reported in the EU

Azadirachtin is a mixture of several different limonoids and other compounds extracted from the seed kernels of the Neem tree. It is therefore not feasible to perform a metabolism study with Azadirachtin in plants. It is furthermore also not possible to perform such a study for its analytically leading compound Azadirachtin A due to the unavailability of chemically synthesised and radioactively labelled Azadirachtin A, since it can be obtained by extraction and cleanup of the seed kernels of the Neem tree only. Therefore, it is not possible to obtain radioactive labelled material. Information on the degradation of Azadirachtin A in plants can only be obtained by residue trials with unlabelled material. Thus, residue trials in apple, tomato and spinach were performed during the first EU review of Azadirachtin (Germany, 2007) with application amounts of 10 times the intended use rate as surrogate for a metabolism study.

Conclusion on metabolism in primary crops

Based on the studies on apples, tomatoes and spinach it can be concluded that azadirachtin A is fast degraded within the plant. Although some of the studies provide supplemental information only, the results indicate that azadirachtin A can be used as an appropriate marker (DAR 2008).

7.2.2.2 Nature of substance for Neem-extracts residue in rotational crops (KCA 6.6.1)

Available data

No new data submitted in the framework of this application.

Summary of plant metabolism studies reported in the EU

According to the information provided during the EU review of Azadirachtin (Germany, 2007), soil degradation studies show that Azadirachtin A degrades rapidly with a mean DT_{50} value of 10.7 days (median: 3.5 days) and a mean DT_{90} values of 35.7 days (median: 11.5 days). Thus, no relevant residues are expected in the soil in cases where succeeding crops are planted or sown after harvest of the treated crops. It can therefore be assumed that residues do not accumulate in the plant and that no significant residues will occur in the plant material at harvest of succeeding crops. Studies on residues in succeeding crops are therefore not required.

Conclusion on metabolism in rotational crops

Therefore, no further investigation is considered as necessary.

7.2.2.3 Nature of residues in processed commodities (KCA 6.5.1)

Available data

No new data submitted in the framework of this application.
Moreover, according to the information provided during the first EU review of Azadirachtin (Germany, 2007), studies on the effect of industrial processing or household preparation on the nature of residues are not relevant since the residue studies showed that residues at harvest were below 0.1 mg/kg Azadirachtin A.

Conclusion on nature of residues in processed commodities

On the basis of the results of the residue studies provided in the DAR (Germany, 2007) showing that residues at harvest are below 0.1 mg/kg Azadirachtin A, studies on the effect of industrial processing or household preparation on the nature of residues are not considered as relevant and therefore no further study is required.

7.2.2.4 Conclusion on the nature of residues in commodities of plant origin (KCA 6.7.1)

Table 7.2-4: Summary of the nature of residues in commodities of plant origin

Endpoints	
Plant groups covered	No metabolism study available. Surrogate decline study (no labelling) on known components in the technical neem extract available in lettuce.
Rotational crops covered	No data available on the nature of residues in soil.
Metabolism in rotational crops similar to metabolism in primary crops?	No data available on the nature of residues in soil.
Processed commodities	No data available on the nature of residues in processed commodities.
Residue pattern in processed commodities similar to pattern in raw commodities?	No data available on the nature of residues in processed commodities.
Plant residue definition for monitoring	Azadirachtin (Reg. (EC) No 149/2008) Azadirachtin A (EFSA Journal 2018;16(4):5234)
Plant residue definition for risk assessment	**Provisional (EFSA Journal 2018;16(4):5234):** Azadirachtin (sum of active components in the extract, determined as Azadirachtin A x CF 9)
Conversion factor from enforcement to RA	Default: CF 9 (EFSA Journal 2018;16(4):5234)

7.2.2.5 Nature of residues in livestock (KCA 6.2.2-6.2.5)

Available data

No new data submitted in the framework of this application.
It is practically impossible to obtain labelled substance in amounts allowing the investigation of metabolic pathways. Moreover, according to the information provided during the first EU review of Azadirachtin (Germany, 2007), metabolism studies on farm animals are required only if significant residues occur in crops or part of the crop fed to cattle or poultry (> 0.1 mg/kg of the total diet) and in special cases (e.g. accumulation of active substance). Under consideration of the low residues of Azadirachtin A found in supervised residue trials provided during the EU review of Azadirachtin, metabolism studies on livestock animal are not required.

Conclusion on metabolism in livestock

Therefore, no further investigation is considered as necessary. Moreover, since no metabolism data for livestock animal was submitted, a residue definition for Neem extracts in animal matrices cannot be proposed.

7.2.2.6 Conclusion on the nature of residues in commodities of animal origin (KCA 6.7.1)

Table 7.2-5: Summary on the nature of residues in commodities of animal origin

	Endpoints
Animals covered	No data available on the nature of residues in livestock. Currently not triggered.

Time needed to reach a plateau concentration	-
Animal residue definition for monitoring	-
Animal residue definition for risk assessment	-
Conversion factor	-
Metabolism in rat and ruminant similar	-
Fat soluble residue	-

7.2.3 Magnitude of residues in plants (KCA 6.3)

7.2.3.1 Summary of European data and new data supporting the intended uses

No new data are submitted in the framework of this application.

Table 7.2-6: Summary of EU reported and new data supporting the intended uses of Azadirachtin 1% EC and conformity to existing MRL

Commodity	Source	Residue zone (N-EU, S-EU, EU, outside EU)	Evaluation GAP Residue levels (mg/kg) E = according to enforcement residue definition RA = according to risk assessment residue definition	STMR (mg/kg)	HR (mg/kg)	Unrounded OECD calculator MRL (mg/kg)	Current EU MRL (mg/kg) *	MRL compliance
Tomatoes	Germany, 2008 (Ruch, B., 2005)	N-EU	GAP on which EU a.s. assessment is based: 1-3 x 0.025 kg a.s./ha, BBCH 82-84, PHI 3 days, outdoor: 4x <0.1 mg/kg	N/A				
	~~Germany, 2008 (Paoli, M., 1999; Domenichini, P., 1999; Soler Gil-Mascarell, R., 2005)~~	~~S-EU~~	~~GAP on which EU a.s. assessment is based: 2-4 x 0.034 – 0.04 kg a.s./ha, BBCH 81-87, PHI 3 days outdoor:~~ ~~4x <0.02 mg/kg, 3x<0.5 mg/kg~~					
	~~Germany, 2008 (Ruch, B., 2005; Domenichini, P., 1999)~~	~~EU~~	~~GAP on which EU a.s. assessment is based: 3 x 0.025 kg a.s./ha, BBCH 82, PHI 3 days, indoor:~~ ~~3x <0.1 mg/kg, 1x<0.5 mg/kg~~					
	Overall supporting data for cGAP	N-EU, ~~S-EU~~ & EU	~~4x<0.02, 7x<0.1, 4x<0.5~~ 4x <0.1	0.1	~~0.5~~ 0.1	1.0	1.0	Yes
Potatoes	Germany, 2008	N-EU	GAP on which EU a.s. assessment is based: 1 x 0.025 – 0.625 kg as/ha, BBCH 41-70, PHI 4d, outdoor: 5x <0.01 mg Azadirachtin A/kg	N/A				
	New trials	N-EU	Trials GAP 2 x 0.030 kg a.s./ha BBCH 49 PHI 3 days, outdoor 4 x <0.003 mg/kg (<LOD)					

	Overall supporting data for cGAP	N-EU	5x <0.01 mg Azadirachtin A/kg 4 x <0.003 mg/kg (<LOD)	0.01	0.01	0.01	1.0	Yes

* Source of EU MRL: Reg. (EC) No 149/2008

7.2.3.2 Conclusion on the magnitude of residues in plants

According to the available data, the intended uses on tomato and potato are considered acceptable, for outdoor uses.

7.2.4 Magnitude of residues in livestock

7.2.4.1 Dietary burden calculation

The use of Azadirachtin A does not generate significant residues in potential feeding stuffs and is not likely to accumulate in animal matrices. Moreover, no metabolism data for livestock animal is available and no residue definition in animal matrices is proposed (Germany, 2007).
Therefore, dietary burden is currently not triggered.

7.2.4.2 Livestock feeding studies (KCA 6.4.1-6.4.3)

Available data

No new data were submitted in the framework of this application.
Moreover, according to the information provided during the first EU review of Azadirachtin (Germany, 2007), metabolism studies on farm animals are required only if significant residues occur in crops or part of the crop fed to cattle or poultry (> 0.1 mg/kg of the total diet) and in special cases (e.g. accumulation of active substance). Under consideration of the low residues of Azadirachtin A found in supervised residue trials and the absence of residue definition in animal matrices, livestock feeding studies are not required.

Conclusion on feeding studies

The requested uses do not modify the theoretical maximum daily intake for animals, and thus, there is no risk for animal MRL to be exceeded.

7.2.5 Magnitude of residues in processed commodities (Industrial Processing and/or Household Preparation) (KCA 6.5.2-6.5.3)

7.2.5.1 Available data for all crops under consideration

No new data were submitted in the framework of this application.
Moreover, according to the information provided during the first EU review of Azadirachtin (Germany, 2007), studies on the effect of industrial processing or household preparation on the nature of residues are not relevant since the residue studies showed that residues at harvest were below 0.1 mg/kg.

7.2.5.2 Conclusion on processing studies

On the basis of the results of the residue studies provided in the DAR (Germany, 2007) showing that residues at harvest are below 0.1 mg/kg, studies on the effect of industrial processing or household preparation on the nature of residues are not considered as relevant and therefore no further study is required.

7.2.6 Magnitude of residues in representative succeeding crops

The crops under consideration can be grown in rotation.

However, considering available data dealing with nature of residues (see 0), no study dealing with magnitude of residues in succeeding crops is needed.

7.2.6.1 Field rotational crop studies (KCA 6.6.2)

Available data

No new data submitted in the framework of this application.
Moreover, according to the information provided during the first EU review of Azadirachtin (Germany, 2007), soil degradation studies show that Azadirachtin A degrades rapidly with a mean DT_{50} value of 10.7 days (median: 3.5 days) and a mean DT_{90} values of 35.7 days (median: 11.5 days). Thus, no relevant residues are expected in the soil in cases where succeeding crops are planted or sown after harvest of the treated crops. It can therefore be assumed that residues do not accumulate in the plant and that no significant residues will occur in the plant material at harvest of succeeding crops. Studies on residues in succeeding crops are therefore not required.

Conclusion on rotational crops studies

No further investigation is considered as necessary.

7.2.7 Other / special studies (KCA6.10, 6.10.1)

The available data for the active substance sufficiently addresses aspects of the residue situation that might arise from the use of Azadirachtin 1% EC. Therefore, other special studies are not needed.

7.2.8 Estimation of exposure through diet and other means (KCA 6.9)

Toxicological reference values relevant for dietary risk assessment are reported in the summary of the evaluation (see 7.1.2).

7.2.8.1 Input values for the consumer risk assessment

No STMR values are presented since no refinement of the chronic risk assessment is necessary. Input values used to perform the consumer risk assessment are the EU MRLs set in Reg. (EC) No. 149/2008.

7.2.8.2 Conclusion on consumer risk assessment

Extensive calculation sheets are presented in Appendix 3.

Table 7.2-7: Consumer risk assessment

TMDI (% ADI) according to EFSA PRIMo rev.3.1	45 % (based on NL Toddler)
IEDI (% ADI) according to EFSA PRIMo	Not relevant
IESTI (% ARfD) according to EFSA PRIMo* rev.3.1	**Unprocessed commodities:** Potatoes: 21% (based on children) Melons: 6% (based on adults)

	Processed commodities: Potatoes / fried: 12% (based on children) Pumpkin / boiled: 7% (based on adults)

* include raw and processed commodities if both values are required for PRIMo

The proposed uses of Azadirachtin in the formulation Azadirachtin 1% EC do not represent unacceptable acute and chronic risks for the consumer.

zRMS comment (see Appendix 3):

The proposed uses of Azadirachtin in the formulation Azadirachtin 1% EC do not represent unacceptable acute and chronic risks for the consumer (see also Appendix 3).

1. TMDI

The exposure values were calculated by using all MRLs and a very conservative conversion factor of 9 to extrapolate from the residue levels of azadirachtin A to the plant residue definition for risk assessment (zRMS calculation, first tier).

The Highest TMDI was 401% ARfD (NL toodler, highest contribution: 97% apples)

Highest intake of Tomatoes: 32% (GEMS/Food G06)

Highest intake of Potatoes: 48% (PT general)

Refined calculation (TMDI):

STMR values derived from the available trials were considered in the risk assessment. conservative conversion factor of 9 was used (refined calculation).

The Highest TMDI was 3% ARfD (GEMS/Food G06)

2. IESTI

HR values derived from the available trials were considered in the risk assessment. Conservative conversion factor of 9 was used.

IESTI (%ARfD):

9% Tomatoes

2% Potatoes

2.3% Tomatoes / juice

1.1% Tomatoes / sauce/puree

1.4% Potatoes / fried

0.7% Potatoes / dried (flakes)

Input values for the refined consumer risk assessment.

Commodity	Chronic risk assessment		Acute risk assessment	
	Input value (mg/kg)	Comment	Input value (mg/kg)	Comment
RD-RA: Azadirachtin A x CF (9)				
Tomatoes	0.9	$STMR_{Mo}$ x CF (9) Tab. 7.2.9	0.9	HR_{Mo} x CF (9)
Potatoes	0.09	$STMR_{Mo}$ x CF (9)	0.09	HR_{Mo} x CF (9)

Commodity	Chronic risk assessment		Acute risk assessment	
	Input value (mg/kg)	Comment	Input value (mg/kg)	Comment
		Tab. 7.2.9		

7.3 Combined exposure and risk assessment

Not relevant. The product contains only one active substance.

7.4 References

EFSA (European Food Safety Authority), 2011b. Conclusion on the peer review of the pesticide risk assessment of the active substance azadirachtin. EFSA Journal 2011;9(3):1858, 76 pp.

EFSA (European Food Safety Authority), 2018. Peer Review Report to the conclusion regarding the peer review of the pesticide risk assessment of the active substance azadirachtin.

Germany, 2007. Draft Assessment Report (DAR) on the active substance azadirachtin prepared by the rapporteur Member State Germany in the framework of Directive 91/414/EEC, November 2007.

Germany, 2009. Additional Report to the Draft Assessment Report on the active substance azadirachtin prepared by the rapporteur Member State Germany in the framework of Commission Regulation (EC) No 33/2008, December 2009.

Germany, 2018. Revised Addendum 8 to the Additional Report, Confirmatory data, Vol.1-3, B5, B6, B7, B8, B9 prepared by the rapporteur Member State Germany in the framework of Regulation (EC) No 1107/2009, January 2018.

Appendix 1 Lists of data considered in support of the evaluation

Tables considered not relevant can be deleted as appropriate.

MS to blacken authors of vertebrate studies in the version made available to third parties/public.

List of data submitted by the applicant and relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
KCP 8.3.1.1	G. Wagner	2021	Determination of the residues of Azadirachtin in/on potato after two applications of Azadirachtin 1% EC in Northern Europe – Hungary in 2019. Report No. 034SRHU19R08 GLP	N	Sharda Cropchem Ltd.
KCP 8.3.1.2	S. Niewelt	2021	Determination of the residues of Azadirachtin in/on potato, after application of Azadirachtin 1% EC in Northern Europe – Hungary in 2019, Report No. DPL/60/2020 GLP	N	Sharda Cropchem Ltd.
KCP 8.3.1.3	T. Peda	2021	Magnitude of the residue of azadirachtin in potato Raw Agricultural Commodity after two applications of Azadirachtin 1% EC – one decline curve trial in Poland, Report No. 19SGS05 GLP	N	Sharda Cropchem Ltd.
KCP 8.3.1.4	K. Rump	2021	Determination of residues at harvest of Azadirachtin in Potato, follow-ing two broadcast applications of Azadirachtin 1% EC, under open field conditions. Germany – Season 2019, Report No. FRS 012/19	N	Sharda Cropchem Ltd.
KCP 8.3.1.5	S. Niewelt	2021	Determination of residues at harvest of Azadirachtin in Potato following broadcast application of Azadirachtin 1% EC, under open field conditions. Germany – season 2019. Report No. DPL/58/2020 GLP	N	Sharda Cropchem

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
					Ltd.

List of data submitted or referred to by the applicant and relied on, but already evaluated at EU peer review

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
	B. Ruch	2005	Bestimmung des abbauverhaltens von azadirachtin B-Ruckstanden Auf/in spinat nach Behandlung mit Neemazal-T/S Report No. TM1003.03 RIP2006-531 GLP Published	N	TRF
	B. Ruch	2005	Residue study on/in tomato Report No. RIP2006-529 GLP Published	N	TRF
	B. Ruch	2005	Residue sttudy on/on apple Report No. RIP2006-528 GLP Published	N	TRF
	B. Ruch	2005	Residue study on/in tomato Report No.2006-544 GLP Published	N	TRF
	B. Ruch	2005	Residue study on/in potato	N	TRF

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner
			Report No. RS-Potato/1 RIP2006-550 GLP Published		
	B. Ruch	2005	Residue study on/in potato Report No. RS-Potato/2 RIP2006-551 GLP Published	N	TRF
	B. Ruch	2005	Residue study on/in potato Report No. RS-Potato/3 RIP2006-552 GLP Published	N	TRF
	B. Ruch	2005	Residue study on/in potato Report No. RS-Potato/4 RIP2006-553 GLP Published	N	TRF
	B. Ruch	2005	Residue study on/in potato Report No. RS-Potato/5 RIP2006-554 GLP Published	N	TRF

The following tables are to be completed by MS.

List of data submitted by the applicant and not relied on

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner

List of data relied on and not submitted by the applicant but necessary for evaluation

Data point	Author(s)	Year	Title Company Report No. Source (where different from company) GLP or GEP status Published or not	Vertebrate study Y/N	Owner

Appendix 2 Detailed evaluation of the additional studies relied upon

A 2.1 Azadirachtin

A 2.1.1 Stability of residues

A 2.1.1.1 Stability of residues during storage of samples

A 2.1.1.1.1 Storage stability of residues in plant products

A 2.1.1.1.2 Storage stability of residues in animal products

A 2.1.2 Nature of residues in plants, livestock and processed commodities

A 2.1.2.1 Nature of residue in plants

A 2.1.2.1.1 Nature of residue in primary crops

A 2.1.2.1.2 Nature of residue in rotational crops

A 2.1.2.1.3 Nature of residues in processed commodities

A 2.1.2.2 Nature of residues in livestock

A 2.1.3 Magnitude of residues in plants

A 2.1.4 Magnitude of residues in plants

A 2.1.4.1 Potatoes

Table A 1: Comparison of intended and critical EU GAPs

Type of GAP	Number of applications	Application rate per treatment (precise unit)	Interval between application	Growth stage at last application	PHI (days)
cGAP EU (EFSA, 2018)	1	0.025 kg a.s./ha	-	During the vegetation	4
Intended cGAP (2)	2	0.025 kg a.s./ha	7-10	BBCH 91	3

* Use number(s) in accordance with the list of all intended GAPs in Part B, Section 0

A 2.1.4.1.1 Study 1

Comments of zRMS:	Applicant submits new residue trials on potatoes to cover uses with 2 applications 0.025 kg a.s./ha and PHI of 3 days. Field phase and analytical method used is acceptable. Samples were stored more than 21 months - demonstrated stability time for high starch content matrix (data gap). Therefore, these studies cannot be used to evaluate the proposed use on potatoes.

Reference:	KCP 8.3.1.1
Report	Determination of the residues of Azadirachtin in/on potato after two applications of Azadirachtin 1% EC in Northern Europe – Hungary in 2019. G. Wagner, 2021, Report No. 034SRHU19R08
Guideline(s):	Commission Working Document 7029/VI/95 Rev. 5, General Recommendations for the Design, Preparation and Realization of Residue Trials, July 22, 1997.
Deviations:	No
GLP:	Yes
Acceptability:	Yes

The objective of the study was to provide results from the magnitude of residues of azadirachtin in/on potato, grown in open field conditions, in order to support the registration of the plant protection product applied according Good Laboratory Practice (GLP).
Two trials were conducted in Hungary in 2019. The field phase was performed in Vép (SRHU19-061-034IR) and in Kőszeg (SRHU19-062-034IR).
Two applications (7 days' interval) of the formulated product Azadirachtin 1% EC were applied at a target rate of 3.0 L / ha to potato, using conventional sprayer equipment, under open field condition, with the last application done 3 days before commercial harvest.
Specimens (tubers) were collected at 0, 1 and normal commercial harvest at 3 days after application (DALA) in decline trial and at normal commercial harvest in harvest trial, frozen and shipped deep frozen to analytical facility of SGS Polska Sp. z. o. o. for residue analysis.

There was no unusual event that affected this phase of the Study.

Comments of zRMS:	Analytical method used is acceptable

Reference:	KCP 8.3.1.2
Report	Determination of the residues of Azadirachtin in/on potato, after application of Azadirachtin 1% EC in Northern Europe – Hungary in 2019. S. Niewelt, 2021, Report No. DPL/60/2020
Guideline(s):	SANTE/2020/12830 rev. 1
Deviations:	No
GLP:	Yes
Acceptability:	Yes

Specimen extraction and determination of residues of azadirachtin was performed using the QuEChERS technique.
Quantification was performed by use of LC-MS/MS detection. The limit of quantification (LOQ) of the analytical method was 0.010 mg/kg.

Extraction
10 g of the homogenized sample was weighed into a 50 mL centrifuge tube and 10 mL of acetonitrile was added. Next, to the sample was added internal standard solution ((1.3) - 100 µL).The mixture was shaken vigorously by hand for one minute. After addition of buffering salts (4 g anhydrous magnesium sulfate, 1 g sodium chloride, 1 g trisodium citrate dehydrate, 0.5 g disodium hydrogencitrate sesquihydrate), the mixture was shaken again intensively for 1 min, then centrifuged at 4700 rpm for 5 min for phase separation. Next the extract was filtered through a membrane filter and the final extract was directly employed for LC-MS/MS analysis. Quantification was performed using internal standard method.

The extracts were analyzed using liquid chromatography coupled with mass spectrometry, by single extraction and single injection to the detection system. Final extracts were employed for LC-MS/MS analysis directly after completion of the extraction procedure (on the same day). Data acquisition was carried out in the MRM mode. The analysis was performed using internal standard addition.
For each compound, one mass transition was evaluated and used for quantification. Second mass transition was monitored for confirmation of peak identity, but was not used for quantification.

Table A 2: Summary of the study 1 trials

Trial No./ Location/ EU zone/ Year	Commodity/ Variety	Date of 1.Sowing or planting 2.Flowering 3. Harvest	Application rate per treatment			Dates of treat-ment or no. of treatments and last date	Growth stage at last treat-ment or date	Portion analyzed	Residues (mg/kg)	PHI (days)	Details on trial
			g a.s./ ha	Water (l/ha)	g a.s./hl				Analyte 1 Analyte 2		
SRHU19-061-034IR/NEU/Hungary/2019 Vép	Potato/Desiree	26/04/2019 06/2019 08/2019	30 30	760 742	4 4	26/07/2019 02/08/2019	BBCH 45 BBCH 47	Tuber	<0.003 (<LOD)	3	LOQ = 0.01 mg/kg LOD = 0.003 mg/kg
SRHU19-062-034IR/NEU/Hungary/2019 Kőszeg	Potato/Agria	03/04/2019 06/2019 08/2019	30 30	755 735	4 4	26/07/2019 02/08/2019	BBCH 45 BBCH 47	Tuber Tuber Tuber	<0.003 (<LOD) <0.003 (<LOD) <0.003 (<LOD)	0 1 3	LOQ = 0.01 mg/kg LOD = 0.003 mg/kg

A 2.1.4.1.2 Study 2

Comments of zRMS:	Applicant submits new residue trials on potatoes to cover uses with 2 applications 0.025 kg a.s./ha and PHI of 3 days. Field phase and analytical method used is acceptable. Samples were stored more than 21 months - demonstrated stability time for high starch content matrix (data gap). Therefore, these studies cannot be used to evaluate the proposed use on potatoes

Reference:	KCP 8.3.1.3
Report	Magnitude of the residue of azadirachtin in potato Raw Agricultural Commodity after two applications of Azadirachtin 1% EC – one decline curve trial in Poland – 2019. T. Peda, 2021, Report No. 19SGS05
Guideline(s):	Commission Working Document 7029/VI/95 Rev. 5, General Recommendations for the Design, Preparation and Realization of Residue Trials, July 22, 1997.
Deviations:	No
GLP:	Yes
Acceptability:	Yes

The objective of the study was conducted to determine the residue levels of azadirachtin in potato RAC specimens in one decline curve study trial following two applications of the formulated product Azadirachtin 1% EC under cultural practice typical for potato production.
Potato was cultivated according to normal local agronomic practices. All cultivation operations, irrigation and fertillisation were recorded in the field.
The application equipment consisted of boom sprayer. The foliar application closely simulated commercial-type treatments. Azadirachtin 1% was only mixed with water. The target dose rate of the test item according to study plan was 3L;ha, equivalent to 30 g a.s./ha and target volume 1000 L/ha according to GAP.

Analytical phase
Quantification was performed by use of LC-MS/MS detection. The limit of quantification (LOQ) of the analytical method was 0.010 mg/kg.

Extraction
10 g of the homogenized sample was weighed into a 50 mL centrifuge tube and 10 mL of acetonitrile was added. Next, to the sample was added internal standard solution ((1.3) - 100 µL).The mixture was shaken vigorously by hand for one minute. After addition of buffering salts (4 g anhydrous magnesium sulfate, 1 g sodium chloride, 1 g trisodium citrate dehydrate, 0.5 g disodium hydrogencitrate sesquihydrate), the mixture was shaken again intensively for 1 min, then centrifuged at 4700 rpm for 5 min for phase separation. Next the extract was filtered through a membrane filter and the final extract was directly employed for LC-MS/MS analysis. Quantification was performed using internal standard method.

The extracts were analyzed using liquid chromatography coupled with mass spectrometry, by single extraction and single injection to the detection system. Final extracts were employed for LC-MS/MS analysis directly after completion of the extraction procedure (on the same day). Data acquisition was carried out in the MRM mode. The analysis was performed using internal standard addition.
For each compound, one mass transition was evaluated and used for quantification. Second mass transition was monitored for confirmation of peak identity, but was not used for quantification.

Table A 3: Summary of the study 2 trials

Trial No./ Location/ EU zone/ Year	Commodity/ Variety	Date of 1.Sowing or planting 2.Flowering 3. Harvest	Application rate per treatment			Dates of treat-ment or no. of treatments and last date	Growth stage at last treat-ment or date	Portion analyzed	Residues (mg/kg)	PHI (days)	Details on trial
			g a.s./ ha	Water (l/ha)	g a.s./hl				Azadirachtin		
19SGS05-01/NEU/Poland/2918	Potato/Malaga	02/05/2019 28/08-01/09/2019	33 32	541 533	6 6	22/08/201 29/08/2019	BBCH 49 BBCH 49	Tuber Tuber Tuber	<0.003 (<LOD) <0.003 (<LOD) <0.003 (<LOD)	0 1 3	LOQ = 0.01 mg/kg LOD = 0.003 mg/kg

A 2.1.4.1.3 Study 3

Comments of zRMS:	Applicant submits new residue trials on potatoes to cover uses with 2 applications 0.025 kg a.s./ha and PHI of 3 days. Field phase and analytical method used is acceptable. Samples were stored more than 21 months - demonstrated stability time for high starch content matrix (data gap). Therefore, these studies cannot be used to evaluate the proposed use on potatoes

Reference:	KCP 8.3.1.4
Report	Determination of residues at harvest of Azadirachtin in Potato, following two broadcast applications of Azadirachtin 1% EC, under open field conditions. Germany – Season 2019. K. Rump, 2021, Report No. FRS 012/19
Guideline(s):	Commission Working Document 7029/VI/95 Rev. 5, General Recommendations for the Design, Preparation and Realization of Residue Trials, July 22, 1997.
Deviations:	No
GLP:	Yes
Acceptability:	Yes

The object of this study was to determine the magnitude of residues at harvest of Azadirachtin in Potato resulting from two foliar applications at the maximum anticipated labelled rate of AZADIRACHTIN 1% EC. Raw agricultural commodity specimens were generated from tubers harvested from untreated and treated plots at commercial harvest. The study was be conducted under field conditions in Germany. The specimens were harvested from the central part of each plot (discarding 0.5 m at both ends of the plots and borders). No diseased, injured or abnormal samples were taken. Duplicate samples were taken at each plot. Tubers have been harvested by hand and soil was manually removed.

Comments of zRMS:	Analytical method used is acceptable

Reference:	KCP 8.3.1.5
Report	Determination of residues at harvest of Azadirachtin in Potato following broadcast application of Azadirachtin 1% EC, under open field conditions. Germany – season 2019. S. Niewelt, 2021, Report No. DPL/58/2020
Guideline(s):	SANTE/2020/12830 rev. 1
Deviations:	No
GLP:	Yes
Acceptability:	Yes

Specimen extraction and determination of residues of azadirachtin was performed using the QuEChERS technique.
Quantification was performed by use of LC-MS/MS detection. The limit of quantification (LOQ) of the analytical method was 0.010 mg/kg.

Extraction

10 g of the homogenized sample was weighed into a 50 mL centrifuge tube and 10 mL of acetonitrile was added. Next, to the sample was added internal standard solution ((1.3) - 100 µL).The mixture was shaken vigorously by hand for one minute. After addition of buffering salts (4 g anhydrous magnesium sulfate, 1 g sodium chloride, 1 g trisodium citrate dehydrate, 0.5 g disodium hydrogencitrate sesquihydrate), the mixture was shaken again intensively for 1 min, then centrifuged at 4700 rpm for 5 min for phase separation. Next the extract was filtered through a membrane filter and the final extract was directly employed for LC-MS/MS analysis. Quantification was performed using internal standard method.

The extracts were analyzed using liquid chromatography coupled with mass spectrometry, by single extraction and single injection to the detection system. Final extracts were employed for LC-MS/MS analysis directly after completion of the extraction procedure (on the same day). Data acquisition was carried out in the MRM mode. The analysis was performed using internal standard addition.
For each compound, one mass transition was evaluated and used for quantification. Second mass transition was monitored for confirmation of peak identity, but was not used for quantification.

Table A 4: Summary of the study 3 trials

Trial No./ Location/ EU zone/ Year	Commodity/ Variety	Date of 1.Sowing or planting 2.Flowering 3. Harvest	Application rate per treatment			Dates of treat-ment or no. of treatments and last date	Growth stage at last treat-ment or date	Portion analyzed	Residues (mg/kg)	PHI (days)	Details on trial
			g a.s./ ha	Water (l/ha)	g a.s./hl				Azadirachtin		
FRS012/19/NEU/Germany/2019	Potato/Kuras	25/04/2019 06-08/2019 06/09/2019	30 29	500 500	6 6	27/08/2019 03/09/2019	BBCH 47 BBCH 49	Tuber	<0.003 (<LOD)	3	LOQ = 0.01 mg/kg LOD = 0.003 mg/kg

A 2.1.5 Magnitude of residues in livestock

A 2.1.5.1 Livestock feeding studies

A 2.1.6 Magnitude of residues in processed commodities (Industrial Processing and/or Household Preparation)

A 2.1.6.1 Distribution of the residue in peel/pulp

A 2.1.6.2 Processing studies on a core set of representative processes

A 2.1.7 Magnitude of residues in representative succeeding crops

A 2.1.8 Other/Special Studies

Appendix 3 Pesticide Residue Intake Model (PRIMo rev.3.1)

A 3.1 TMDI calculations

European Food Safety Authority

EFSA PRIMo revision 3.1; 2019/03/19

'paste values' function)

LOQs (mg/kg) range from: 0,01 to: 2,0

Toxicological reference values

ADI (mg/kg bw/day):	0,1	ARfD (mg/kg bw):	0,75
Source of ADI:	EFSA 2018	Source of ARfD:	EFSA 2018
Year of evaluation:		Year of evaluation:	

Input values

Details - chronic risk assessment | Supplementary results - chronic risk assessment

Details - acute risk assessment/children | Details - acute risk assessment/adults

Comments:

Normal mode

Chronic risk assessment: JMPR methodology (IEDI/TMDI)

No of diets exceeding the ADI : ---

TMDI/NEDI/IEDI calculation (based on average food consumption)	Calculated exposure (% of ADI)	MS Diet	Exposure (µg/kg bw per day)	Highest contributor to MS diet (in % of ADI)	Commodity / group of commodities	2nd contributor to MS diet (in % of ADI)	Commodity / group of commodities	3rd contributor to MS diet (in % of ADI)	Commodity / group of commodities	Exposure resulting from MRLs set at the LOQ (in % of ADI)	Exposure resulting from commodities not under assessment (in % of ADI)
	45%	NL toddler	45,17	11%	Apples	7%	Maize/corn	4%	Pears	0,7%	
	33%	DE child	32,70	12%	Apples	4%	Wheat	3%	Potatoes	0,3%	
	26%	GEMS/Food G06	26,02	7%	Wheat	4%	Tomatoes	2%	Potatoes	0,1%	
	23%	NL child	23,02	6%	Apples	4%	Wheat	3%	Potatoes	0,3%	
	22%	DK child	21,87	6%	Rye	4%	Wheat	2%	Potatoes	0,2%	
	21%	IE adult	20,86	4%	Sweet potatoes	2%	Wheat	2%	Potatoes	0,1%	
	21%	RO general	20,74	5%	Wheat	4%	Potatoes	2%	Tomatoes	0,2%	
	20%	GEMS/Food G15	20,41	5%	Wheat	4%	Potatoes	1%	Tomatoes	0,2%	
	20%	GEMS/Food G08	20,30	4%	Wheat	4%	Potatoes	1%	Apples	0,2%	
	19%	PT general	19,13	5%	Potatoes	4%	Wheat	2%	Wine grapes	0,0%	
	19%	GEMS/Food G07	19,08	4%	Wheat	4%	Potatoes	1%	Wine grapes	0,2%	
	19%	GEMS/Food G10	18,97	4%	Wheat	3%	Potatoes	1%	Tomatoes	0,2%	
	18%	GEMS/Food G11	18,49	4%	Potatoes	4%	Wheat	2%	Apples	0,2%	
	17%	FR child 3 15 yr	17,28	5%	Wheat	2%	Oranges	2%	Apples	0,3%	
	17%	SE general	17,03	4%	Potatoes	3%	Wheat	1%	Apples	0,2%	
	15%	FR toddler 2 3 yr	15,39	3%	Apples	3%	Wheat	2%	Potatoes	0,4%	
	15%	IT toddler	15,24	7%	Wheat	2%	Other cereals	1%	Tomatoes	0,0%	
	15%	UK toddler	14,91	4%	Wheat	3%	Potatoes	2%	Apples	0,3%	
	15%	UK infant	14,75	3%	Potatoes	3%	Wheat	2%	Apples	0,4%	
	14%	FI 3 yr	14,36	5%	Potatoes	1%	Wheat	1%	Cucumbers	0,0%	
	14%	ES child	14,03	4%	Wheat	2%	Potatoes	1%	Apples	0,2%	
	13%	DE women 14-50 yr	13,00	3%	Apples	2%	Wheat	1%	Potatoes	0,2%	
	13%	DE general	12,57	2%	Apples	2%	Wheat	1%	Potatoes	0,2%	
	12%	NL general	11,69	2%	Potatoes	2%	Wheat	1%	Apples	0,1%	
	11%	IT adult	11,41	4%	Wheat	1%	Tomatoes	0,8%	Apples	0,0%	
	11%	FI 6 yr	11,22	4%	Potatoes	1,0%	Wheat	0,7%	Cucumbers	0,0%	
	10%	ES adult	10,22	2%	Wheat	0,9%	Potatoes	0,8%	Tomatoes	0,1%	
	10%	LT adult	10,11	3%	Potatoes	2%	Apples	1%	Rye	0,1%	
	10%	FR adult	9,98	2%	Wine grapes	2%	Wheat	0,8%	Apples	0,1%	
	9%	PL general	9,39	3%	Potatoes	2%	Apples	0,9%	Tomatoes	0,0%	
	9%	FR infant	9,26	2%	Potatoes	2%	Apples	1%	Carrots	0,2%	
	9%	UK vegetarian	8,78	2%	Wheat	1%	Potatoes	0,8%	Wine grapes	0,0%	
	8%	DK adult	8,09	1%	Potatoes	1%	Wheat	1,0%	Apples	0,1%	
	7%	UK adult	7,36	2%	Wheat	1%	Potatoes	1%	Wine grapes	0,1%	
	6%	FI adult	6,16	1%	Potatoes	0,7%	Rye	0,6%	Apples	0,1%	
	3%	IE child	3,39	1%	Wheat	0,6%	Potatoes	0,3%	Apples	0,0%	

Conclusion:
The estimated long-term dietary intake (TMDI/NEDI/IEDI) was below the ADI.
The long-term intake of residues of Please insert here the MRLs of COM database (use 'paste values' function) is unlikely to present a public health concern.

A 3.2 IEDI calculations

Not relevant.

A 3.3 IESTI calculations

Acute risk assessment /children	Acute risk assessment / adults / general population	Acute risk assessment /children	Acute risk assessment / adults / general population
Details - acute risk assessment /children	Details - acute risk assessment/adults	Hide IESTI new calculations	Show IESTI new calculations

The acute risk assessment is based on the ARfD.
The calculation is based on the large portion of the most critical consumer group.

IESTI new calculations:
The calculation is performed with the MRL and the peeling/processing factor (PF), taking into account the residue in the edible portion and/or the conversion factor for the residue definition (CF). For case 2a, 2b and 3 calculations a variability factor of 3 is used. Since this methodology is not based on internationally agreed principles, the results are considered as indicative only.
Since this methodology is not based on internationally agreed principles, the results are considered as indicative only.

Show results for all crops

Unprocessed commodities

Results for children
No. of commodities for which ARfD/ADI is exceeded (IESTI): ---

IESTI

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
21%	Potatoes	1 / 1	154
20%	Melons	1 / 1	152
18%	Pears	1 / 1	138
16%	Watermelons	1 / 1	122
14%	Apples	1 / 1	108
13%	Peaches	1 / 1	95
10%	Table grapes	1 / 1	73
9%	Oranges	0,5 / 0,5	66
9%	Cucumbers	1 / 1	66
8%	Carrots	1 / 1	63
8%	Sweet peppers/bell	1 / 1	60
8%	Leeks	1 / 1	59
8%	Tomatoes	1 / 1	58
8%	Cauliflowers	1 / 1	58
8%	Beetroots	1 / 1	57

Expand/collapse list

Total number of commodities exceeding the ARfD/ADI in children and adult diets (IESTI calculation)

Results for adults
No. of commodities for which ARfD/ADI is exceeded (IESTI): ---

IESTI

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
6%	Head cabbages	1 / 1	42
5%	Watermelons	1 / 1	41
5%	Melons	1 / 1	39
5%	Swedes/rutabagas	1 / 1	34
5%	Table grapes	1 / 1	34
4%	Pears	1 / 1	31
4%	Potatoes	1 / 1	30
4%	Yams	1 / 1	28
4%	Apples	1 / 1	28
4%	Cucumbers	1 / 1	28
4%	Aubergines/egg plants	1 / 1	27
3%	Chinese cabbages/pe-tsai	1 / 1	25
3%	Broccoli	1 / 1	24
3%	Wine grapes	1 / 1	24
3%	Courgettes	1 / 1	23

IESTI new
Results for children
No. of commodities for which ARfD/ADI is exceeded (IESTI new): ---

IESTI new

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
12%	Melons	1 / 1	91
10%	Watermelons	1 / 1	73
9%	Potatoes	1 / 1	66
8%	Apples	1 / 1	62
8%	Pears	1 / 1	59
7%	Peaches	1 / 1	54
7%	Apricots	1 / 1	49
6%	Table grapes	1 / 1	44
5%	Cucumbers	1 / 1	39
5%	Cauliflowers	1 / 1	35
4%	Oranges	0,5 / 0,5	33
4%	Celeriacs/turnip rooted	1 / 1	33
4%	Witloofs/Belgian endives	1 / 1	33
4%	Kohlrabies	1 / 1	31
4%	Swedes/rutabagas	1 / 1	31

Total number of commodities found exceeding the ARfD/ADI in children and adult diets (IESTI new calculation)

IESTI new
Results for adults
No. of commodities for which ARfD/ADI is exceeded (IESTI new): ---

IESTI new

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
5%	Plums	1 / 1	39
5%	Pears	1 / 1	36
4%	Potatoes	1 / 1	31
4%	Yams	1 / 1	27
3%	Head cabbages	1 / 1	25
3%	Watermelons	1 / 1	24
3%	Wine grapes	1 / 1	24
3%	Melons	1 / 1	24
3%	Oranges	0,5 / 0,5	23
3%	Swedes/rutabagas	1 / 1	20
3%	Peaches	1 / 1	20
3%	Table grapes	1 / 1	20
3%	Figs	1 / 1	20
3%	Broccoli	1 / 1	19

Processed commodities

Results for children
No of processed commodities for which ARfD/ADI is exceeded (IESTI): ---

IESTI

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
12%	Potatoes / fried	1 / 1	93
12%	Pumpkins / boiled	1 / 1	89
12%	Witloofs / boiled	1 / 1	89
11%	Broccoli / boiled	1 / 1	79
9%	Cauliflowers / boiled	1 / 1	70
9%	Escaroles/broad-leaved er	1 / 1	66
8%	Potatoes / dried (flakes)	1 / 4,6	59
8%	Leeks / boiled	1 / 1	57
7%	Apples / juice	1 / 1	54
7%	Turnips / boiled	1 / 1	51
7%	Parsnips / boiled	1 / 1	51
7%	Sweet potatoes / boiled	1 / 1	50
6%	Florence fennels / boiled	1 / 1	45
6%	Beetroots / boiled	1 / 1	44
6%	Wine grapes / juice	1 / 1	44

Expand/collapse list

Results for adults
No of processed commodities for which ARfD/ADI is exceeded (IESTI): ---

IESTI

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
7%	Pumpkins / boiled	1 / 1	55
6%	Cauliflowers / boiled	1 / 1	42
5%	Beetroots / boiled	1 / 1	39
5%	Celeries / boiled	1 / 1	34
4%	Apples / juice	1 / 1	33
3%	Broccoli / boiled	1 / 1	24
3%	Courgettes / boiled	1 / 1	23
3%	Parsnips / boiled	1 / 1	21
3%	Kohlrabies / boiled	1 / 1	21
3%	Wine grapes / juice	1 / 1	21
3%	Escaroles/broad-leaved	1 / 1	20
3%	Florence fennels / boiled	1 / 1	19
3%	Turnips / boiled	1 / 1	19
3%	Cassava roots / boiled	1 / 1	19
2%	Witloofs / boiled	1 / 1	18

Results for children
No of processed commodities for which ARfD/ADI is exceeded (IESTI new): ---

IESTI new

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
8%	Potatoes / dried (flakes)	1 / 4,6	59
7%	Apples / juice	1 / 1	54
7%	Pumpkins / boiled	1 / 1	53
6%	Broccoli / boiled	1 / 1	47
6%	Witloofs / boiled	1 / 1	47
6%	Potatoes / fried	1 / 1	44
6%	Wine grapes / juice	1 / 1	44
6%	Cauliflowers / boiled	1 / 1	42
5%	Escaroles/broad-leaved	1 / 1	40
5%	Carrots / juice	1 / 1	36
4%	Leeks / boiled	1 / 1	33
4%	Pears / juice	1 / 1	33
4%	Currants (red, black and	1 / 1	29
4%	Sweet potatoes / boiled	1 / 1	28
4%	Florence fennels / boiled	1 / 1	27

Results for adults
No of processed commodities for which ARfD/ADI is exceeded (IESTI new): ---

IESTI new

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
5%	Pumpkins / boiled	1 / 1	40
4%	Apples / juice	1 / 1	33
3%	Cauliflowers / boiled	1 / 1	25
3%	Witloofs / boiled	1 / 1	22
3%	Wine grapes / juice	1 / 1	21
3%	Celeries / boiled	1 / 1	20
3%	Broccoli / boiled	1 / 1	20
3%	Rhubarbs / sauce/puree	1 / 1	19
2%	Beetroots / boiled	1 / 1	17
2%	Courgettes / boiled	1 / 1	16
2%	Escaroles/broad-leaved endives /	1 / 1	16
2%	Leeks / boiled	1 / 1	14
2%	Currants (red, black and white) /	1 / 1	13
2%	Maize / oil	1 / 25	13
2%	Florence fennels / boiled	1 / 1	12

Conclusion:
No exceedance of the toxicological reference value was identified for any unprocessed commodity.
A short term intake of residues of Please insert here the MRLs of COM database (use 'paste values' function), is unlikely to present a public health risk.
For processed commodities, no exceedance of the ARfD/ADI was identified.

Evaluator's calculations

TMDI calculations (input: all MRLs and conversion factor of 9)

European Food Safety Authority

EFSA PRIMo revision 3.1; 2019/03/19

Azadirachtin

LOQs (mg/kg) range from: to:

Toxicological reference values

ADI (mg/kg bw/day):	0,1	ARfD (mg/kg bw):	0,75
Source of ADI:		Source of ARfD:	
Year of evaluation:		Year of evaluation:	

Input values

Details - chronic risk assessment | Supplementary results - chronic risk assessment

Details - acute risk assessment/children | Details - acute risk assessment/adults

Comments:

Normal mode

Chronic risk assessment: JMPR methodology (IEDI/TMDI)

No of diets exceeding the ADI : 24

TMDI/NEDI/IEDI calculation (based on average food consumption)	Calculated exposure (% of ADI)	MS Diet	Exposure (µg/kg bw per day)	Highest contributor to MS diet (in % of ADI)	Commodity / group of commodities	2nd contributor to MS diet (in % of ADI)	Commodity / group of commodities	3rd contributor to MS diet (in % of ADI)	Commodity / group of commodities	Exposure resulting from: MRLs set at the LOQ (in % of ADI)	Exposure resulting from: commodities not under assessment (in % of ADI)
	401%	NL toddler	401,46	97%	Apples	63%	Maize/corn	39%	Pears		
	293%	DE child	292,52	112%	Apples	38%	Wheat	23%	Potatoes		
	234%	GEMS/Food G06	233,81	65%	Wheat	32%	Tomatoes	18%	Potatoes		
	205%	NL child	204,96	52%	Apples	37%	Wheat	31%	Potatoes		
	195%	DK child	195,43	50%	Rye	40%	Wheat	22%	Potatoes		
	187%	IE adult	187,00	32%	Sweet potatoes	21%	Wheat	21%	Potatoes		
	185%	RO general	185,45	46%	Wheat	34%	Potatoes	17%	Tomatoes		
	183%	GEMS/Food G15	182,83	41%	Wheat	32%	Potatoes	11%	Tomatoes		
	182%	GEMS/Food G08	181,97	37%	Wheat	35%	Potatoes	11%	Apples		
	172%	PT general	172,21	48%	Potatoes	35%	Wheat	22%	Wine grapes		
	171%	GEMS/Food G07	170,84	38%	Wheat	34%	Potatoes	13%	Wine grapes		
	170%	GEMS/Food G10	170,04	35%	Wheat	27%	Potatoes	12%	Tomatoes		
	166%	GEMS/Food G11	165,53	35%	Potatoes	32%	Wheat	14%	Apples		
	153%	FR child 3 15 yr	153,24	41%	Wheat	15%	Oranges	15%	Apples		
	152%	SE general	151,88	38%	Potatoes	29%	Wheat	9%	Apples		
	137%	IT toddler	137,13	60%	Wheat	14%	Other cereals	13%	Tomatoes		
	136%	FR toddler 2 3 yr	135,87	29%	Apples	28%	Wheat	17%	Potatoes		
	132%	UK toddler	132,32	35%	Wheat	31%	Potatoes	15%	Apples		
	129%	UK infant	129,37	29%	Potatoes	24%	Wheat	14%	Apples		
	129%	FI 3 yr	129,24	42%	Potatoes	11%	Wheat	9%	Cucumbers		
	125%	ES child	124,83	40%	Wheat	17%	Potatoes	10%	Apples		
	116%	DE women 14-50 yr	115,85	23%	Apples	19%	Wheat	10%	Potatoes		
	112%	DE general	112,00	22%	Apples	17%	Wheat	11%	Potatoes		
	104%	NL general	104,37	22%	Potatoes	17%	Wheat	13%	Apples		
	103%	IT adult	102,69	37%	Wheat	10%	Tomatoes	7%	Apples		
	101%	FI 6 yr	100,94	35%	Potatoes	9%	Wheat	6%	Cucumbers		
	91%	ES adult	91,31	21%	Wheat	8%	Potatoes	7%	Tomatoes		
	90%	LT adult	90,48	29%	Potatoes	17%	Apples	10%	Rye		
	89%	FR adult	89,24	21%	Wine grapes	20%	Wheat	7%	Apples		
	85%	PL general	84,50	31%	Potatoes	18%	Apples	8%	Tomatoes		
	82%	FR infant	81,90	17%	Potatoes	15%	Apples	10%	Carrots		
	79%	UK vegetarian	78,70	18%	Wheat	12%	Potatoes	7%	Wine grapes		
	72%	DK adult	72,15	11%	Potatoes	10%	Wheat	9%	Apples		
	66%	UK adult	65,88	15%	Wheat	13%	Potatoes	10%	Wine grapes		
	55%	FI adult	55,43	11%	Potatoes	6%	Rye	5%	Apples		
	30%	IE child	30,16	10%	Wheat	5%	Potatoes	3%	Apples		

Conclusion:

The estimated TMDI/NEDI/IEDI was in the range of 0 % to 401,5 % of the ADI.
For 24 diet(s) the ADI is exceeded.

TMDI calculations (input: STMR values derived from the available trials; conversion factor of 9; proposed uses; refined calculations)

European Food Safety Authority

EFSA PRIMo revision 3.1; 2019/03/19

Azadirachtin

LOQs (mg/kg) range from: to:

Toxicological reference values

ADI (mg/kg bw/day):	0,1	ARfD (mg/kg bw):	0,75
Source of ADI:		Source of ARfD:	
Year of evaluation:		Year of evaluation:	

Input values

Details - chronic risk assessment | Supplementary results - chronic risk assessment

Details - acute risk assessment/children | Details - acute risk assessment/adults

Comments:

Normal mode

Chronic risk assessment: JMPR methodology (IEDI/TMDI)

No of diets exceeding the ADI : ---

	Calculated exposure (% of ADI)	MS Diet	Exposure (µg/kg bw per day)	Highest contributor to MS diet (in % of ADI)	Commodity / group of commodities	2nd contributor to MS diet (in % of ADI)	Commodity / group of commodities	3rd contributor to MS diet (in % of ADI)	Commodity / group of commodities	Exposure resulting from MRLs set at the LOQ (in % of ADI)	Exposure resulting from commodities not under assessment (in % of ADI)
TMDI/NEDI/IEDI calculation (based on average food consumption)	3%	GEMS/Food G06	3,40	3%	Tomatoes	0,2%	Potatoes				
	2%	RO general	2,08	2%	Tomatoes	0,3%	Potatoes				
	1%	GEMS/Food G10	1,50	1%	Tomatoes	0,3%	Potatoes				
	1%	GEMS/Food G15	1,39	1%	Tomatoes	0,3%	Potatoes				
	1%	GEMS/Food G08	1,38	1%	Tomatoes	0,4%	Potatoes				
	1%	IT toddler	1,36	1%	Tomatoes	0,1%	Potatoes				
	1%	GEMS/Food G07	1,31	1,0%	Tomatoes	0,3%	Potatoes				
	1%	PT general	1,29	0,8%	Tomatoes	0,5%	Potatoes				
	1%	NL toddler	1,28	0,9%	Tomatoes	0,4%	Potatoes				
	1%	GEMS/Food G11	1,17	0,8%	Tomatoes	0,4%	Potatoes				
	1%	DE child	1,13	0,9%	Tomatoes	0,2%	Potatoes				
	1%	PL general	1,10	0,8%	Tomatoes	0,3%	Potatoes				
	1%	IT adult	1,10	1%	Tomatoes	0,1%	Potatoes				
	1%	SE general	1,06	0,7%	Tomatoes	0,4%	Potatoes				
	1%	ES child	1,05	0,9%	Tomatoes	0,2%	Potatoes				
	0,9%	FI 3 yr	0,93	0,5%	Tomatoes	0,4%	Potatoes				
	0,9%	FR child 3 15 yr	0,89	0,8%	Tomatoes	0,1%	Potatoes				
	0,8%	UK toddler	0,84	0,5%	Tomatoes	0,3%	Potatoes				
	0,8%	LT adult	0,84	0,6%	Tomatoes	0,3%	Potatoes				
	0,8%	NL child	0,82	0,5%	Tomatoes	0,3%	Potatoes				
	0,8%	ES adult	0,79	0,7%	Tomatoes	0,1%	Potatoes				
	0,8%	DE women 14-50 yr	0,76	0,7%	Tomatoes	0,1%	Potatoes				
	0,7%	FI 6 yr	0,74	0,4%	Tomatoes	0,3%	Potatoes				
	0,7%	DE general	0,70	0,6%	Tomatoes	0,1%	Potatoes				
	0,7%	DK child	0,70	0,5%	Tomatoes	0,2%	Potatoes				
	0,7%	UK vegetarian	0,68	0,6%	Tomatoes	0,1%	Potatoes				
	0,6%	UK infant	0,62	0,3%	Tomatoes	0,3%	Potatoes				
	0,6%	FI adult	0,61	0,5%	Tomatoes	0,1%	Potatoes				
	0,6%	NL general	0,60	0,4%	Tomatoes	0,2%	Potatoes				
	0,6%	FR toddler 2 3 yr	0,60	0,4%	Tomatoes	0,2%	Potatoes				
	0,6%	DK adult	0,58	0,5%	Tomatoes	0,1%	Potatoes				
	0,6%	IE adult	0,57	0,4%	Tomatoes	0,2%	Potatoes				
	0,5%	UK adult	0,52	0,4%	Tomatoes	0,1%	Potatoes				
	0,5%	FR adult	0,48	0,4%	Tomatoes	0,1%	Potatoes				
	0,3%	FR infant	0,25	0,2%	Potatoes	0,1%	Tomatoes				
	0,1%	IE child	0,10	0,1%	Potatoes	0,0%	Tomatoes				

Conclusion:

The estimated long-term dietary intake (TMDI/NEDI/IEDI) was below the ADI.

The long-term intake of residues of Azadirachtin is unlikely to present a public health concern.

IESTI calculations ((input: HR values derived from the available trials for proposed uses and conversion factor of 9)

Acute risk assessment /children	Acute risk assessment / adults / general population	Acute risk assessment /children	Acute risk assessment / adults / general population
Details - acute risk assessment /children	Details - acute risk assessment/adults	Hide IESTI new calculations	Show IESTI new calculations

The acute risk assessment is based on the ARfD.
The calculation is based on the large portion of the most critical consumer group.

IESTI new calculations:
The calculation is performed with the MRL and the peeling/processing factor (PF), taking into account the residue in the edible portion and/or the conversion factor for the residue definition (CF). For case 2a, 2b and 3 calculations a variability factor of 3 is used. Since this methodology is not based on internationally agreed principles, the results are considered as indicative only.
Since this methodology is not based on internationally agreed principles, the results are considered as indicative only.

Show results for all crops

Unprocessed commodities

Results for children No. of commodities for which ARfD/ADI is exceeded (IESTI): ---	**Results for adults** No. of commodities for which ARfD/ADI is exceeded (IESTI): ---	**IESTI new Results for children** No. of commodities for which ARfD/ADI is exceeded (IESTI new): ---	**IESTI new Results for adults** No. of commodities for which ARfD/ADI is exceeded (IESTI new): ---

IESTI

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
9%	Tomatoes	0 / 0,9	67
2%	Potatoes	0 / 0,09	18

IESTI

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
2%	Tomatoes	0 / 0,9	17
0,4%	Potatoes	0 / 0,09	3,3

IESTI new

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)

IESTI new

Highest % of ARfD/ADI	Commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)

Expand/collapse list

Total number of commodities exceeding the ARfD/ADI in children and adult diets (IESTI calculation)		**Total number of commodities found exceeding the ARfD/ADI in children and adult diets (IESTI new calculation)**	

Processed commodities

Results for children No of processed commodities for which ARfD/ADI is exceeded (IESTI): ---	**Results for adults** No of processed commodities for which ARfD/ADI is exceeded (IESTI): ---	**Results for children** No of processed commodities for which ARfD/ADI is exceeded (IESTI new): ---	**Results for adults** No of processed commodities for which ARfD/ADI is exceeded (IESTI new): ---

IESTI

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
2%	Tomatoes / juice	0 / 0,9	17
1%	Potatoes / fried	0 / 0,09	11
1%	Tomatoes / sauce/puree	0 / 0,9	8,6
0,7%	Potatoes / dried (flakes)	0 / 0,41	5,3

IESTI

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)
1,0%	Tomatoes / sauce/puree	0 / 0,9	7,4
0,1%	Potatoes / chips	0 / 0,09	0,76
0,07%	Potatoes / dried (flakes)	0 / 0,41	0,52

IESTI new

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)

IESTI new

Highest % of ARfD/ADI	Processed commodities	MRL / input for RA (mg/kg)	Exposure (µg/kg bw)

Expand/collapse list

Conclusion:
No exceedance of the toxicological reference value was identified for any unprocessed commodity.
A short term intake of residues of Azadirachtin is unlikely to present a public health risk.
For processed commodities, no exceedance of the ARfD/ADI was identified.

Appendix 4 Additional information provided by the applicant

No further data submitted.