

NF VALIDATION
Validation of alternative analytical methods
Application in food microbiology

Summary report

Validation study according to the EN ISO 16140-2:2016

**GENE-UP® S. Enteritidis & S. Typhimurium
(SEST) kit** (Certificate number: BIO 12/44-02/23)

for *Salmonella* Enteritidis and *Salmonella* Typhimurium detection
in pork and poultry meat and egg products

Qualitative method

> Expert Laboratory:	ADRIA Développement ZA Creac'h Gwen 29196 Quimper Cedex (France)
> For:	bioMérieux 376 Chemin de l'Orme 69280 Marcy L'Etoile (France)

This report consists of 78 pages, including 8 appendices.

Only copies including the totality of this report are authorised.

Competencies of the laboratory are certified by COFRAC accreditation for the analyses marked with the symbol♦.

Version 0
March 8, 2023



1	INTRODUCTION	5
2	METHOD PROTOCOLS	5
2.1	Alternative method	5
2.1.1	Principle	5
2.1.2	Protocol	6
2.1.3	Restrictions	7
2.2	Reference method	7
2.3	Study design	8
3	METHOD COMPARISON STUDY	8
3.1	Sensitivity study	8
3.1.1	Number and nature of samples	8
3.1.2	Artificial contamination of samples	9
3.1.3	Protocols applied during the validation study	9
3.1.4	Test results	10
3.1.5	Calculation of relative trueness (RT), sensitivity (SE) and false positive ratio (FPR)	10
3.1.6	Analysis of discordant results	12
3.1.7	Enrichment broth storage at 5 ± 3 °C for 72 h	14
3.1.8	Confirmation	16
3.1.9	PCR inhibition	18
3.2	Relative level of detection	18
3.2.1	Experimental design	18
3.2.2	Calculation and interpretation of the RLOD	19
3.2.3	Conclusion	20
3.3	Inclusivity / exclusivity	20
3.3.1	Test protocols	20
3.3.2	Results	21
4	INTER-LABORATORY STUDY	22
4.1	Study organisation	22
4.2	Experimental parameters controls	23
4.2.1	Strain stability and background microflora stability	23
4.2.2	Contamination levels	24
4.2.3	Logistic conditions	24
4.3	Results analysis	25
4.3.1	Expert laboratory results	25
4.3.2	Results observed by the collaborative laboratories	26

4.3.3	Results of the collaborators retained for interpretation _____	27
4.4	Calculation and interpretation _____	28
4.4.1	Calculation of the specificity percentage (SP) _____	28
4.4.2	Calculation of the sensitivity of the alternative method (SE_{alt}), the sensitivity for the reference method (SE_{ref}), the relative trueness (RT) and the false positive ratio for the alternative method (FPR) _	29
4.4.3	Interpretation of data _____	30
4.4.4	Evaluation of the LOD _{50%} , LOD _{95%} and RLOD between laboratories _____	32
5	CONCLUSION _____	32
	<i>Appendix 1 – Flow diagram of the alternative method: GENE-UP® S. Enteritidis & S. Typhimurium (SEST) _____</i>	<i>34</i>
	<i>Appendix 2 – Flow diagram of the reference methods _____</i>	<i>35</i>
	<i>Appendix 3 – Artificial contamination of samples _____</i>	<i>38</i>
	<i>Appendix 4 – Sensitivity study: raw data _____</i>	<i>42</i>
	<i>Appendix 5 – Relative level of detection study: raw data _____</i>	<i>59</i>
	<i>Appendix 6 – Inclusivity and exclusivity study: raw data _____</i>	<i>61</i>
	<i>Appendix 7 - Results obtained by the collaborative laboratories and the expert laboratory _____</i>	<i>66</i>
	<i>Appendix 8 – Curves obtained for the samples concerned by the positive ST results _____</i>	<i>78</i>

Quality Assurance documents related to this study can be consulted upon request from **bioMérieux**.

The technical protocol and the result interpretation were carried out according to the EN ISO 16140-2:2016 and the AFNOR technical rules (PR Revision 7).

Validation protocols	<ul style="list-style-type: none"> ▪ EN ISO 16140-1 (June 2016): Microbiology of the food chain - Method validation - <i>Part 1: Vocabulary</i> ▪ EN ISO 16140-2 (June 2016): Microbiology of the food chain - Method validation - <i>Part 2: Protocol for the validation of alternative (proprietary) methods against a reference method</i> ▪ AFNOR Technical Rules (PR Revision n° 7)
Reference methods	<ul style="list-style-type: none"> - ISO 6579-1[♦] (2017) - Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of <i>Salmonella</i> spp. - Part 1: detection of <i>Salmonella</i> spp. - ISO 6579-1/A1[♦] (March 2020): Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of <i>Salmonella</i> spp. - Part 1: detection of <i>Salmonella</i> spp. Amendment 1: Broader range of incubation temperatures, amendment to the status of Annex D, and correction of the composition of MSR V and SC - ISO/TR 6579-3 (October 2014) - Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of <i>Salmonella</i> - Part 3: guidelines for serotyping of <i>Salmonella</i> spp.
Alternative method	GENE-UP[®] S. Enteritidis & S. Typhimurium (SEST)
Scope	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Pork and poultry meat products <input checked="" type="checkbox"/> Egg products
Certification organism	AFNOR Certification (http://nf-validation.afnor.org/)

[♦] Analyses performed according to the COFRAC accreditation

1 INTRODUCTION

The **GENE-UP® S. Enteritidis & S. Typhimurium (SEST) kit for *Salmonella* Enteritidis and *Salmonella* Typhimurium detection** was validated in February 2023 according to EN ISO 16140 (2003) standard (certificate number BIO 12/44-02/23) for pork and poultry meat products and egg products.

2 METHOD PROTOCOLS

2.1 Alternative method

The flow diagram of the alternative method is provided in **Appendix 1**.

2.1.1 Principle

The GENE-UP® S. Enteritidis & S. Typhimurium kit is to be used with the GENE-UP® Thermocycler. The GENE-UP® SEST kit contains all the necessary components for PCR, including sample-specific primers and probes and an internal amplification control.

The GENE-UP® Thermocycler detects fluorescence at several wavelengths (channels) to allow multitarget detection in the same reaction vessel. The fluorescent signal of the *S. Enteritidis* and *S. Typhimurium* targets is recorded in channel 640, while the fluorescent signal for an internal amplification control is recorded in channel 705. The software automatically interprets the results for both fluorescence channels and determines the sample result based on the outcome of the control.

The assay for the targets and the internal amplification control utilizes dual Fluorescence Resonance Energy Transfer (FRET) hybridization probes. These probes consist of two different, short oligonucleotides that hybridize to an internal sequence of the amplified fragment during the annealing phase of the reaction cycle. The first probe for the sample assay is labelled at the 3' end with fluorescein; the second probe is labelled at the 5' end with LC Red 640. FRET occurs only after the two probes come in close proximity from hybridizing to the template DNA.

The resulting fluorescent signal from the FRET interaction, which forms a real-time amplification curve, is how the amplified target is detected by the GENE-UP® Thermocycler.

After amplification fluorescence detection is complete, the GENE-UP instrument can perform a melt by increasing the temperature such that the sample DNA strands begin to melt. As the DNA strands melt, the observed fluorescence of the target DNA decreases at a rate that is characteristic for a particular DNA sequence, such that

genotyping can occur. Melt peaks are generated by taking the negative derivative of fluorescence against temperature. At the end of the PCR program, the PCR products are melted to determine the presence of the DNA target.

The software uses the melt peak and results are automatically interpreted to conclude to a positive, a negative result or inhibited result as shown Table 1.

Software version 3.2 will be used for this validation study.

Table 1 - Interpretation of the results

S. Enteritidis (640 nm)	S. Typhimurium (640 nm)	Internal Amplification Control (705 nm)	Result
+	+	+	Presence of S. Enteritidis (SE) and S. Typhimurium (ST)
+	+	-	Presence of S. Enteritidis (SE) and S. Typhimurium (ST)
+	-	+	Presence of S. Enteritidis (SE)
-	+	+	Presence of S. Typhimurium (ST)
+	-	-	Presence of S. Enteritidis (SE)
-	+	-	Presence of S. Typhimurium (ST)
-	-	+	Negative
-	-	-	Inhibition

2.1.2 Protocol

The different enrichment protocols available are summarized in Table 2.

Table 2 – Enrichment protocols

Category		Primary enrichment
1	Raw pork and poultry meat	25 g + 225 ml BPW (according to ISO 6887 parts) Incubation 18 - 26 h at 34-38°C
2	Egg products	

- Lysis step using the GENE-UP lysis kit on **20 µL** enrichment (BPW)
- Real time PCR on **10 µL** lysate using the GENE-UP S. Enteritidis & S. Typhimurium (SEST) kit

- Cultural confirmation:
 - By direct streaking of the primary enrichment broth onto XLD or ASAP. The typical colonies are confirmed after subculture on non-selective agar plate using the *Salmonella* Sero-Quick ID kit-ABE / Ref 18350 or the tests described in the ISO 6579-3.
 - In case of no typical colony present on the selective agar plates or negative confirmation using the protocol described above: by running a sub-culture in SX2 broth before streaking onto XLD or ASAP. The typical colonies are confirmed after subculture on non-selective agar plate using the *Salmonella* Sero-Quick ID kit-ABE / Ref 18350 or the tests described in the ISO 6579-3.

It is possible to store the enrichment broths and the lysates for 72 h at 5°C ± 3°C before proceeding to lysis step, PCR and confirmation.

2.1.3 Restrictions

There is no restriction for use.

2.2 Reference method

The reference methods correspond to:

- The ISO 6579-1[♦] (2017) - Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* -- Part 1: detection of *Salmonella* spp. (See **Appendix 2**)
- The ISO 6579-1/A1[♦] (March 2020): Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp. Amendment 1: Broader range of incubation temperatures, amendment to the status of Annex D, and correction of the composition of MSR/V and SC
- The ISO/TR 6579-3 (October 2014) - Microbiology of the food chain -- Horizontal method for the detection, enumeration and serotyping of *Salmonella* -- Part 3: Guidelines for serotyping of *Salmonella* spp.

During the validation study, the serotyping for the reference method was subcontracted to LABOCEA which has an agreement for the serotyping of *Salmonella* spp.

The results of the reference method were interpreted combining the ISO 6579-1 and ISO / TR 6579-3.

2.3 Study design

The study is a **paired study design** as the reference and the alternative methods have the same enrichment procedure for food samples.

3 METHOD COMPARISON STUDY

The method comparison study is a study performed by the expert laboratory to compare the alternative method with the reference method.

The study was carried out on a diversity of samples and strains representative of agri-food products. This does not constitute an exhaustive list of the different matrices included in the scope.

For any comment on the alternative method, please contact AFNOR Certification at <http://nf-validation.afnor.org/contact-2/>.

3.1 Sensitivity study

The sensitivity (SE) is the ability of the method to detect the analyte by either the reference or alternative method.

3.1.1 Number and nature of samples

135 samples were analysed. The distribution per tested category and type is given in Table 3.

Table 3 – Distribution per tested category and type

Categories		Positive samples			Negative samples	Total
		SEST	SE	ST	SEST	
1	Meat products	15	9	6	7	22
		13	5	8	9	22
		13	6	7	8	21
		41	20	21	24	65
2	Egg products	11	6	5	11	22
		15	8	7	9	24
		15	7	8	9	24
		41	21	20	29	70
ALL CATEGORIES		82	41	41	54	135

SE: *Salmonella* Enteritidis ST: *Salmonella* Typhimurium
SEST: *Salmonella* Enteritidis **and** *Salmonella* Typhimurium

3.1.2 Artificial contamination of samples

Artificial contaminations were done by seeding or spiking protocol. The artificial contaminations are presented in **Appendix 3**.

122 samples were artificially contaminated, 16 of them were inoculated with two *Salmonella* strains (*S. Enteritidis* or *S. Typhimurium* co-inoculated with another *Salmonella* spp. strain), 82 gave a positive result. No naturally contaminated sample with one of the serotypes (SE or ST) was tested during this study. 75.6 % of the positive samples were contaminated below 3 CFU (spiking protocol) and 5 CFU (seeding protocol), 11.0 % were contaminated between 3 and 10 CFU (seeding protocol). 11 samples were inoculated between 10 and 30 CFU, this concerns shell eggs which required a higher inoculation level to obtain positive results.

The repartition of the positive samples per inoculation protocol and inoculation level is given in Table 4.

Table 4 - Repartition of the positive samples per inoculation protocol and inoculation level

Category	Naturally contaminated	Artificially contaminated						Total
		Seeding protocol			Spiking protocol			
		≤ 3 CFU	3 < x ≤ 10 CFU	10 < x < 30 CFU	≤ 5 CFU	5 < x ≤ 10 CFU	10 < x < 30 CFU	
All categories	0	45	9	11	17	0	0	82
%	0,0%	54,9%	11,0%	13,4%	20,7%	0,0%	0,0%	100,0%

0 % of the samples were naturally contaminated.

3.1.3 Protocols applied during the validation study

> **Incubation time**

The minimum incubation time was applied: 18 h at 34-38°C

> **Confirmations**

During the validation, the confirmation will be carried on as described in Table 5.

Table 5 – Confirmation tests applied during the validation

Selective agar plates	Food samples					
	Direct streaking		SX2 - 6 h For PCR positive samples confirmed negative by direct streaking		SX2 - 24 h For PCR negative results (for all the samples during the validation study)	
	SSI	Tests according to the ISO 6579-3	SSI	Tests according to the ISO 6579-3	SSI	Tests according to the ISO 6579-3
XLD	X	/	X*	X*	X*	X*
ASAP	X	X	X*	X*	X*	X*

X*: if the results are not obtained from the direct streaking

During the validation study, the typical colonies were also confirmed by the serological tests according to the ISO 6579-3. This test was applied on ASAP selective agar plates.

> **Enrichment broths and lysates storage for 72h at 5 ± 3°C**

The positive and discordant samples were tested a second time after storage of the enrichment broths and lysates for 72 h at 5°C ± 3°C (PCR and confirmatory tests).

3.1.4 Test results

Raw data per category are given in **Appendix 4**. The results are given in Table 6.

Table 6 – Interpretation of sample results between the reference and alternative method (based on the confirmed alternative method results)

Category		PA	NA*	PD	ND**	PPND	PPNA	Total
1	Pork and poultry meat products	36	24	4	1	0	0	65
2	Egg products	39	29	2	0	0	0	70
All categories		75	53	6	1	0	0	135

* PPNA not included

** PPND not included

3.1.5 Calculation of relative trueness (RT), sensitivity (SE) and false positive ratio (FPR)

The calculations are presented in Table 7.

Table 7 – Calculation of the relative trueness (RT), the sensitivity (SE) and the false positive ratio (FPR)

Categories		Types	PA	NA*	PD	ND**	PPND	PPNA	SE _{alt} %	SE _{ref} %	RT %	FPR %	
1	Meat products	a	Raw poultry	13	7	1	1	0	0	93,3	93,3	90,9	0,0
		b	Raw pork meat	11	9	2	0	0	0	100,0	84,6	90,9	0,0
		c	Delicatessen, Ready-to-eat	12	8	1	0	0	0	100,0	92,3	95,2	0,0
		Total		36	24	4	1	0	1	97,6	90,2	92,3	0,0
2	Egg products	a	Shell eggs	11	11	0	0	0	0	100,0	100,0	100,0	0,0
		b	Egg powders	15	9	0	0	0	0	100,0	100,0	100,0	0,0
		c	Liquid egg products	13	9	2	0	0	0	100,0	86,7	91,7	0,0
		Total		39	29	2	0	0	0	100,0	95,1	97,1	0,0
ALL CATEGORIES			75	53	6	1	0	0	98,8	92,7	94,8	0,0	

* PPNA not included

** PPND not included

A summary of the results is given in Table 8.

Table 8 - Summary of results

Sensitivity for the alternative method	$SE_{alt} = \frac{(PA + PD)}{(PA + ND + PD)} \times 100\%$	98.8 %
Sensitivity for the reference method	$SE_{ref} = \frac{(PA + ND)}{(PA + ND + PD)} \times 100\%$	92.7 %
Relative trueness	$RT = \frac{(PA + NA)}{N} \times 100\%$	94.8%
False positive ratio for the alternative method* FP = PPNA + PPND	$FPR = \frac{(FP)}{NA} \times 100\%$	0.0%

With $ND = ND + PPND$
 $NA = NA + PPNA$

3.1.6 Analysis of discordant results

The negative deviations are given in Table 9 and the positive deviations in Table 10. Only one negative deviation was observed combining the two tested categories, this concerns sample n°529 (turkey meat, artificially contaminated with *S. Enteritidis* Ad2524). A negative PCR result was obtained with the GENE-UP® *S. Enteritidis* & *S. Typhimurium* (SEST) kit. The presence of *Salmonella* Enteritidis was confirmed in the enrichment broth only after applying a subculture in SX2 before streaking onto selective agar plates. The DNA extract was tested twice again and positive PCR results were obtained.

Note that for this sample, the PCR tests performed on BPW and Lysate stored for 72 h at $5^{\circ}\text{C} \pm 3^{\circ}\text{C}$ were positive.

Six samples gave positive deviations (n°1997, n°2000, n°2001, n°2004, n°2009, n°2012). All these samples were co-inoculated with 2 strains: 2 samples with *S. Enteritidis* + *Salmonella* spp. and 4 samples with *S. Typhimurium* + *Salmonella* spp.. There was no sample in negative agreement confirmed positive.

Table 9 - Negative deviations

Sample N°	Product	Artificial contaminations		Global result GENE-UP SE+ST	ISO 6579-1 Result SEST	Alternative method: GENE-UP® S. Enteritidis & S. Typhimurium (SEST) kit											Category	Type
						BPW 18h 34-38°C												
		Strain	Inoculation level CFU/sample Mean			PCR result						Confirmation SEST final result	Final result GENE-UP 18h SEST	Agreement GENE-UP SEST				
						Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC				Final result			
529	Poultry meat	S. Enteritidis Ad2594	1,6	+	+	0,0/ 0,0/ 15,09	0,0/ 0,0/ 0,0	32,99/ 32,7/ 32,58	0,0/ 66,7/ 67,12	0,0/ 0,0/ 0,0	61,79/ 62,2/ 62,23	-/ +SE/ +SE	+	-	ND	1	a	

Table 10 - Positive deviations

Sample N°	Product	Artificial contaminations		Global result GENE-UP SE+ST	ISO 6579-1 Result SEST	Alternative method: GENE-UP® S. Enteritidis & S. Typhimurium (SEST) kit				Category	Type
						BPW 18h 34-38°C					
		Strain	Inoculation level CFU/sample Mean			PCR final result	Confirmation SEST final result	Final result GENE-UP 18h SEST	Agreement GENE-UP SEST		
1997	Organic chicken meat	S. Enteritidis Ad2525 + S. Infantis 937	2,4 / 2,8	+	Salmonella Infantis (SEST- x20 col)	+SE	+	+	PD	1	a
2000	Raw pork meat	S. Typhimurium 193 + S. Bredeney 464	1,8 / 3,0	+	Salmonella Bredeney (SEST- x20 col)	+ST/i/+ST	+	+	PD	1	b
2001	Raw pork meat	S. Typhimurium 193 + S. Bredeney 464	1,8 / 3,0	+	Salmonella Bredeney (SEST- x20 col)	+ST/+ST/+ST	+	+	PD	1	b
2004	Smoked garlic sausage	S. Typhimurium 193 + S. London 326	1,8 / 2,4	+	Salmonella London (SEST-x20col)	+ST	+(72h)	+	PD	1	c
2009	Egg yolk powder	S. Enteritidis 657 + S. Infantis 937	0,8 / 2,8	+	Salmonella Infantis (SEST- x20 col)	+SE	+	+	PD	2	c
2012	Whole egg powder	S. Typhimurium Ad1484 + S. Infantis 937	3,0 / 2,8	+	Salmonella Infantis (SEST- x20 col)	+ST	+	+	PD	2	c

♦ Analyses performed according to the COFRAC accreditation

The analyses of discordant results according to the EN ISO 16140-2:2016 is the following (See Table 11):

Table 11 - Analyses of discordant results

Categories		Types		N+	ND**	PPND	PD	PAIRED STUDY			
								(ND+PPND) +PD	AL	(ND+PPND) -PD	AL
1	Meat products	a	Raw poultry	15	1	0	1	2		0	
		b	Raw pork meat	13	0	0	2	2		-2	
		c	Delicatessen, Ready-to-eat	13	0	0	1	1		-1	
		Total		41	1	0	4	5	6	-3	3
2	Egg products	a	Shell eggs	11	0	0	0	0		0	
		b	Egg powders	15	0	0	0	0		0	
		c	Liquid egg products	15	0	0	2	0		0	
		Total		41	0	0	2	2	6	-2	3
ALL CATEGORIES				82	1	0	6	7	8	-5	4

* PPNA not included

** PPND not included

The observed values for ND+ PPND - PD and ND +PPND +PD meet the acceptability limit for each individual category and for the two combined categories (calculated values ≤ AL).

3.1.7 Enrichment broth and lysate storage at 5 ± 3 °C for 72 h

The following changes were observed (See Table 12). For sample 1997, the PCR was positive for SE, but it was impossible to recover the strain from the enrichment broth, only the *Salmonella* Infantis was present on the selective agar plates whatever the confirmation protocol applied, direct streaking or after subculture in SX2 broth.

Table 12 - Enrichment broth storage and lysate storage

Sample N°	Product	Artificial contamination	After storage			Agreement GENE-UP SEST/ISO 6579-1		Category	Type
			PCR		Confirmation	Before storage	After storage		
		Strain(s)	BPW	Lysate					
529	Turkey meat	S. Enteritidis Ad2524	+ SE	+ SE	+	ND	PA	1	a
1997	Organic chicken meat	S. Enteritidis Ad2525 + S. Infantis 937	+ SE	+ SE	-	PD	PPNA	1	a

The analyses of discordant results become (See Tables 13 and 14).

Table 13 - Analysis of discordant results after lysate storage for 72 h at 5°C ± 3°C

Categories		Types		N+	ND**	PPND	PD	PAIRED STUDY			
								(ND+PPND)+PD	AL	(ND+PPND)-PD	AL
1	Meat products	a	Raw poultry	14	0	0	0	0	0	-1	3
		b	Raw pork meat	13	0	0	2				
		c	Delicatessen, Ready-to-eat	13	0	0	1				
		Total		40	0	0	3	3	6	-3	3
2	Egg products	a	Shell eggs	11	0	0	0	0	0	-2	3
		b	Egg powders	15	0	0	0				
		c	Liquid egg products	15	0	0	2				
		Total		41	0	0	2	2	6	-2	3
ALL CATEGORIES				81	0	0	5	5	8	-5	4

Table 14 - Analysis of discordant results after BPW storage for 72 h at 5 °C ± 3°C

Categories		Types		N+	ND**	PPND	PD	PAIRED STUDY			
								(ND+PPND)+PD	AL	(ND+PPND)-PD	AL
1	Meat products	a	Raw poultry	14	0	0	0	0	0	-1	3
		b	Raw pork meat	13	0	0	2				
		c	Delicatessen, Ready-to-eat	13	0	0	1				
		Total		40	0	0	3	3	6	-3	3
2	Egg products	a	Shell eggs	11	0	0	0	0	0	-2	3
		b	Egg powders	15	0	0	0				
		c	Liquid egg products	15	0	0	2				
		Total		41	0	0	2	2	6	-2	3
ALL CATEGORIES				81	0	0	5	5	8	-5	4

** PPND not included

The observed values for ND + PPND - PD and ND + PPND + PD meet the acceptability limit for each individual category and for the two combined categories (calculated values \leq AL).

3.1.8 Confirmation

Two protocols were tested during the validation study:

- Direct streaking of the primary enrichment broth onto XLD or ASAP. The typical colonies were confirmed after subculture on non-selective agar plate using the Salmonella Sero-Quick ID kit-ABE / Ref 18350 or the tests described in the ISO 6579-3.
- Sub-culture in SX2 broth before streaking onto XLD or ASAP. The typical colonies were confirmed after subculture on non-selective agar plate using the Salmonella Sero-Quick ID kit-ABE / Ref 18350 or the tests described in the ISO 6579-3.

For the direct streaking protocol, all samples gave positive confirmation results except 17 samples for which more difficulties were encountered to confirm the positive SEST PCR test:

- For 4 samples (106, 624, 1998 and 2012), it was not possible to recover the strain onto XLD plate while positive result was obtained onto ASAP plates.
- For 4 samples (8085, 65, 2000 and 2011), it was not possible to recover the strain onto ASAP plate while positive result was obtained onto XLD plates.
- For 7 samples (8081, 8086, 8089, 61, 63, 1997 and 2009) it was not possible to recover the strain with the two agar plates (XLD and ASAP). The subculture in SX2 for 6h at 41,5°C allowed to recover the strain for 5 of these samples (8081, 8086, 8089, 61 and 63). It was necessary to extend the SX2 subculture incubation up to 24h to obtain a confirmation positive result for 2 samples (1997 and 2009).
- For 1 sample (2004, contaminated with two strains, *S. Typhimurium* 193 + *S. London* 326), the *S. Typhimurium* strain was recovered only after the BPW storage for 72h, thanks to the SX2 subculture 24h at 41.5°C.

A summary of these results is given Table 15.

Table 15 – Samples with confirmation difficulties

Sample N°	Product	Artificial contamination Strain(s)	PCR result	GENE-UP® S. Enteritidis & S. Typhimurium (SEST)											Final result	
				Confirmation												
				Direct streaking				SX2								
				XLD		ASAP		6h		24h						
SSI	ISO 6579-3	SSI	ISO 6579-3	SSI	ISO 6579-3	SSI	ISO 6579-3	SSI	ISO 6579-3	SSI	ISO 6579-3	SSI	ISO 6579-3			
8081	Raw duck meat	S. Enteritidis Ad2539	+SE	/	/	-	/	S. Enteritidis	/	S. Enteritidis	S. Enteritidis					SE
8085	Raw chicken filet meat	S. Enteritidis Ad2721	+SE	S. Enteritidis	S. Enteritidis	/	/	S. Enteritidis	/	S. Enteritidis	S. Enteritidis					SE
8086	Raw pork meat	S. Enteritidis 2532	+SE	/	/	/	/	S. Enteritidis	/	S. Enteritidis	S. Enteritidis					SE
8089	Raw pork meat	S. Enteritidis Ad2523	+SE	/	/	/	/	S. Enteritidis	/	S. Enteritidis	S. Enteritidis					SE
61	Raw duck meat	S. Typhimurium A00C003	+ST	/	/	/	/	S. Typhimurium	/	S. Typhimurium	S. Typhimurium					ST
63	Raw poultry meat	S. Typhimurium A00C003	+ST	/	/	/	/	S. Typhimurium	/	S. Typhimurium	S. Typhimurium					ST
65	Raw chicken meat	S. Typhimurium Ad913	+ST	S. Typhimurium	S. Typhimurium	/	/			S. Typhimurium	/					ST
106	Chipolatas	S. Enteritidis Ad926	+SE	/	/	S. Enteritidis	S. Enteritidis	S. Enteritidis	/	S. Enteritidis	/					ST
624	Raw duck meat	S. Enteritidis Ad2294	+SE	/	/	S. Enteritidis	S. Enteritidis	S. Enteritidis	S. Enteritidis							ST
1997	Organic chicken meat	S. Enteritidis Ad2525 + S. Infantis 937	+SE	-	/	-	/	-x5		-x5		-x5		S. Enteritidis	S. Enteritidis	SE
1998	Raw poultry meat	S. Typhimurium Ad913 + S. Infantis 937	+ST	/	/	S. Typhimurium	S. Typhimurium									ST
2000	Raw pork meat	S. Typhimurium 193 + S. Bredeney 464	+ST	S. Typhimurium	S. Typhimurium	Salmonella spp.	S. Bredeney									ST
2001	Raw pork meat	S. Typhimurium 193 + S. Bredeney 464	+ST/ +ST/+ST	O4+/H:i-/H:2- Salmonella spp.	/	spp O4+/H:i-/H:2-	S. Bredeney S. 1,4,5,12, i:1,2 : Typhimurium without flagellar phase									SS+ST
2004	Smoked garlic sausage	S. Typhimurium 193 + S. London 326	+ST	-x5	/	Salmonella spp.	S. London (SEST-x 20 col)	-x5		-x5		-x5		-x5 (+S.Typhimurium at 72h)	+S.Typhimurium at 72h	ST
2009	Egg yolk powder	S. Enteritidis 657 + S. Infantis 937	+SE	-x5	/	-x5	/	-x5		-x5				S. Enteritidis	S. Enteritidis	SE
2011	Whole egg powder	S. Enteritidis 657 + S. Infantis 937	+SE	S. Enteritidis	S. Enteritidis	-x5	/									SE
2012	Whole egg powder	S. Typhimurium Ad1484 + S. Infantis 937	+ST	-x5	/	S. Typhimurium	S. Typhimurium									ST

SE: S. Enteritidis
 ST: S. Typhimurium
 SS: Salmonella spp.

For two samples inoculated with *Salmonella* Typhimurium serotype (n°582 and 2001), the flagellar phases could not be identified during serotyping. It was concluded that the strains were identified as an aphasic or monophasic variant of *S. Typhimurium* (see Table 16).

For sample 2001, it was also the case when using the SSI test.

Table 16 – Serotyping of *Salmonella* Typhimurium strains

Sample N°	Product	Artificial contamination	Method	Plate	ISO 6579-3 result	SSI result
		Strain(s)				
582	Shell eggs (Fresh free-range eggs)	S. Typhimurium 472	Reference	RVS-ASAP	<i>Salmonella</i> 1,4,[5],12 : - : - : Typhimurium without flagellar phase	/
582	Shell eggs (Fresh free-range eggs)	S. Typhimurium 472	Alternative	ASAP	<i>Salmonella</i> 1,4,[5],12 : - : - : Typhimurium without flagellar phase	Salmonella Typhimurium
2001	Raw pork meat	S. Typhimurium 193 + S. Bredeney 464	Alternative	ASAP	<i>Salmonella</i> 1,4,[5],12, i:1,2 : Typhimurium without flagellar phase	O4+/H:i-/H:2-

3.1.9 PCR inhibition

349 DNA extracts were tested during this study. No inhibition was observed.

3.2 Relative level of detection

The relative level of detection is the level of detection at $P = 0.50$ (LOD_{50}) of the alternative (proprietary) method divided by the level of detection at $P = 0.50$ (LOD_{50}) of the reference method.

The RLOD is defined as the ratio of the alternative and reference methods:

$$RLOD = \frac{LOD_{Alt.}}{LOD_{Ref.}}$$

The relative detection level is the smallest number of culturable micro-organisms that can be detected in the sample in 50% of occasions by the alternative and reference methods.

3.2.1 Experimental design

Two (matrix/strain) pairs were analyzed by the reference method and by the alternative method (See Table 17):

The following protocol was applied:

- A negative control: 5 samples,
- A low contamination level providing fractional recovery data, with 20 replicates,
- A high contamination level, with 5 replicates.

A total plate count determination on each matrix was performed to estimate the total microbial load on the day of analysis.

Table 17 - Defined (matrix/strain) pairs for the RLOD determination

	Category	Matrix	Strain inoculated	Origin	Storage conditions after inoculation
1	Pork and poultry meat products	Raw pork	S. Enteritidis 2532	Ham	48 h at 5°C ± 3°C
2	Egg products	Liquid egg product	Co-inoculation S. Typhimurium Ad1484+ S. Mbandaka Ad914	Liquid egg product	48 h at 5°C ± 3°C

3.2.2 Calculation and interpretation of the RLOD

The raw data are given in **Appendix 5**.

The RLOD calculations were performed using the Excel spreadsheet available at <http://standards.iso.org/iso/16140> - RLOD (clause 5-1-4-2 Calculation and interpretation of RLOD) version 06.07.2015. The RLOD are given Table 18.

Table 18 – Presentation of RLOD before and after confirmation of the alternative method results

Name	AL	RLOD	RLODL	RLODU	b=ln (RLOD)	sd(b)	z-Test statistic	p-value
Raw pork meat / S. Enteritidis 2532	1,5	1,000	0,420	2,383	0,000	0,434	0,000	1,000
Liquid egg product / S. Typhimurium Ad1484 + S. Mbandaka Ad914	1,5	1,000	0,447	2,240	0,000	0,403	0,000	1,000
Combined results	1,5	1,000	0,555	1,802	0,000	0,294	0,000	1,000

The LOD_{50%} calculations according to Wilrich & Wilrich POD-LOD calculation program - version 10, 2021-05-04 test are given in Table 19.

Table 19 - LOD₅₀ results

Category	(Strain / matrix) pair	Level of detection at 50% (CFU / test portion) according to Wilrich & Wilrich ¹	
		Reference method	Alternative method
1	Raw pork / <i>S. Enteritidis</i> 2532	0,4 [0,2-0,8]	0,4 [0,2-0,8]
2	Liquid egg product / Co-inoculation <i>S. Typhimurium</i> Ad1484+ <i>S. Mbandaka</i> Ad914	1,0 [0,6-1,8]	1,0 [0,6-1,8]
Combined results		1,0 [0,5-1,1]	1,0 [0,5-1,1]

3.2.3 Conclusion

The RLOD values (using the confirmed alternative method results) meet the acceptability limit of 1.5 for paired studies, for the two matrix/strain pairs tested.

The LOD₅₀ varies from 0,4 to 1,0 CFU/test portion for the reference method and the alternative method.

3.3 Inclusivity / exclusivity

The inclusivity is the ability of the alternative method to detect the target analyte from a wide range of strains. The exclusivity is the lack of interference from a relevant range of non-target strains of the alternative method.

3.3.1 Test protocols

> Inclusivity

Salmonella strains cultures (26 *Salmonella* Typhimurium including monophasic, non-motile and classical variants and 15 *Salmonella* Enteritidis) were performed in BHI medium at 37°C. Dilutions were done in order to inoculate 10 to 100 cells/225 ml in BPW. The enrichment broth was incubated for 18h at 34-38°C and tested with the GENE-UP SEST method. The enrichment broths were streaked onto ASAP plates and the colonies were confirmed using the SSI test.

¹ Wilrich, C., and P.-Th. Wilrich: Estimation of the POD function and the LOD of a qualitative microbiological measurement method. AOAC International **92** (2009) 1763 - 1772.

> Exclusivity

Salmonella spp. strains cultures (different from *S. Enteritidis* or *S. Typhimurium* serotypes) were performed in BHI medium at 37°C. Dilutions were done in order to inoculate 10 to 100 cells/225 ml in BPW. The enrichment broths were incubated for 18 h at 34 - 38°C and tested with the GENE-UP SEST method. The enrichment broths were streaked onto ASAP plates. Non-salmonella strains cultures were performed in BHI at 37°C. Dilutions were realised in order to inoculate 10⁵ cells/ml BPW. The BPW broths were then incubated 24 h at 37°C ± 1°C. The alternative method was then performed.

3.3.2 Results

Raw data are given in **Appendix 6**.

> Inclusivity

The 26 target *Salmonella* Typhimurium including monophasic, non-motile and classical variants and the 15 *Salmonella* Enteritidis tested gave positive PCR results and typical colonies on ASAP plates. The SSI tests results performed on colonies after purification step were in agreement with the serotype of the tested strains.

> Exclusivity

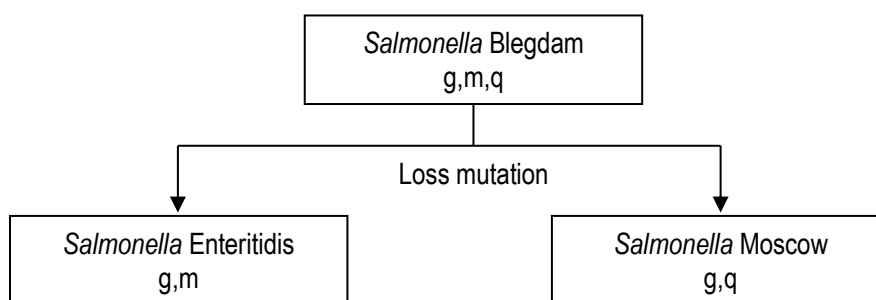
The 46 non-target strains belonging to *Salmonella* genus (27 strains from Group B and 19 strains from Group D1 and D2) as well as the 10 non-target strains not belonging to *Salmonella* genus gave negative PCR results except two strains:

- *Salmonella* Blegdam 2011LSAL04969
- *Salmonella* Moscow 1995LSAL05721

These two strains only differ by a change induced in the H antigens of *S. Blegdam* during the genetic evolution of this strain (see **Figure 1**).

Previous studies ("Changes induced in the H antigens of *Salmonella* Blegdam" Bruner DW, 1952) indicate that the lineage of Enteritidis began with Blegdam which underwent loss mutations which led to Enteritidis and Moscow

Figure 1: Genetic variation of *S. Blegdam* giving rise to serotypes Enteritidis, Moscow



The SSI tests performed on the colonies from these two strains were negative for *Salmonella* Enteritidis.

4 INTER-LABORATORY STUDY

The inter-laboratory study is a study performed by multiple laboratories testing identical samples at the same time, the results of which are used to estimate alternative-method performance parameters.

4.1 Study organisation

> Collaborators number

Samples were sent to 11 collaborators; 2 collaborators were involved in the study for five laboratories: Lab A, B, C, E and F.

> Matrix and strain used

A ground pork meat sample was contaminated by *Salmonella* Enteritidis 2532 isolated from pork meat.

> Samples

Samples were prepared and inoculated on Monday 21st November 2022, as described below:

- 24 blind coded samples (25 g) for detection of *Salmonella* Enteritidis and *Salmonella* Typhimurium by the GENE-UP® S. Enteritidis and S. Typhimurium and by the ISO 6579-1 (2017) reference method,

- 1 sample (labelled “Sample for Total Count enumeration”) for aerobic mesophilic flora enumeration by the ISO 4833-1 method,
- 1 kit for the serological confirmation tests: SALMONELLA ANTISERA SERO-QUICK ID KIT (SSI)
- 1 water flask labelled “Temperature Control”.
- 1 probe which follows the temperature during shipping and sample storage.

> *Inoculation*

The targeted inoculation levels were the following:

- Level: 0 CFU/25 ml,
- Level 1: 1CFU/25 ml, inoculation level providing fractional positive recovery data,
- Level 2: 8 CFU/25 ml.

> *Labelling and shipping*

Blind coded samples were placed in isothermal UN3373 boxes, which contained cooling blocks, and express-shipped to the different laboratories.

A temperature sensor was added to the package to register the temperature profiles for samples during the transport, the package delivery and storage until analyses.

Samples were shipped in 24 h to 48 h to the involved laboratories. The temperature conditions had to stay lower or equal to 8°C during transport, and between 0°C – 8°C in the labs.

> *Analyses*

Collaborative study laboratories and the expert laboratory carried out the analyses on Tuesday 22nd November or Wednesday 23rd November 2022 with the alternative and reference methods.

4.2 Experimental parameters controls

4.2.1 *Strain stability and background microflora stability*

Strain stability was checked by inoculating the matrix at 1 CFU/g (detection) and 1.10^3 CFU/g (enumeration). Enumerations were performed for the high contamination level and detection analyses were performed for the low contamination level after

24 h, 48 h and 72 h storage at $3 \pm 2^\circ\text{C}$. *Triplicate* samples were analysed. The aerobic mesophilic flora was also enumerated; the results are given in Table 20.

Table 20 - Sample stability

Day	Reference method (detection)			CFU/g (1.10^3 CFU/g)			Aerobic mesophilic flora (CFU/g)
	Sample 1	Sample 2	Sample 3	Sample 1	Sample 2	Sample 3	
Day 0	+	+	+	590	860	770	9.0×10^2
Day 1	-	-	+	640	830	550	6.4×10^2
Day 2	+	-	-	640	480	580	1.3×10^4
Day 3	+	-	+	660	630	550	1.6×10^4

An increase of the mesophilic flora was observed (9.0×10^2 to 1.6×10^4 CFU/g), during storage at $3^\circ\text{C} \pm 2^\circ\text{C}$ for 72 h at $3 \pm 2^\circ\text{C}$, which had no impact on the *Salmonella* Enteritidis detection and enumeration.

4.2.2 Contamination levels

The contamination levels and the sample codification were the following (see Table 21).

Table 21 - Contamination levels

Level	Samples	Theoretical target level (CFU/test portion)	True level (CFU/test portion)	Low limit (CFU/test portion)	High limit (CFU/test portion)
0	4-7-9-13-16-18-19-24	0	0	/	/
	25-26-31-37-38-42-46-47				
1	1-2-8-11-12-17-21-22	1	0,9	0,7	1,2
	28-32-34-35-41-43-44-48				
2	3-5-6-10-14-15-20-23	8	7,5	6,0	9,4
	27-29-30-33-36-39-40-45				

4.2.3 Logistic conditions

Temperature conditions are given in Table 22.

Table 22 - Sample temperatures at receipt

Collaborators	Temperature measured		Receipt		Analysis	
	By the probe (°C)	At receipt (°C)	Date	Time	Date	Time
A1	0,2	1,8	22/11/2022	10:00 AM	22/11/2022	3:50 PM
A2	0,9	1,6	22/11/2022	10:00 AM	23/11/2022	3:10 PM
B1	0,4	2,1	22/11/2022	10:30 AM	22/11/2022	3:30 PM
B2	0,4	2,5	22/11/2022	10:30 AM	22/11/2022	3:30 PM
C1	5,7	6,8	24/11/2022	11:00 AM	24/11/2022	5:30 PM
C2	2,9	6,2	23/11/2022	03:00 PM	23/11/2022	5:30 PM
D	1,6	5,3	22/11/2022	09:00 AM	22/11/2022	2:00 PM
E1	1,0	1,3	23/11/2022	10:00 AM	23/11/2022	1:50 PM
E2	0,6	0,4	23/11/2022	10:00 AM	23/11/2022	1:50 PM
F1	1,7	2,2	22/11/2022	10:30 AM	22/11/2022	2:00 PM
F2	2,3	2,6	22/11/2022	10:30 AM	22/11/2022	2:00 PM
G (ADRIA)	3,6	5,2	22/11/2022	12:00 AM	23/11/2022	1:30 PM

No problems were encountered during the transport or receipt of samples for 10 collaborators. All the samples were delivered on time and in appropriate conditions. All temperatures maintained during shipment and receipt were correct.

For one collaborator (C1), the samples arrived at day 3 (Thursday 24th November) with correct temperature at receipt (6.8°C) which was confirmed by the temperature probe (5.7°C).

4.3 Results analysis

The raw data are given in **Appendix 7**.

4.3.1 Expert laboratory results

The results obtained by the expert laboratory are given in Table 23.

Table 23 – Results obtained by the expert Lab.

Level	Reference method	Alternative method
L0	0/8	0/8
L1	5/8	5/8
L2	8/8	8/8

Fractional positive results were obtained for both the reference and the alternative methods (62.5% positive results) for inoculation level L1.

4.3.2 Results observed by the collaborative laboratories

> **Aerobic mesophilic flora enumeration**

Depending on the Lab results, the enumeration levels varied from 1.0×10^2 CFU/g to 2.8×10^4 CFU/g.

> **Salmonella Enteritidis and Salmonella Typhimurium detection**

11 collaborators participated to the study. The results obtained are provided in Table 24 (reference method) and Table 25 (alternative method).

Table 24 - Positive results by the reference method (ALL the collaborators)

Collaborator	Contamination level		
	L0	L1	L2
A1	0	5	8
A2	0	7	8
B1	0	5	8
B2	6	7	8
C1	0	6	8
C2	0	6	8
D	0	6	8
E1	0	6	8
E2	0	6	8
F1	0	4	8
F2	0	7	8
Total	P₀ = 6	P₁ = 65	P₂ = 88

Table 25 - Positive results (before and after confirmation) by the alternative method (ALL the collaborators)

Collaborators	Contamination level								
	L0			L1			L2		
	PCR result	Confirmation result	Final result	PCR result	Confirmation result	Final result	PCR result	Confirmation result	Final result
A1	0	0	0	5	5	5	8	8	8
A2	0	0	0	7	7	7	8	8	8
B1	0	0	0	5	5	5	8	8	8
B2	4	6	4	7	7	7	8	8	8
C1	0	0	0	6	6	6	8	8	8
C2	0	0	0	6	6	6	8	8	8
D	0	0	0	6	6	6	8	8	8
E1	0	0	0	6	6	6	8	8	8
E2	0	0	0	6	6	6	8	8	8
F1	0	0	0	4	4	4	8	8	8
F2	0	0	0	7	7	7	8	8	8
Total	P₀ = 4	C₀ = 6	CP₀ = 4	P₁ = 65	C₁ = 65	CP₁ = 65	P₂ = 88	C₂ = 88	CP₂ = 88

Collaborator C1 performed the analyses after the limit fixed at Day2. It was decided to keep the data from this collaborator as the temperature at receipt was correct and the stability of the strain was demonstrated until Day 3.

According to the AFNOR technical rules, it is possible to include the results from a collaborator with maximum one cross contamination at Level 0. For this study, this rule was applied for collaborator B2. At level 0, this collaborator obtained 6 confirmed positive samples with the reference method and 4 confirmed positive PCR results with the alternative method. All these samples were confirmed by the SSI test as *Salmonella* Enteritidis. This could be due to a cross contamination which occurred prior to the RVS, MKTTn and SX2 enrichment step (transfer from BPW to RVS or MKTTn or SX2). It was decided to not take into account these data for interpretation.

4.3.3 Results of the collaborators retained for interpretation

The results obtained with the 10 labs kept for interpretation are presented in Table 26 (reference method) and Table 27 (alternative method).

Table 26 - Positive results by the reference method (**Without collaborator B2**)

Collaborators	Contamination level		
	L0	L1	L2
A1	0	5	8
A2	0	7	8
B1	0	5	8
C1	0	6	8
C2	0	6	8
D	0	6	8
E1	0	6	8
E2	0	6	8
F1	0	4	8
F2	0	7	8
TOTAL	P₀ = 0	P₁ = 58	P₂ = 80

Table 27 - Positive results (before and after confirmation)
by the alternative method (**Without collaborator B2**)

Collaborators	Contamination level								
	L0			L1			L2		
	PCR result	Confirmation result	Final result	PCR result	Confirmation result	Final result	PCR result	Confirmation result	Final result
A1	0	0	0	5	5	5	8	8	8
A2	0	0	0	7	7	7	8	8	8
B1	0	0	0	5	5	5	8	8	8
C1	0	0	0	6	6	6	8	8	8
C2	0	0	0	6	6	6	8	8	8
D	0	0	0	6	6	6	8	8	8
E1	0	0	0	6	6	6	8	8	8
E2	0	0	0	6	6	6	8	8	8
F1	0	0	0	4	4	4	8	8	8
F2	0	0	0	7	7	7	8	8	8
TOTAL	P₀ = 0	C₀ = 0	CP₀ = 0	P₁ = 58	C₁ = 58	CP₁ = 58	P₂ = 80	C₂ = 80	CP₂ = 80

4.4 Calculation and interpretation

4.4.1 Calculation of the specificity percentage (SP)

The Specificity percentage (SP) of the reference method and of the alternative method, using the data after confirmation, based on the results of level L0 are presented in Table 28.

Table 28 - Specificity percentage

Specificity for the reference method	$SP_{ref} = \left(1 - \left(\frac{P_0}{N_-} \right) \right) \times 100 \% =$	100 %
Specificity for the alternative method	$SP_{alt} = \left(1 - \left(\frac{CP_0}{N_-} \right) \right) \times 100 \% =$	100 %

N: number of all LO tests

P₀ = total number of false-positive results obtained with the blank samples before confirmation

CP₀ = total number of false-positive results obtained with the blank samples

4.4.2 *Calculation of the sensitivity of the alternative method (SE_{alt}), the sensitivity for the reference method (SE_{ref}), the relative trueness (RT) and the false positive ratio for the alternative method (FPR)*

Fractional positive results (72.5 %) were obtained for the low inoculation level (L1). The low inoculation level was retained for calculation.

A summary of the results of the collaborators retained for interpretation, obtained with the reference and the alternative methods for Level 1 is provided in Table 29.

Table 29 - Summary of the obtained results with the reference method and the alternative method for Level 1

Level	Response	Reference method positive (R+)	Reference method negative (R-)
1	Alternative method positive (A+)	Positive agreement (A+/R+) PA = 58	Positive deviation (R-/A+) PD = 0
	Alternative method negative (A-)	Negative deviation (A-/R+) ND = 0 (PPND= 0)	Negative agreement (A-/R-) NA = 22 (PPNA= 0)

Based on the data summarized in Table 29, the calculated values of the sensitivity of the alternative and reference methods, as well as the relative trueness and false positive ratio for the alternative method (taking account the confirmations) are presented in Table 30.

Table 30 - Sensitivity, relative trueness and false positive ratio percentages

		Level 1
Sensitivity for the alternative method	$SE_{alt} = \frac{(PA+PD)}{(PA+PD+ND)} \times 100\% =$	100.0 %
Sensitivity for the reference method	$SE_{ref} = \frac{(PA+ND)}{(PA+PD+ND)} \times 100\% =$	100.0 %
Relative trueness	$RT = \frac{(PA+NA)}{N} \times 100\% =$	100.0 %
False positive ratio for the alternative method	$FPR = \frac{FP}{NA} \times 100\% =$	0.0 %

4.4.3 Interpretation of data

> **Discordant results**

No negative deviation and no positive deviation were observed.

> **Salmonella Typhimurium positive presumptive results**

For eleven samples (from five collaborators), the PCR test gave positive result for *Salmonella* Typhimurium target (with Cp and Tm values) (See Table 31) while the confirmation tests confirmed the presence of *Salmonella* Enteritidis only.

The curves obtained for the samples concerned by the positive ST results are provided in **Appendix 8**.

The false positive results observed for ST are due to an artefactual detection of a melting peak upstream of an SE detection.

This phenomenon may occur in rare cases depending on the fluorescence (high fluorescence of the SE test with falsely detected shoulder in the ST channel)

This phenomenon occurs only in case of high positive for SE with associated peak, this case will never occur in case of negative sample.

New DNA extracts were carried out and tested again, negative results were obtained for all the samples.

Table 31 - Salmonella Typhimurium positive presumptive results

Collaborator	Level	Sample	GENE-UP®S. Enteritidis & S. Typhimurium (SEST) kit- PCR results							Confirmation result
			CP ST value	CP SE value	CP IC value	TM ST value	TM SE value	TM IC value	Final result	
B1	1	11	21,13/ 0,00*	21,13/ 23,82*	21,45/ 23,90*	52,63/ 0,00*	61,68/ 65,47*	61,26/ 64,63*	+SE+ST/ +SE*	+SE
		10	22,78/ 0,00*	22,78/ 23,65*	22,89/ 23,71*	54,27/ 0,00*	62,85/ 65,48*	61,96/ 65,49*	+SE+ST/ +SE*	+SE
	2	20	20,01/ 0,00*	20,01/ 22,95*	20,21/ 23,01*	55,36/ 0,00*	63,37/ 65,43*	58,74/ 65,44*	+SE+ST/ +SE*	+SE
B2	2	48	22,73/ 0,00*	22,73/ 25,50*	32,67/ 25,59*	56,45/ 0,0*	63,88/ 65,66*	63,71/ 64,90*	+SE+ST/ +SE*	+SE
D	1	1	23,70/ 0,00*/ 0,00*	23,70/ 23,02*/ 22,79*	23,79	57,71/ 0,00*/ 0,00*	65,74/ 65,30*/ 65,48*	68,74	+SE+ST/ +SE*/ +SE*	+SE
E1	1	11	22,78/ 0,00*	22,78/ 22,90*	23,97/ 23,96*	56,95/ 0,00*	65,11/ 65,09*	65,11/ 64,93*	+SE+ST/ +SE*	+SE
		17	23,07/ 0,00*	23,07/ 22,74*	23,28/ 23,95*	57,77/ 0,00*	65,41/ 64,98*	63,92/ 64,83*	+SE+ST/ +SE*	+SE
	2	3	22,72/ 0,00*	22,72/ 23,43*	23,63/ 23,51*	57,22/ 0,00*	65,11/ 65,38*	63,48/ 64,51*	+SE+ST/ +SE*	+SE
		6	22,06/ 0,00*	22,06/ 22,46*	22,94/ 23,00*	56,67/ 0,00*	65,04/ 65,21*	65,04/ 65,11*	+SE+ST/ +SE*	+SE
		15	22,14/ 0,00*	22,14/ 21,53*	22,79/ 22,71*	57,77/ 0,00*	65,2/ 64,62*	63,40/ 64,46*	+SE+ST/ +SE*	+SE
F1	2	23	23,78/ 0,00*/ 0,00*/ 0,00*	23,78/ 23,43*/ 21,87*/ 21,80*	24,1 / 23,46*/ 21,92*/ 21,87*	55,57/ 0,00*/ 0,00*/ 0,00*	65,12/ 65,48*/ 64,57*/ 64,71*	65,16/ 64,08*/ 63,75*/ 63,19*	+SE+ST/ +SE*/ +SE*/ +SE*	+SE

*New DNA extract

> **Interpretation**

For a **paired study design**, the difference between (ND – PD) and the addition (ND + PD) are calculated for the level(s) where fractional recovery is obtained (so L₁ and possibly L₂). The observed value found for (ND – PD) and (ND + PD) shall not be higher than the AL.

For 10 collaborators, the limits are the following:

	Calculated values	AL	Conclusion
ND - PD	0	3	ND-PD ≤ AL
ND + PD	0	4	ND+PD ≤ AL

The EN ISO 16140-2:2016 requirements are fulfilled as (ND - PD) and (ND + PD) meet the AL.

4.4.4 Evaluation of the LOD_{50%}, LOD_{95%} and RLOD between laboratories

The RLOD was calculated using the EN ISO 16140-2:2016 Excel spreadsheet available at https://standards.iso.org/iso/16140/-5/ed-1/en/RLOD_inter-lab-study_16140-2_AnnexF_ver1_28-06-2017.xls. The results are used only for information (see Table 32).

Table 32 - LOD_{50%}, LOD_{95%} and RLOD

Method	LOD 50%	LOD 95%	RLOD
Reference	0.5 [0.4-0.8]	2.1 [1.6-2.8]	1.0 [0.7-1.4]
Alternative	0.5 [0.4-0.8]	2.1 [1.6-2.8]	

5 CONCLUSION

The **method comparison study conclusions** are:

In the sensitivity study, 2 categories were tested: pork and poultry meat products and egg products. The protocol of the alternative method shows 5 positive deviations (PD) and 1 negative deviation (ND) for the two combined categories. The ND + PPND - PD and ND + PPND + PD meet the acceptability limits (AL) whatever the categories, and as well for the two tested categories.

It is possible to store the primary enrichment broth and the lysates for 72 h at $5 \pm 3^\circ\text{C}$.

The Relative Levels of Detection (RLOD) meet the AL fixed at 1.5 for the paired data study whatever the matrix/strain pairs.

The inclusivity and exclusivity testing gave the expected results for the 46 target strains and the 56 non-target strains except for two non-target strains (*S. Blegdam* and *S. Moscow*) which gave positive PCR and SSI tests (*S. Enteritidis*). These two strains are closed to *S. Enteritidis* as they only differ by a change induced in the H antigens of *S. Blegdam* during the genetic evolution of this strain, the SSI tests concluded to negative confirmation results for *Salmonella* Enteritidis.

The alternative method fulfils all the EN ISO 16140-2:2016 and AFNOR technical rules (PR revision 7).

The **inter-laboratory study conclusions** are:

- These data and interpretations comply with the EN ISO 16140-2:2016 requirements. **The GENE-UP® S. Enteritidis & S. Typhimurium kit is considered equivalent to the ISO standard method.**

Quimper, 08 March 2023

Lizaïg GOUGUET
Technical Study Manager
Validation of Alternative methods

Maryse RANNOU
Project Manager
Validation of Alternative methods

I hereby attest to the validation of the results of the analyses carried out under the COFRAC accreditation.

I hereby attest to the validation of the verification of the conformity of the report (opinion and interpretation).

**Appendix 1 – Flow diagram of the alternative method:
GENE-UP® S. Enteritidis & S. Typhimurium (SEST)**

**Pork and poultry meat products
Egg products**

25 g sample

1/10 dilution in Buffered Peptone Water (BPW)

Incubation for 18 - 24 h at 34 -38°C

Storage enrichment broth
for 72 h at 5 ± 3°C

GENE UP extraction
(on 20 µl enriched sample)

Storage lysate
for 72 h at 5 ± 3°C

GENE UP SEST PCR test (10 µl lysate)

Confirmatory tests:

Streaking 10 µl onto selective agar plates (XLD or ASAP)

Subculture on a non-selective agar plate

In case of negative confirmation using the direct streaking protocol:
Subculture in SX2 broth (0.5 ml + 10 ml) for 6 h and 24 h at 41.5°C ± 1°C

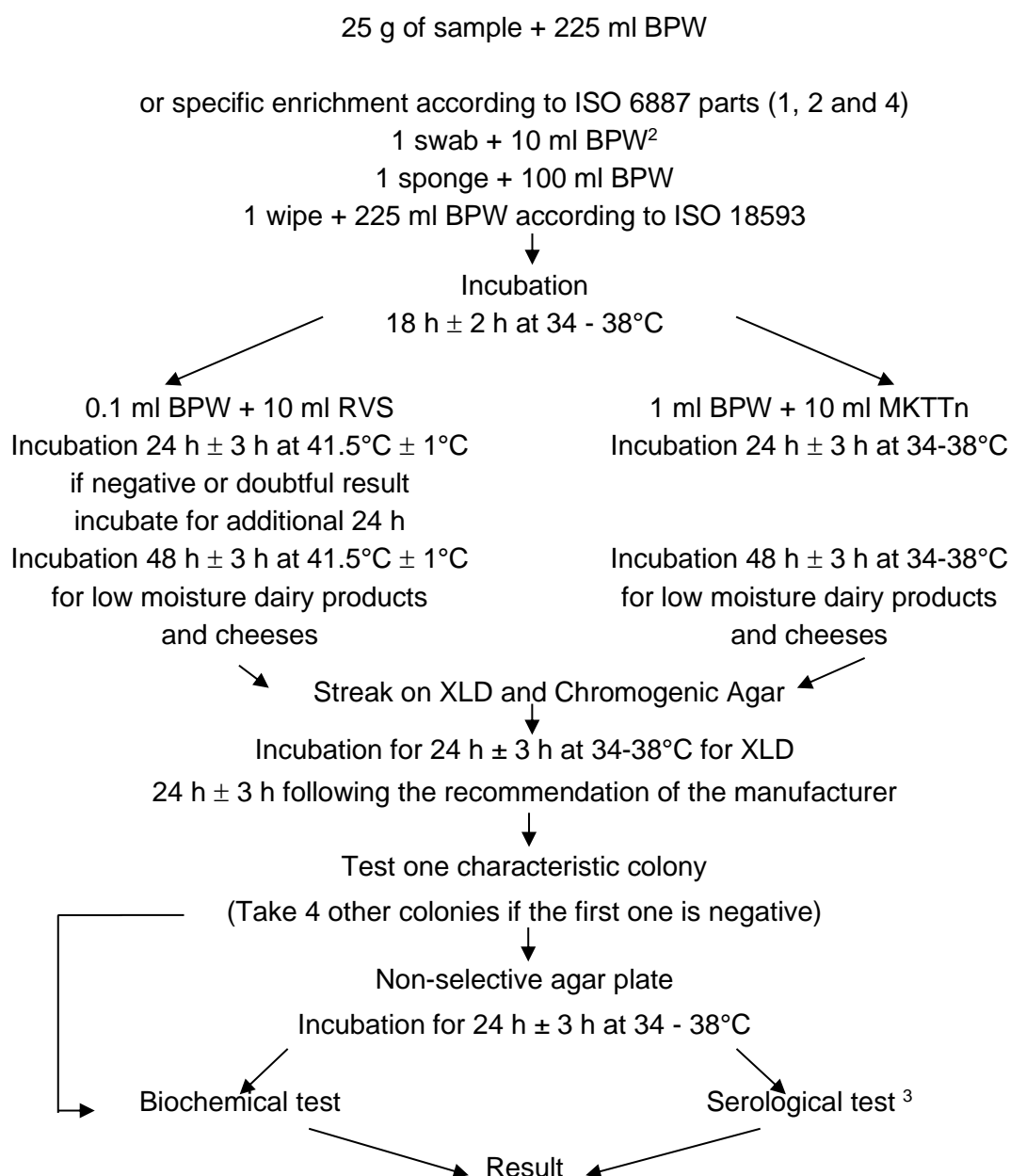
Confirmation of the typical colonies by serological tests

(*Salmonella* Sero-Quick ID kit-ABE / Ref 18350 or tests described in the ISO 6579-3)

Appendix 2 – Flow diagram of the reference methods

ISO 6579-1 (February 2017): Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp.

ISO 6579-1/A1 (March 2020): Microbiology of the food chain - Horizontal method for the detection, enumeration and serotyping of *Salmonella* spp. - Part 1: detection of *Salmonella* spp. Amendment 1: Broader range of incubation temperatures, amendment to the status of Annex D, and correction of the composition of MSR/V and SC

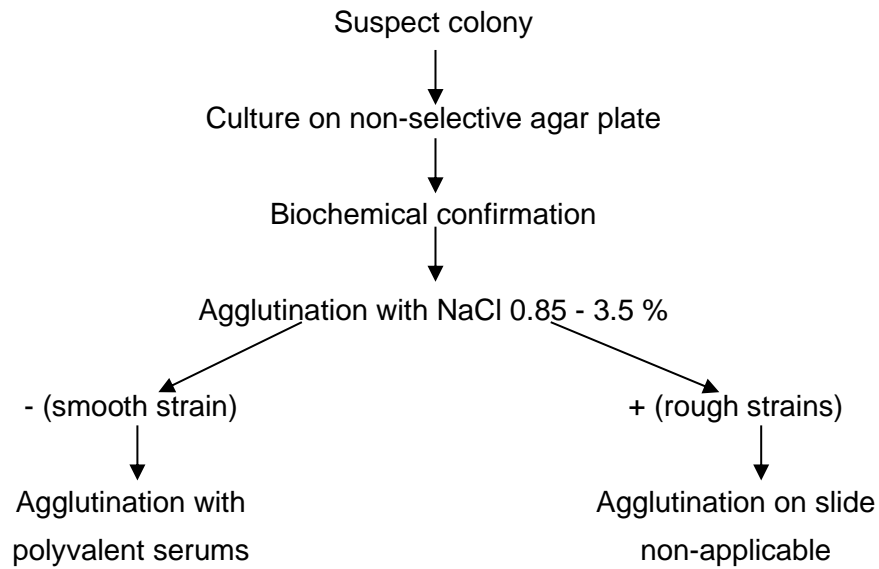


² For sampling after cleaning process premoisten

- 1 swab + 1 ml broth universal neutralizing (+ 9 ml BPW)
- 1 sponge + 10 ml broth universal neutralizing (+ 90 ml BPW)
- 1 wipe + BPW + 10 % neutralizing agent (+ 225 ml BPW)

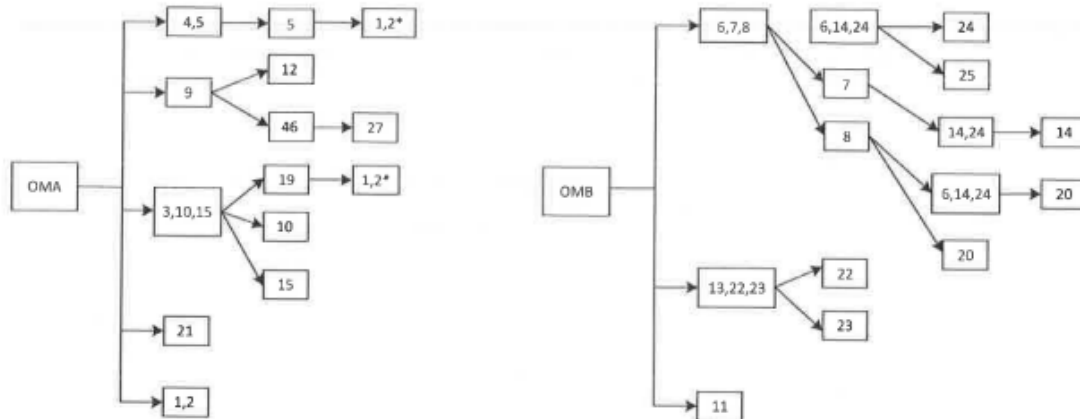
³ During the validation study the serotyping was subcontracted to LABOCEA according to the ISO/TR 6579-3)

ISO/TR 6579-3 (October 2014) - Microbiology of the food chain -
 Horizontal method for the detection, enumeration and serotyping of *Salmonella* - Part 3:
 guidelines for serotyping of *Salmonella* spp.



Somatic antigens

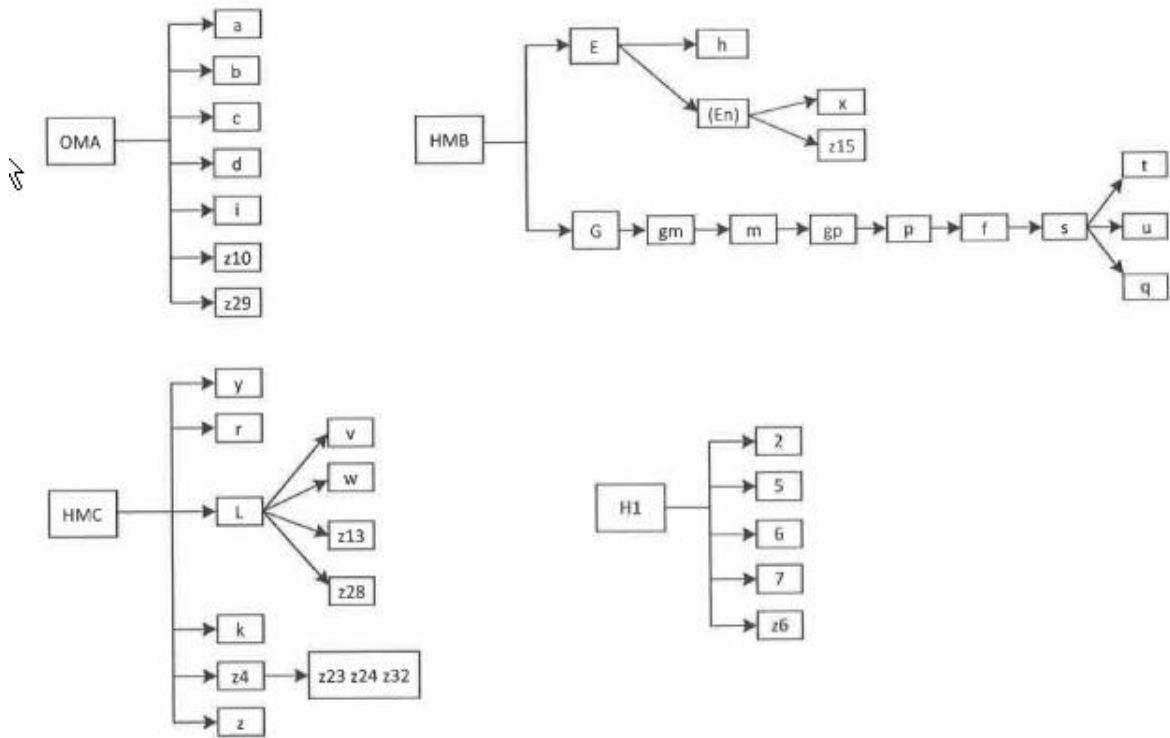
8



OMC	→ 16	→ 17	→ 18	→ 28	→ 30	→ 35	→ 38
OMD	→ 39	→ 40	→ 41	→ 42	→ 43	→ 44	→ 45
OME	→ 47	→ 48	→ 50	→ 51	→ 52	→ 53	→ 61
OMF	→ 54	→ 55	→ 56	→ 57	→ 58	→ 59	
OMG	→ 60	→ 62	→ 63	→ 65	→ 66	→ 67	

* Un sérum O:1,2 peut être utilisé pour déterminer la présence de l'antigène O:1

Flagellar antigens



Appendix 3 – Artificial contamination of samples

Year of analysis	Sample N°	Product	Product (French name)	Artificial contamination						Global result	Categorie	Type
				Strain	Origin	Injury protocol	Injury measurement	Inoculation level/ sample				
								Enumeration	Mean			
2016	6811	Magret de canard	Smoked duck	S. Regent 328	Duck meat	Seeding 4°C 48h	/	2-0-0-2-1	1,0	-	1	a
2016	6812	Magret de canard	Smoked duck	S. Bredeney Ad2042	Poultry meat	Seeding 4°C 48h	/	0-0-0-2-2	0,8	-	1	a
2017	1607	Rôti de filet de dinde	Poultry meat	S. Newport Ad2223	Poultry meat	Seeding 2-8°C 48h	/	6-0-0-0-0	1,2	-	1	a
2017	1608	Escalope de dinde	Poultry meat	S. Newport Ad2223	Poultry meat	Seeding 2-8°C 48h	/	6-0-0-0-0	1,2	-	1	a
2021	8081	Filet de canard	Raw duck meat	S. Enteritidis Ad2539	Poultry meat	Seeding 48h at 3±2°C	/	4-2-3-1-3	2,6	+	1	a
2021	8082	Escalope de dinde	Raw poultry meat	S. Enteritidis Ad2539	Poultry meat	Seeding 48h at 3±2°C	/	4-2-3-1-3	2,6	+	1	a
2021	8083	Tendrefines de poulet	Raw chicken meat	S. Enteritidis Ad2539	Poultry meat	Seeding 48h at 3±2°C	/	4-2-3-1-3	2,6	+	1	a
2021	8084	Escalope de dinde	Raw poultry meat	S. Enteritidis Ad2721	Poultry meat	Seeding 48h at 3±2°C	/	3-1-3-5-2	2,8	-	1	a
2021	8085	Filet de poulet	Raw chicken filet meat	S. Enteritidis Ad2721	Poultry meat	Seeding 48h at 3±2°C	/	3-1-3-5-2	2,8	+	1	a
2022	61	Cuisse de canard	Raw duck meat	S. Typhimurium A00C003	Poultry meat product	Seeding 48h at 3±2°C	/	3-2-5-2-5	3,4	+	1	a
2022	62	Viande de canard prêt à cuisiner	Raw duck meat	S. Typhimurium A00C003	Poultry meat product	Seeding 48h at 3±2°C	/	3-2-5-2-5	3,4	+	1	a
2022	63	Escalope de dinde	Raw poultry meat	S. Typhimurium A00C003	Poultry meat product	Seeding 48h at 3±2°C	/	3-2-5-2-5	3,4	+	1	a
2022	64	Tendrefine de poulet	Raw chicken meat	S. Typhimurium Ad913	Poultry meat product	Seeding 48h at 3±2°C	/	7-1-2-2-6	3,6	+	1	a
2022	65	Cuisse de poulet	Raw chicken meat	S. Typhimurium Ad913	Poultry meat product	Seeding 48h at 3±2°C	/	7-1-2-2-6	3,6	+	1	a
2022	529	Escalope de dinde	Poultry meat	S. Enteritidis Ad2524	Meat product	Seeding 48h at 3±2°C	/	1-2-2-2-1	1,6	+	1	a
2022	530	Filet de poulet	Chicken meat	S. Enteritidis Ad2524	Meat product	Seeding 48h at 3±2°C	/	1-2-2-2-1	1,6	+	1	a
2022	623	Filet de poulet cru	Raw chicken meat	S. Enteritidis Ad2294	Meat product	Seeding 48h at 3±2°C	/	0-5-5-2-0	2,4	+	1	a
2022	624	Aiguillettes de canard	Raw duck meat	S. Enteritidis Ad2294	Meat product	Seeding 48h at 3±2°C	/	0-5-5-2-0	2,4	+	1	a
2022	625	Tendrefines de dinde	Raw cut poultry meat	S. Braenderup Ad3286	Poultry meat product	Seeding 48h at 3±2°C	/	5-1-6-2-1	3,0	-	1	a
2022	626	Escalope de dinde	Raw poultry meat	S. Braenderup Ad3286	Poultry meat product	Seeding 48h at 3±2°C	/	5-1-6-2-1	3,0	-	1	a
2022	1997	Poulet fermier bio cru	Organic chicken meat	S. Enteritidis Ad2525 + S. Infantis 937	Poultry meat / Meat products	Seeding 48h at 3±2°C	/	3-1-0-3-3 / 3-2-2-4-3	2,4 / 2,8	+	1	a
2022	1998	Escalope de dinde crue	Raw poultry meat	S. Typhimurium Ad913 + S. Infantis 937	Poultry meat / Meat products	Seeding 48h at 3±2°C	/	1-0-4-3-2 / 3-2-2-4-3	2,0 / 2,8	+	1	a
2021	8086	Viande de porc, échine sans os	Raw pork meat	S. Enteritidis 2532	Pork meat	Seeding 48h at 3±2°C	/	2-3-4-3-3	3,0	+	1	b
2021	8087	Mincenerette de porc	Raw pork meat	S. Enteritidis 2532	Pork meat	Seeding 48h at 3±2°C	/	2-3-4-3-3	3,0	+	1	b
2021	8088	Côte échine de porc	Raw pork meat	S. Enteritidis 2532	Pork meat	Seeding 48h at 3±2°C	/	2-3-4-3-3	3,0	+	1	b
2021	8089	Filet de porc sans os	Raw pork meat	S. Enteritidis Ad2523	Meat product	Seeding 48h at 3±2°C	/	6-6-4-4-3	4,6	+	1	b
2021	8090	Côte filet de porc	Raw pork meat	S. Enteritidis Ad2523	Meat product	Seeding 48h at 3±2°C	/	6-6-4-4-3	4,6	+	1	b
2022	66	Tranche de porc	Raw cut pork meat	S. Typhimurium Ad1876	Pork meat	Seeding 48h at 3±2°C	/	2-3-3-2-1	2,2	-	1	b
2022	67	Côte de porc	Raw pork meat	S. Typhimurium Ad1876	Pork meat	Seeding 48h at 3±2°C	/	2-3-3-2-1	2,2	+	1	b
2022	68	Côte échine de porc	Raw pork meat	S. Typhimurium Ad1876	Pork meat	Seeding 48h at 3±2°C	/	2-3-3-2-1	2,2	-	1	b
2022	69	Côte de porc	Raw pork meat	S. Typhimurium Ad2226	Pork meat	Seeding 48h at 3±2°C	/	0-3-2-1-0	1,0	+	1	b
2022	70	Sauté de porc	Raw pork meat	S. Typhimurium Ad2226	Pork meat	Seeding 48h at 3±2°C	/	0-3-2-1-0	1,0	-	1	b
2022	456	Viande de porc cru, jambonneau à l'ancienne	Raw pork meat (knuckle rind)	S. Typhimurium Ad1410	Meat product	Seeding 48h at 3±2°C	/	0-3-4-4-3	2,8	+	1	b
2022	457	Poitrine de porc cru avec os	Raw pork meat (pork belly with bones)	S. Typhimurium Ad1338	Meat product	Seeding 48h at 3±2°C	/	5-3-7-3-4	4,4	+	1	b
2022	458	Côte de porc, échine à griller	Raw pork meat (pork chop)	S. Typhimurium Ad1410	Meat product	Seeding 48h at 3±2°C	/	0-3-4-4-3	2,8	+	1	b
2022	459	Côte de porc à griller	Raw pork meat (pork chop)	S. Typhimurium Ad1338	Meat product	Seeding 48h at 3±2°C	/	5-3-7-3-4	4,4	+	1	b
2022	631	Travers de porc	Pork meat	S. London Ad2422	Pork meat	Seeding 48h at 3±2°C	/	5-0-5-3-0	2,6	-	1	b

Year of analysis	Sample N°	Product	Product (French name)	Artificial contamination						Global result	Categorie	Type
				Strain	Origin	Injury protocol	Injury measurement	Inoculation level/ sample				
								Enumeration	Mean			
2022	632	Côte de porc	Pork meat (pork chop)	S. London Ad2422	Pork meat	Seeding 48h at 3±2°C	/	5-0-5-3-0	2,6	-	1	b
2022	633	Côte échine de porc	Pork meat (pork chop)	S. London Ad2422	Pork meat	Seeding 48h at 3±2°C	/	5-0-5-3-0	2,6	-	1	b
2022	634	Poitrine de porc	Raw pork meat	S. Rissen Ad2507	Pork meat	Seeding 48h at 3±2°C	/	0-5-2-3-2	2,4	-	1	b
2022	635	Haché de porc	Raw ground meat	S. Rissen Ad2507	Pork meat	Seeding 48h at 3±2°C	/	0-5-2-3-2	2,4	-	1	b
2022	1999	Côte de porc à griller crue	Raw pork meat	S. Enteritidis 2532 + S. Bredeney 464	Pork meat / Pork meat	Seeding 48h at 3±2°C	/	0-5-4-2-1 / 2-2-1-8	2,4 / 3,0	-	1	b
2022	2000	Viande de porc crue filet sans os à griller	Raw pork meat	S. Typhimurium 193 + S. Bredeney 464	Pork meat / Pork meat	Seeding 48h at 3±2°C	/	1-3-1-2-2 / 2-2-2-1-8	1,8 / 3,0	+	1	b
2022	2001	Côte de porc échine crue à griller	Raw pork meat	S. Typhimurium 193 + S. Bredeney 464	Pork meat / Pork meat	Seeding 48h at 3±2°C	/	1-3-1-2-2 / 2-2-2-1-8	1,8 / 3,0	+	1	b
2016	6815	Manchons de poulet nature	Ready to eat poultry meat	S. Virchow 647	Poultry meat	Seeding 4°C 48h	/	4-3-2-2-5	3,2	-	1	c
2016	6916	Jambon blanc	Ham	S. London Ad2422	Pork meat	Spiking HT 8 min 56°C	0,58	4-3-2-5-2	3,2	-	1	c
2016	6917	Pâté de campagne	Pâté	S. Agona Ad2281	Pork meat	Spiking HT 8 min 56°C	1,39	2-3-3-2-3	2,6	-	1	c
2017	1611	Chipolatas	Chipolata	S. Panama 882	Chipolata	Seeding 2-8°C 48h	/	1-1-0-1-1	0,8	-	1	c
2017	1612	Saucisse Montbéliard	Sausage of Montbéliard	S. Indina 538	Sausage	Seeding 2-8°C 48h	/	1-0-2-1-2	1,2	-	1	c
2022	102	Mousse de canard au porto	Pâté with duck meat	S. Enteritidis Ad926	Meat product	Seeding 48h at 3±2°C	/	3-3-3-3-3	3,0	+	1	c
2022	103	Mousse de canard au porto	Pâté with duck meat	S. Typhimurium A00C059	Meat product	Seeding 48h at 3±2°C	/	4-3-0-7-1	3,0	+	1	c
2022	104	Emincés de poulet roti	Roasted cooked chicken meat	S. Enteritidis Ad926	Meat product	Seeding 48h at 3±2°C	/	3-3-3-3-3	3,0	+	1	c
2022	105	Emincés de poulet roti	Roasted cooked chicken meat	S. Typhimurium A00C059	Meat product	Seeding 48h at 3±2°C	/	4-3-0-7-1	3,0	+	1	c
2022	106	Chipolatas	Chipolatas	S. Enteritidis Ad926	Meat product	Seeding 48h at 3±2°C	/	3-3-3-3-3	3,0	+	1	c
2022	107	Saucisse à griller	Sausage	S. Typhimurium 19	Pork meat	Seeding 48h at 3±2°C	/	1-3-2-3-2	2,2	-	1	c
2022	108	Chorizo doux	Sweet chorizo	S. Enteritidis Ad2294	Meat product	Seeding 48h at 3±2°C	/	3-3-2-0-0	1,6	+	1	c
2022	109	Chorizo	Chorizo	S. Typhimurium 19	Pork meat	Seeding 48h at 3±2°C	/	1-3-2-3-2	2,2	-	1	c
2022	110	Rôti de porc prêt à manger	Cooked and cut pork meat	S. Enteritidis Ad2294	Meat product	Seeding 48h at 3±2°C	/	3-3-2-0-0	1,6	+	1	c
2022	111	Rôti de porc prêt à manger	Cooked and cut pork meat	S. Typhimurium 19	Pork meat	Seeding 48h at 3±2°C	/	1-3-2-3-2	2,2	+	1	c
2022	460	Rosette	Delicatessen (rosette)	S. Typhimurium 987	Meat product	Seeding 48h at 3±2°C	/	2-2-3-1-2	2,0	+	1	c
2022	461	Bacon	Delicatessen (bacon)	S. Typhimurium 987	Meat product	Seeding 48h at 3±2°C	/	2-2-3-1-2	2,0	+	1	c
2022	462	Rôti de porc cuit tranché à manger	Cooked, roasted and cut pork meat	S. Typhimurium 987	Meat product	Seeding 48h at 3±2°C	/	2-2-3-1-2	2,0	+	1	c
2022	2002	Emincés de poulet roti	Sliced roasted chicken meat	S. Enteritidis 2532 + S. Bredeney 464	Pork meat / Pork meat	Seeding 48h at 3±2°C	/	0-5-4-2-1 / 2-2-1-8	2,4 / 3,0	+	1	c
2022	2003	Pâté de campagne sans nitrite	Pâté	S. Enteritidis 2532 + S. Bredeney 464	Pork meat / Pork meat	Seeding 48h at 3±2°C	/	0-5-4-2-1 / 2-2-1-8	2,4 / 3,0	-	1	c
2022	2004	Saucisson à l'ail supérieur fumé au bois de hêtre	Smoked garlic sausage	S. Typhimurium 193 + S. London 326	Pork meat / Meat product	Seeding 48h at 3±2°C	/	1-3-1-2-2 / 0-1-8-2-1	1,8 / 2,4	+	1	c
2022	575	Coquille d'oeuf frais de poules élevées en plein air	Shell eggs (Fresh free-range eggs)	S. Enteritidis 10	Egg products	Seeding overnight ambient temperature	/	17-12-10-12-14	13,0	+	2	a
2022	576	Coquille d'oeuf frais de poules élevées en plein air	Shell eggs (Fresh free-range eggs)	S. Typhimurium 206	Egg products	Seeding overnight ambient temperature	/	22-19-9-17-20	17,4	+	2	a
2022	577	Coquille d'œuf frais datés	Shell eggs (dated fresh free-range eggs)	S. Enteritidis 10	Egg products	Seeding overnight ambient temperature	/	17-12-10-12-14	13,0	+	2	a
2022	578	Coquille d'œuf frais datés	Shell eggs (dated fresh free-range eggs)	S. Typhimurium 206	Egg products	Seeding overnight ambient temperature	/	22-19-9-17-20	17,4	-	2	a
2022	579	Coquille d'œufs bretons plein air	Shell eggs (Fresh free-range eggs from Brittany)	S. Enteritidis 10	Egg products	Seeding overnight ambient temperature	/	17-12-10-12-14	13,0	+	2	a

Year of analysis	Sample N°	Product	Product (French name)	Artificial contamination						Global result	Categorie	Type
				Strain	Origin	Injury protocol	Injury measurement	Inoculation level/ sample				
								Enumeration	Mean			
2022	580	Coquille d'œuf breton plein air	Shell eggs (Fresh free-range eggs from Brittany)	S. Typhimurium 206	Egg products	Seeding overnight ambient temperature	/	22-19-9-17-20	17,4	+	2	a
2022	581	Coquille d'œuf frais de poules élevées en plein air	Shell egg (Fresh free-range eggs)	S. Enteritidis 23	Egg products	Seeding overnight ambient temperature	/	24-23-16-25-23	22,2	+	2	a
2022	582	Coquille d'œuf frais de poules élevées en plein air	Shell egg (Fresh free-range eggs)	S. Typhimurium 472	Egg products	Seeding overnight ambient temperature	/	23-29-30-30-32	28,3	+	2	a
2022	583	Coquille d'œuf frais de poules élevées en plein air	Shell egg (Fresh free-range eggs)	S. Enteritidis 23	Egg products	Seeding overnight ambient temperature	/	24-23-16-25-23	22,2	+	2	a
2022	584	Coquille d'œuf frais de poules élevées en plein air	Shell egg (Fresh free-range eggs)	S. Typhimurium 472	Egg products	Seeding overnight ambient temperature	/	23-29-30-30-32	28,3	+	2	a
2022	585	Coquille de gros œufs de poules élevées en plein air	Shell egg (Big fresh free-range eggs)	S. Enteritidis 23	Egg products	Seeding overnight ambient temperature	/	24-23-16-25-23	22,2	+	2	a
2022	586	Coquille de gros œufs de poules élevées en plein air	Shell egg (Big fresh free-range eggs)	S. Typhimurium 472	Egg products	Seeding overnight ambient temperature	/	23-29-30-30-32	28,3	+	2	a
2022	839	Coquille de gros œuf breton plein air	Shell egg (big and fresh eggs)	S. Livingstone E1	Egg products	Seeding overnight ambient temperature	/	27-20-22-29-30	25,6	-	2	a
2022	840	Coquille d'œuf	Shell egg	S. Livingstone E1	Egg products	Seeding overnight ambient temperature	/	27-20-22-29-30	25,6	-	2	a
2022	841	Coquille d'œuf frais de poules bio	Shell egg (fresh and organic eggs)	S. Livingstone E1	Egg products	Seeding overnight ambient temperature	/	27-20-22-29-30	25,6	-	2	a
2022	842	Coquille d'œuf frais de poule élevée en plein air	Shell egg (fresh free-range eggs)	S. Mbandaka Ad914	Egg products	Seeding overnight ambient temperature	/	19-21-25-24-27	23,2	-	2	a
2022	843	Coquille d'œuf de poule élevée en plein air	Shell egg (fresh free-range eggs)	S. Mbandaka Ad914	Egg products	Seeding overnight ambient temperature	/	19-21-25-24-27	23,2	-	2	a
2016	4395	Poudre d'œuf entier	Whole egg powder	S. Havana Ad1728	Egg product	Seeding lyophilized room temperature 18 days	/	<0,4	<0,4	-	2	b
2016	4396	Poudre de blanc d'œuf	White egg powder	S. Havana Ad1728	Egg product	Seeding lyophilized room temperature 18 days	/	<0,4	<0,4	-	2	b
2016	4400	Poudre d'œuf patissier	Whole egg powder	S. Havana Ad1728	Egg product	Seeding lyophilized room temperature 18 days	/	<0,4	<0,4	-	2	b
2022	215	Poudre de blanc d'œuf	White egg powder	S. Typhimurium 206	Egg products	Spiking Heat treatment 10 min at 56°C	0,60	1-1-1-3-1	1,4	+	2	b
2022	216	Poudre d'œuf entier	Whole egg powder	S. Typhimurium 206	Egg products	Spiking Heat treatment 10 min at 56°C	0,60	1-1-1-3-1	1,4	+	2	b
2022	217	Poudre de blanc d'œuf	White egg powder	S. Enteritidis 657	Egg products	Spiking Heat treatment 10 min at 56°C	0,60	0-2-1-1-0	1,0	+	2	b
2022	218	Poudre de blanc d'œuf	White egg powder	S. Enteritidis 657	Egg products	Spiking Heat treatment 10 min at 56°C	0,60	0-2-1-1-0	1,0	+	2	b
2022	219	Poudre d'œuf entier	Whole egg powder	S. Enteritidis 657	Egg products	Spiking Heat treatment 10 min at 56°C	0,60	0-2-1-1-0	1,0	+	2	b
2022	220	Poudre de jaune d'œuf	Egg yolk powder	S. Typhimurium 206	Egg products	Spiking Heat treatment 10 min at 56°C	0,60	1-1-1-3-1	1,4	+	2	b
2022	221	Poudre de blanc d'œuf	White egg powder	S. Enteritidis MJG01	Egg products	Seeding lyophilised strain 2 weeks at ambient temperature	/	/	1,8	+	2	b
2022	222	Poudre d'œuf entier	Whole egg powder	S. Typhimurium Ad1484	Egg products	Seeding lyophilised strain 2 weeks at ambient temperature	/	/	1,4	+	2	b
2022	223	Poudre de blanc d'œuf	White egg powder	S. Enteritidis Ad638	Egg products	Seeding lyophilised strain 2 weeks at ambient temperature	/	/	1,1	+	2	b
2022	224	Poudre de blanc d'œuf	White egg powder	S. Typhimurium Ad1484	Egg products	Seeding lyophilised strain 2 weeks at ambient temperature	/	/	1,4	+	2	b
2022	225	Poudre de jaune d'œuf	Egg yolk powder	S. Enteritidis MJG01	Egg products	Seeding lyophilised strain 2 weeks at ambient temperature	/	/	1,8	+	2	b
2022	226	Poudre d'œuf entier	Whole egg powder	S. Typhimurium Ad476	Egg products	Seeding lyophilised strain 2 weeks at ambient temperature	/	/	0,5	-	2	b
2022	2005	Poudre d'œuf entier	Whole egg powder	S. Enteritidis Ad638 + S. Infantis 14	Egg products / Egg products	Spiking Heat treatment 8 min at 56°C	0,7/ 1,9	2-1-2-1-1 / 1-0-0-0-0	1,4 / 0,2	+	2	b

Year of analysis	Sample N°	Product	Product (French name)	Artificial contamination						Global result	Categorie	Type
				Strain	Origin	Injury protocol	Injury measurement	Inoculation level/ sample				
								Enumeration	Mean			
2022	2006	Poudre de jaune d'œuf	Egg yolk powder	S. Typhimurium 776 + S. Infantis 14	Egg products / Egg products	Spiking Heat treatment 8 min at 56°C	1,0 / 1,9	0-1-1-1-0 / 1-0-0-0-0	0,6 / 0,2	+	2	b
2022	2007	Poudre d'œuf entier	Whole egg powder	S. Typhimurium 776 + S. Infantis 14	Egg products / Egg products	Spiking Heat treatment 8 min at 56°C	1,0 / 1,9	0-1-1-1-0 / 1-0-0-0-0	0,6 / 0,2	+	2	b
2022	2008	Poudre de jaune d'œuf	Egg yolk powder	S. Enteritidis Ad638 + S. Infantis 14	Egg products / Egg products	Spiking Heat treatment 8 min at 56°C	0,7 / 1,9	2-1-2-1-1 / 1-0-0-0-0	1,4 / 0,2	+	2	b
2016	4731	Jaune d'œuf pasteurisé	Pasteurized egg yolk	S. Mbandaka 81	Egg product	Spiking HT 8 min 56°C	0,42	3-0-5-2-2 (2,4)	2,4	-	2	c
2016	4733	Œuf entier pasteurisé	Pasteurized whole egg	S. Mbandaka 81	Egg product	Spiking HT 8 min 56°C	0,42	3-0-5-2-2 (2,4)	2,4	-	2	c
2016	4734	Blanc d'œuf pasteurisé	Pasteurized egg white	S. Infantis 14	Pasteurized whole egg	Spiking HT 8 min 56°C	0,41	3-1-1-0-2 (1,4)	1,4	-	2	c
2022	209	Coule de blanc d'œuf pasteurisé	Pasteurised liquid white egg	S. Enteritidis 465	Egg products	Spiking Heat treatment 10 min at 56°C	0,60	1-1-1-1-3	1,4	+	2	c
2022	210	Coule de jaune d'œuf pasteurisé	Pasteurised liquid egg yolk	S. Enteritidis 465	Egg products	Spiking Heat treatment 10 min at 56°C	0,60	1-1-1-1-3	1,4	+	2	c
2022	211	Coule d'œuf entier pasteurisé	Pasteurised liquid whole egg	S. Enteritidis 465	Egg products	Spiking Heat treatment 10 min at 56°C	0,60	1-1-1-1-3	1,4	+	2	c
2022	212	Coule de blanc d'œuf pasteurisé	Pasteurised liquid white egg	S. Typhimurium 13	Egg products	Spiking Heat treatment 10 min at 56°C	0,40	0-2-3-0-2	1,4	+	2	c
2022	213	Coule de blanc d'œuf pasteurisé	Pasteurised liquid white egg	S. Typhimurium 13	Egg products	Spiking Heat treatment 10 min at 56°C	0,40	0-2-3-0-2	1,4	+	2	c
2022	214	Coule de jaune d'œuf pasteurisé	Pasteurised liquid egg yolk	S. Typhimurium 13	Egg products	Spiking Heat treatment 10 min at 56°C	0,40	0-2-3-0-2	1,4	+	2	c
2022	407	Blanc d'œuf liquide pasteurisé	Pasteurised liquid white egg	S. Typhimurium 13	Egg products	Seeding 48h at 3±2°C	/	0-4-1-2-1	1,6	-	2	c
2022	408	Blanc d'œuf liquide pasteurisé	Pasteurised liquid white egg	S. Enteritidis 1195-90	Egg products	Seeding 48h at 3±2°C	/	0-1-2-1-2	1,2	+	2	c
2022	409	Jaune d'œuf liquide	Pasteurised liquid egg yolk	S. Typhimurium 13	Egg products	Seeding 48h at 3±2°C	/	0-4-1-2-1	1,6	-	2	c
2022	410	Œuf entier liquide	Pasteurised liquid whole egg	S. Typhimurium 13	Egg products	Seeding 48h at 3±2°C	/	0-4-1-2-1	1,6	+	2	c
2022	411	Jaune d'œuf liquide	Pasteurised liquid egg yolk	S. Enteritidis 1195-90	Egg products	Seeding 48h at 3±2°C	/	0-1-2-1-2	1,2	+	2	c
2022	412	Œuf entier liquide	Pasteurised liquid whole egg	S. Enteritidis 1195-90	Egg products	Seeding 48h at 3±2°C	/	0-1-2-1-2	1,2	-	2	c
2022	527	Blanc d'œuf liquide pasteurisé	Pasteurised liquid white egg	S. Typhimurium 472	Egg products	Seeding 48h at 3±2°C	/	0-4-3-0-5	2,4	+	2	c
2022	528	Œuf entier liquide	Pasteurised liquid whole egg	S. Typhimurium 472	Egg products	Seeding 48h at 3±2°C	/	0-4-3-0-5	2,4	+	2	c
2022	2009	Coule de jaune d'œuf liquide pasteurisé	Egg yolk powder	S. Enteritidis 657 + S. Infantis 937	Egg products / Meat products	Seeding 48h at 3±2°C	/	1-1-2-0-0 / 3-2-2-4-3	0,8 / 2,8	+	2	c
2022	2010	Coule de jaune d'œuf liquide pasteurisé	Egg yolk powder	S. Typhimurium Ad1484 + S. Infantis 937	Egg products / Meat products	Seeding 48h at 3±2°C	/	4-2-3-1-5 / 3-2-2-4-3	3,0 / 2,8	+	2	c
2022	2011	Coule d'œuf entier liquide pasteurisé	Whole egg powder	S. Enteritidis 657 + S. Infantis 937	Egg products / Meat products	Seeding 48h at 3±2°C	/	1-1-2-0-0 / 3-2-2-4-3	0,8 / 2,8	+	2	c
2022	2012	Coule d'œuf entier liquide pasteurisé	Whole egg powder	S. Typhimurium Ad1484 + S. Infantis 937	Egg products / Meat products	Seeding 48h at 3±2°C	/	4-2-3-1-5 / 3-2-2-4-3	3,0 / 2,8	+	2	c

Appendix 4 – Sensitivity study: raw data

Bold typing : artificially inoculated samples

Results:

m:	minority level of target analyte
M:	majority level of target analyte
P:	pure culture level of target analyte
1/2:	50% level of target analyte
(x):	number of colonies in the plate
-:	no typical colonies but presence of background microflora
st:	plate without any colony
PA:	positive agreement
NA:	negative agreement
ND:	negative deviation
PD:	positive deviation
PPNA:	positive presumptive negative agreement
PPND:	positive presumptive negative deviation
NC:	non-characteristic colony
BPW:	Buffered Peptone Water
SE:	S. Enteritidis
ST:	S. Typhimurium
SEST:	S. Enteritidis and S. Typhimurium
spp:	<i>Salmonella</i> spp.
col:	colonies
d:	doubtful colonies
ni:	not isolated colonies
purif	purification

MEAT PRODUCTS											
Year of analysis	Sample N°	Product (French name)	Product	Reference method: ISO 6579-1*					Category	Type	
				RVS broth		MKTTn broth		Serotyping 6579-3			Result SEST
				XLD	ASAP	XLD	ASAP				
2016	6811	Magret de canard	Smoked duck	+p	+p	+p	+p		-	1	a
2016	6812	Magret de canard	Smoked duck	+p	+p	+p	+p		-	1	a
2017	1607	Rôti de filet de dinde	Poultry meat	+M	+m	+M	+p		-	1	a
2017	1608	Escalope de dinde	Poultry meat	+M	+m	+M	+M		-	1	a
2021	8081	Filet de canard	Raw duck meat	+M	+M	+m	+1/2	Salmonella Enteritidis	+	1	a
2021	8082	Escalope de dinde	Raw poultry meat	+1/2	+1/2	+m	+M	Salmonella Enteritidis	+	1	a
2021	8083	Tendrefines de poulet	Raw chicken meat	+M	+M	+M	+M	Salmonella Enteritidis	+	1	a
2021	8084	Escalope de dinde	Raw poultry meat	+1/2d (Proteus spp.)	-	+md (NC)	-	/	-	1	a
2021	8085	Filet de poulet	Raw chicken filet meat	-	+1/2	+M	+M	Salmonella Enteritidis	+	1	a
2022	61	Cuisse de canard	Raw duck meat	+m	+M	+1/2	+M	Salmonella Typhimurium	+	1	a
2022	62	Viande de canard prêt à cuisiner	Raw duck meat	+M	+M	+1/2	+M	Salmonella Typhimurium	+	1	a
2022	63	Escalope de dinde	Raw poultry meat	+m	+m	+M	+M	Salmonella Typhimurium	+	1	a
2022	64	Tendrefine de poulet	Raw chicken meat	+M	+M	+M	+M	Salmonella Typhimurium	+	1	a
2022	65	Cuisse de poulet	Raw chicken meat	+M	+M	+M	+M	Salmonella Typhimurium	+	1	a
2022	529	Escalope de dinde	Turkey meat	+m	+md/+	+p	+M	Salmonella Enteritidis	+	1	a
2022	530	Filet de poulet	Chicken meat	+m	+M	+M	+M	Salmonella Enteritidis	+	1	a
2022	623	Filet de poulet cru	Raw chicken meat	+m	+1/2	+M	+M	Salmonella Enteritidis	+	1	a
2022	624	Aiguillettes de canard	Raw duck meat	+1/2	+M	+M	+M	Salmonella Enteritidis	+	1	a
2022	625	Tendrefines de dinde	Raw cut poultry meat	+M	+M	+M	+M	Salmonella Brandenburg	-	1	a
2022	626	Escalope de dinde	Raw poultry meat	+M	+1/2	+1/2	+1/2	Salmonella Brandenburg	-	1	a
2022	1997	Poulet fermier bio cru	Organic chicken meat	+M	+1/2	+1/2	+M	Salmonella Infantis (SEST-x20 col)	-	1	a
2022	1998	Escalope de dinde crue	Raw poultry meat	+M	+1/2	+1/2	+M	Salmonella Typhimurium Salmonella Infantis	+	1	a
2021	8086	Viande de porc, échine sans os	Raw pork meat	+m	+m	+1/2	+M	Salmonella Enteritidis	+	1	b
2021	8087	Mincерette de porc	Raw pork meat	+p	+p	+M	+M	Salmonella Enteritidis	+	1	b
2021	8088	Côte échine de porc	Raw pork meat	+M	+p	+M	+p	Salmonella Enteritidis	+	1	b
2021	8089	Filet de porc sans os	Raw pork meat	+m	+m	+M	+M	Salmonella Enteritidis	+	1	b
2021	8090	Côte filet de porc	Raw pork meat	+p	+p	+M	+p	Salmonella Enteritidis	+	1	b
2022	66	Tranche de porc	Raw cut pork meat	-	-	-d(NC)	-	/	-	1	b
2022	67	Côte de porc	Raw pork meat	+M	+p	+M	+M	Salmonella Typhimurium	+	1	b
2022	68	Côte échine de porc	Raw pork meat	-	-	-	-	/	-	1	b
2022	69	Côte de porc	Raw pork meat	+M	+1/2	+M	+M	Salmonella Typhimurium	+	1	b
2022	70	Sauté de porc	Raw pork meat	-	-	-	-	/	-	1	b
2022	456	Viande de porc cru, jambonneau à l'ancienne	Raw pork meat (knuckle rind)	+p	+p	+M	+p	Salmonella Typhimurium	+	1	b
2022	457	Poitrine de porc cru avec os	Raw pork meat (pork belly with bones)	+m	+M	+M	+M	Salmonella Typhimurium	+	1	b
2022	458	Côte de porc, échine à griller	Raw pork meat (pork chop)	+M	+M	+M	+M	Salmonella Typhimurium	+	1	b
2022	459	Côte de porc à griller	Raw pork meat (pork chop)	+M	+M	+M	+1/2	Salmonella Typhimurium	+	1	b
2022	631	Travers de porc	Pork meat	+M	+p	+M	+p	Salmonella London	-	1	b
2022	632	Côte de porc	Pork meat (pork chop)	+M	+M	+1/2	+M	Salmonella London	-	1	b
2022	633	Côte échine de porc	Pork meat (pork chop)	+M	+1/2	+M	+M	Salmonella London	-	1	b
2022	634	Poitrine de porc	Raw pork meat	+M	+M	+M	+M	Salmonella Rissen	-	1	b

* Analyses performed according to the COFRAC accreditation

MEAT PRODUCTS											
Year of analysis	Sample N°	Product (French name)	Product	Reference method: ISO 6579-1*						Category	Type
				RVS broth		MKTTn broth		Serotyping 6579-3	Result SEST		
				XLD	ASAP	XLD	ASAP				
2022	635	Haché de porc	Raw ground meat	+M	+p	+M	+p	Salmonella Rissen	-	1	b
2022	1999	Côte de porc à griller crue	Raw pork meat	+M	+M	+M	+M	Salmonella Parkroyal (SEST-x20 col)	-	1	b
2022	2000	Viande de porc crue filet sans os à griller	Raw pork meat	+M	+M	+M	+M	Salmonella Bredeney (SEST-x20 col)	-	1	b
2022	2001	Côte de porc échine crue à griller	Raw pork meat	+M	+p	+M	+M	Salmonella Bredeney (SEST-x20 col)	-	1	b
2016	6815	Manchons de poulet nature	Ready to eat poultry meat	+p	+p	+p	+p		-	1	c
2016	6916	Jambon blanc	Ham	+p	+p	+p	+p		-	1	c
2016	6917	Pâté de campagne	Pâté	+p	+p	+p	+p		-	1	c
2017	1611	Chipolatas	Chipolata	+M	+M	+M	+M		-	1	c
2017	1612	Saucisse Montbéliard	Sausage of Montbéliard	+M	+M	+M	+M		-	1	c
2022	102	Mousse de canard au porto	Pâté with duck meat	+p	+p	+p	+p	Salmonella Enteritidis	+	1	c
2022	103	Mousse de canard au porto	Pâté with duck meat	+p	+p	+p	+p	Salmonella Typhimurium	+	1	c
2022	104	Emincés de poulet rôti	Roasted cooked chicken meat	+M	+p	+p	+p	Salmonella Enteritidis	+	1	c
2022	105	Emincés de poulet rôti	Roasted cooked chicken meat	+p	+p	+p	+p	Salmonella Typhimurium	+	1	c
2022	106	Chipolatas	Chipolatas	+1/2	+1/2	+1/2	+M	Salmonella Enteritidis	+	1	c
2022	107	Saucisse à griller	Sausage	-d/-	-	-	-	/	-	1	c
2022	108	Chorizo doux	Sweet chorizo	+p	+p	+M	+p	Salmonella Enteritidis	+	1	c
2022	109	Chorizo	Chorizo	st	st	-	-	/	-	1	c
2022	110	Rôti de porc prêt à manger	Cooked and cut pork meat	+p	+p	+p	+p	Salmonella Enteritidis	+	1	c
2022	111	Rôti de porc prêt à manger	Cooked and cut pork meat	+p	+p	+p	+p	Salmonella Typhimurium	+	1	c
2022	460	Rosette	Delicatessen (rosette)	+p	+p	+p	+p	Salmonella Typhimurium	+	1	c
2022	461	Bacon	Delicatessen (bacon)	+p	+M	+p	+p	Salmonella Typhimurium	+	1	c
2022	462	Roti de porc cuit tranché à manger	Cooked, roasted and cut pork meat	+p	+p	+M	+p	Salmonella Typhimurium	+	1	c
2022	2002	Emincés de poulet rôti	Sliced roasted chicken meat	+M	+p	+p	+p	Salmonella Enteritidis	+	1	c
2022	2003	Pâté de campagne sans nitrite	Pâté	+M	+p	+p	+p	Salmonella Parkroyal (SEST-x20 col)	-	1	c
2022	2004	Saucisson à l'ail supérieur fumé au bois de hêtre	Smoked garlic sausage	+m	+M	+M	+M	Salmonella London (SEST-x20col)	-	1	c

S. Enteritidis:SE

S. Typhimurium : ST

S. Brandenburg: SB

MEAT PRODUCTS																																						
Year of analysis	Sample N°	Product	Reference method: ISO 6579-1*	Alternative method: GENE-UP® SE & ST (SEST) kit																								Confirmation SEST final result	Final result GENE-UP - 18h - SEST	Agreement GENE-UP SEST	Category	Type						
				BPW 18h 34-38°C																																		
				PCR result							Confirmation																											
											Direct streaking						Subculture SX2																					
				Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	XLD			ASAP			6h at 41,5°C±1,0°C				24h at 41,5°C±1,0°C																	
							Typical colonies	After purif	Final result SEST	Typical colonies	After purif		Final result SEST	Typical colonies	After purif (if necessary)		Typical colonies	After purif (if necessary)		Typical colonies	After purif		Typical colonies	After purif														
SS1 serotyping	ISO 6579-3 (if)	SS1 serotyping	ISO 6579-3	SS1 serotyping	ISO 6579-3	SS1 serotyping					ISO 6579-3	SS1 serotyping			ISO 6579-3	SS1 serotyping		ISO 6579-3	SS1 serotyping		ISO 6579-3	SS1 serotyping		ISO 6579-3	SS1 serotyping	ISO 6579-3												
2016	6811	Smoked duck	-	0,0	0,0	33,27	0,0	0,0	61,62	-	+M			-	+p			-	+p									-	-	NA	1	a						
2016	6812	Smoked duck	-	0,0	0,0	33,53	0,0	0,0	61,86	-	+p			-	+p			-	+p									-	-	NA	1	a						
2017	1607	Poultry meat	-	0,0	0,0	32,87	0,0	0,0	61,85	-	+md/+			-	-			-	+m				+m			+m			-	-	NA	1	a					
2017	1608	Poultry meat	-	0,0	0,0	33,42	0,0	0,0	61,71	-	+md/+			-	-			-	+m				+m			+m			-	-	NA	1	a					
2021	8081	Raw duck meat	+	27,88	0,0	32,61	66,60	0,0	62,49	+SE	+md/-	/	/	-	+M-d	-	/	-	+M	SE	/	+M	SE	SE							+ +	PA	1	a				
2021	8082	Raw poultry meat	+	25,28	0,0	32,85	66,20	0,0	62,24	+SE	+mni/+	SE	/	+	+mni/+	SE	SE	+	+m			+m										+ +	PA	1	a			
2021	8083	Raw chicken meat	+	23,89	0,0	24,93	66,09	0,0	62,03	+SE	+M	SE	/	+	+M	SE	SE	+	+M			+M										+ +	PA	1	a			
2021	8084	Raw poultry meat	-	0,0	0,0	32,21	0	0,0	61,68	-	+d (Proteus spp.)	/	/	-	-	/	/	-	+md(1)/-			-			-	/						-	-	NA	1	a		
2021	8085	Raw chicken filet meat	+	27,14	0,0	32,90	66,36	0,0	62,17	+SE	+dni/+	SE	SE	+	+mni-d	/	/	-	+M	SE	/	+M	SE	SE									+ +	PA	1	a		
2022	61	Raw duck meat	+	0,0	33,70	32,90	0,0	55,68	62,42	+ST	-	/	/	-	-	/	/	-	+M	ST	/	+1/2	ST	ST									+ +	PA	1	a		
2022	62	Raw duck meat	+	0,0	31,45	31,67	0,0	56,13	55,60	+ST	+mni/+	ST	/	+	+ni(1)/+	ST	ST	+	+m			+1/2											+ +	PA	1	a		
2022	63	Raw poultry meat	+	0,0	33,26	32,80	0,0	55,85	62,03	+ST	-dni/-	/	/	-	-	/	/	-	+mni/+	ST	/	+m	ST	ST									+ +	PA	1	a		
2022	64	Raw chicken meat	+	0,0	31,64	32,06	0,0	55,93	61,92	+ST	+mni/+	ST	/	+	+ni(1)/+	ST	ST	+	+1/2			+1/2											+ +	PA	1	a		
2022	65	Raw chicken meat	+	0,0	31,99	32,42	0,0	55,42	61,81	+ST	+mni/+	ST	ST	+	-	/	/	-	+M			+1/2	ST	/									+ +	PA	1	a		
2022	529	Turkey meat	+	0,0/0,0/15,09	0,0/0,0/0,0	32,99/32,7/32,58	0,0/66,7/67,12	0,0/0,0/0,0	61,79/62,2/62,23	-/+SE/+SE	+mdni/-	/	/	-	+mdni/+mni/+d	-	-	-	+mni/+	SE	SE	+mni/+	SE	SE		+m	+					+ -	ND	1	a			
2022	530	Chicken meat	+	27,69	0,0	34,12	66,84	0,0	63,64	+SE	+mni/+	SE	/	+	+mni/+	SE	SE	+	+M			+p											+ +	PA	1	a		
2022	623	Raw chicken meat	+	26,04	0,0	32,7	65,89	0,0	62,65	+SE	+mni/+	SE	/	+	+mni/+	SE	SE	+	+M			+p											+ +	PA	1	a		
2022	624	Raw duck meat	+	25,88	0,0	26,07	65,96	0,0	62,46	+SE	-	/	/	-	+mni/+	SE	SE	+	+d(2)ni/+	SE	SE	+1/2			+md								+ +	PA	1	a		
2022	625	Raw cut poultry meat	-	0,0	0,0	32,92	0,0	0,0	61,81	-	+mdni/-	/	/	-	+mni/+	spp	SB	-	+1/2ni/+	-	SB	+1/2			+1/2								-	-	NA	1	a	
2022	626	Raw poultry meat	-	0,0	0,0	32,92	0,0	0,0	61,94	-	+mdni/dni-(NC)	/	/	-	+mni/+	spp	SB	-	+d(2)ni/+	-	SB	+dni/+			+md									-	-	NA	1	a
2022	1997	Organic chicken meat	-	0,0	0,0	33,07	67,24	0,0	61,9	+SE	+md/+	-	/	-	+mni/+	-	/	-	+1/2	-x5		+m	-x5		+mni/+	-x5						+ +	PD	1	a			
2022	1998	Raw poultry meat	+	0,0	33,73	32,95	0,0	55,18	54,91	+ST	+d(1)/-	/	/	-	+mni/+	ST	ST	+	+m			+m			+mni/+								+ +	PA	1	a		
2021	8086	Raw pork meat	+	26,47	0,0	31,91	66,19	0,0	61,18	+SE	-	/	/	-	+mni/+mni/-d	/	/	-	+M	SE	/	+m	SE	SE									+ +	PA	1	b		
2021	8087	Raw pork meat	+	20,66	0,0	21,72	66,27	0,0	62,14	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p											+ +	PA	1	b		
2021	8088	Raw pork meat	+	25,46	0,0	33,71	66,45	0,0	62,39	+SE	+1/2	SE	/	+	+1/2	SE	SE	+	+M			+M											+ +	PA	1	b		
2021	8089	Raw pork meat	+	26,47	0,0	32,89	66,32	0,0	61,69	+SE	-	/	/	-	+mni/+	/	/	-	+m	SE	/	+m	SE	SE									+ +	PA	1	b		
2021	8090	Raw pork meat	+	20,73	0,0	21,87	66,21	0,0	62,29	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p											+ +	PA	1	b		
2022	66	Raw cut pork meat	-	0,0	0,0	32,76	0,0	0,0	62,13	-	-	/	/	-	-	/	/	-	-			-			-	/							-	-	NA	1	b	
2022	67	Raw pork meat	+	0,0	30,91	31,59	0,0	56,23	61,88	+ST	+mni/+	ST	/	+	+m	ST	ST	+	+M			+M											+ +	PA	1	b		
2022	68	Raw pork meat	-	0,0	0,0	33,42	0,0	0,0	62,24	-	-	/	/	-	-	/	/	-	-			-			-	/							-	-	NA	1	b	
2022	69	Raw pork meat	+	0,0	29,90	30,25	0,0	56,22	55,82	+ST	+mni/+	ST	/	+	+m	ST	ST	+	+1/2			+1/2											+ +	PA	1	b		
2022	70	Raw pork meat	-	0,0	0,0	33,46	0,0	0,0	61,85	-	-	/	/	-	-	/	/	-	-			-			-	/							-	-	NA	1	b	

MEAT PRODUCTS

Year of analysis	Sample N°	Product	Reference method: ISO 6579-1*	Alternative method: GENE-UP® SE & ST (SEST) kit																				Confirmation SEST final result	Final result GENE-UP - 18h - SEST	Agreement GENE-UP SEST	Category	Type					
				BPW 18h 34-38°C																													
				PCR result								Confirmation																					
				Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	Direct streaking						Subculture SX2																
											XLD			ASAP			6h at 41,5°C±1,0°C			24h at 41,5°C±1,0°C													
											Typical colonies	After purif		Typical colonies	After purif		Typical colonies	After purif (if necessary)		Typical colonies	After purif (if necessary)		Typical colonies						After purif				
SSI serotyping	ISO 6579-3 (if)	Final result SEST	SSI serotyping									ISO 6579-3	Final result SEST		SSI serotyping	ISO 6579-3		SSI	ISO 6579-3		SSI	ISO 6579-3											
2022	456	Raw pork meat (knuckle rind)	+	0,0	31,77	31,91	0,0	55,13	61,28	+ST	+mdni/+	ST	/	+	+1/2	ST	ST	+	+M			+M					+	+	PA	1	b		
2022	457	Raw pork meat (pork belly with bones)	+	0,0	32,11	31,83	0,0	54,99	61,36	+ST	+mdni/+	ST	/	+	+mdni/+	ST	ST	+	+M			+M						+	+	PA	1	b	
2022	458	Raw pork meat (pork chop)	+	0,0	32,01	31,68	0,0	56,23	62,33	+ST	+mni/+	ST	/	+	+1/2	ST	ST	+	+M			+M						+	+	PA	1	b	
2022	459	Raw pork meat (pork chop)	+	0,0	32,90	32,51	0,0	55,48	61,65	+ST	+mdni/+	ST	/	+	+mni/+	ST	ST	+	+m			+1/2						+	+	PA	1	b	
2022	631	Pork meat	-	0,0	0,0	33,44	0,0	0,0	61,88	-	+1/2dni/+	spp	/	-	+Mni/+	spp	S. London	-	+M			+p						-	-	NA	1	b	
2022	632	Pork meat (pork chop)	-	0,0	0,0	33,15	0,0	0,0	61,79	-	+mdni/+	spp	/	-	+M	spp	S. London	-	+M			+p						-	-	NA	1	b	
2022	633	Pork meat (pork chop)	-	0,0	0,0	32,74	0,0	0,0	62,05	-	+mdni/+	spp	/	-	+mni/+	spp	S. London	-	+1/2			+1/2						-	-	NA	1	b	
2022	634	Raw pork meat	-	0,0	0,0	32,75	0,0	0,0	60,99	-	+mdni/+	spp	/	-	+1/2	spp	S. Rissen	-	+1/2			+M						-	-	NA	1	b	
2022	635	Raw ground meat	-	0,0	0,0	33,49	0,0	0,0	61,9	-	+Mni/+	spp	/	-	+M	spp	S. Rissen	-	+M			+p						-	-	NA	1	b	
2022	1999	Raw pork meat	-	0,0	0,0	33,46	0,0	0,0	61,75	-	+mni/+	spp	/	-	+1/2ni/+	spp	S. Bredenev	-	+M			+M			+mni/+		+M	-	-	NA	1	b	
2022	2000	Raw pork meat	-	0,0	31,86	31,6	0,0	55,7	55,3	+ST	+mni/+	ST	ST	+	+mni/+	spp	S. Bredenev	-	+M			+M			+p		+M	+	+	PD	1	b	
2022	2001	Raw pork meat	-	0,0/0,0/0,0	33,28/32,25/32,61	32,68/32,23/32,47	0,0/0,0/0,0	55,02/55,62/55,17	54,52/55,32/54,22	+ST/+ST/+ST	+d(1)ni/+	O4+/H:i -/H:2- spp	/	-	+mni/+	O4+/H:i -/H:2- spp	S. Bredenev Salmonella 1,4,5,12, i:1,2 : Typhimurium without flagellar phase	+	+M			+M			+p	Salmonella 1,2,12, i: 1,2	+M		+	+	PD	1	b
2016	6815	Ready to eat poultry meat	-	0,0	0,0	32,97	0,0	0,0	61,88	-	+M			-	+M			-	+p			+p						-	-	NA	1	c	
2016	6916	Ham	-	0,0	0,0	33,56	0,0	0,0	61,95	-	+M			-	+p			-	+p			+p						-	-	NA	1	c	
2016	6917	Pâté	-	0,0	0,0	33,69	0,0	0,0	60,83	-	+p			-	+p			-	+p			+p						-	-	NA	1	c	
2017	1611	Chipolata	-	0,0	0,0	33,61	0,0	0,0	61,87	-	-			-	+m			-	-			+md/+			+m		+m		-	-	NA	1	c
2017	1612	Sausage of Montbéliard	-	0,0	0,0	33,24	0,0	0,0	61,5	-	+M			-	+M			-	+M			+M						-	-	NA	1	c	
2022	102	Pâté with duck meat	+	20,7	0,0	33,6	67,06	0,0	62,75	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p						+	+	PA	1	c	
2022	103	Pâté with duck meat	+	0,0	24,78	26,07	0,0	56,82	56,56	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p						+	+	PA	1	c	
2022	104	Roasted cooked chicken meat	+	24,04	0,0	24,94	66,69	0,0	63,83	+SE	+mni/+	SE	/	+	+M	SE	SE	+	+M			+M						+	+	PA	1	c	
2022	105	Roasted cooked chicken meat	+	0,0	28	30,24	0,0	56,06	55,67	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p						+	+	PA	1	c	
2022	106	Chipolatas	+	25,27	0,0	33,16	66,39	0,0	61,96	+SE	-	/	/	-	+mdni/-d	SE	SE	+	+M	SE	/	+M	SE	/				+	+	PA	1	c	
2022	107	Sausage	-	0,0	0,0	33,57	0,0	0,0	61,93	-	+mdni/-	/	/	-	-	/	/	-	-			-			-	/		-	-	NA	1	c	
2022	108	Sweet chorizo	+	22,69	0,0	23,59	65,86	0,0	60,96	+SE	+M	SE	/	+	+p	SE	SE	+	+M			+p						+	+	PA	1	c	
2022	109	Chorizo	-	0,0	0,0	33,55	0,0	0,0	62,13	-	-	/	/	-	-	/	/	-	-			-			-	/		-	-	NA	1	c	
2022	110	Cooked and cut pork meat	+	21,82	0,0	34,55	66,85	0,0	63,05	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p						+	+	PA	1	c	
2022	111	Cooked and cut pork meat	+	0,0	24,76	25,99	0,0	56,4	56,28	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p						+	+	PA	1	c	

MEAT PRODUCTS																																			
Year of analysis	Sample N°	Product	Reference method: ISO 6579-1*	Alternative method: GENE-UP® SE & ST (SEST) kit																								Confirmation SEST final result	Final result GENE-UP - 18h - SEST	Agreement GENE-UP SEST	Category	Type			
			Result SEST	BPW 18h 34-38°C									Confirmation																						
				PCR result									Direct streaking						Subculture SX2																
				Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	XLD			ASAP			6h at 41,5°C±1,0°C			24h at 41,5°C±1,0°C															
											Typical colonies	After purif		Final result SEST	Typical colonies	After purif		Final result SEST	Typical colonies	After purif (if necessary)		Typical colonies	After purif (if necessary)		Typical colonies	After purif							Typical colonies	After purif	
SSI serotyping	ISO 6579-3 (if necessary)	SSI serotyping	ISO 6579-3	SSI serotyping	ISO 6579-3	SSI serotyping	ISO 6579-3	SSI serotyping	ISO 6579-3	SSI serotyping		ISO 6579-3	SSI serotyping			ISO 6579-3	SSI serotyping			ISO 6579-3															
2022	460	Delicatessen (rosette)	+	0,0	26.99	29.20	0,0	55.71	55.36	+ST	+M	ST	/	+	+p	ST	ST	+	+p			+p									+	+	PA	1	c
2022	461	Delicatessen (bacon)	+	0,0	26.72	28.82	0,0	55.79	53.56	+ST	+M	ST	/	+	+p	ST	ST	+	+p			+p									+	+	PA	1	c
2022	462	Cooked, roasted and cut pork meat	+	0,0	24.88	27.05	0,0	56.33	54.52	+ST	+M	ST	/	+	+p	ST	ST	+	+p			+p									+	+	PA	1	c
2022	2002	Sliced roasted chicken meat	+	24,13	0,0	25,03	66,5	0,0	62,63	+SE	+M	SE	/	+	+M	SE	SE	+	+M			+p			+mni/+			+p			+	+	PA	1	c
2022	2003	Pâté	-	0,0	0,0	33,57	0,0	0,0	61,89	-	+p	spp	/	-	+p	spp	S. Bredeney	-	+p			+p			+p			+p			-	-	NA	1	c
2022	2004	Smoked garlic sausage	-	0,0	34,42	32,9	0,0	55,57	62,03	+ST	+M	- x5	/	-	+M	spp	S. London (SEST-x20 col)	-	+M	-x5			+M	-x5		+p	- x5		+M	-x5	-	-	PD	1	c

MEAT PRODUCTS																																			
Year of analysis	Sample N°	Product	Reference method: ISO 6579-1*	GENE-UP® SE & ST (SEST) kit																									Final result GENE UP 72h	Agreement GENE UP 72h	Category	Type			
				BPW 18h 34-38°C + 72 h at 5°C ± 3°C																															
				PCR GENE-UP SEST -															Confirmation + 72h at 5°C ± 3°C																
				BPW 72h							Lysate 72h								Direct streaking					Subculture SX2 (if necessary)											
				Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	Cp SE	Cp ST	Cp IC	TM (C) SE	TM (C) ST	TM (C) IC	Result	XLD			ASAP			XLD			ASAP								
Typical colonies	After purif	SSI	Typical colonies															After purif	SSI	ISO 6579-3 (if necessary)	Typical colonies	After purif	SSI	ISO 6579-3 (if necessary)	Typical colonies	After purif	SSI	ISO 6579-3 (if necessary)							
				2021	8081	Raw duck meat	+	27.95	0,0	32.80	66.93	0,0	62.78	+SE	29.89	0,0	32.78												67.03	0,0	63.66	+SE	+m/-	/	-1/2d
2021	8082	Raw poultry meat	+	25.75	0,0	33.39	65.86	0,0	62.39	+SE	26.50	0,0	26.57	66.48	0,0	66.43	+SE	+(3)	SE	+mni/+	SE								+	+	+	PA	PA	1	a
2021	8083	Raw chicken meat	+	23.95	0,0	23.99	66.39	0,0	62.29	+SE	25.84	0,0	25.91	66.76	0,0	62.96	+SE	+1/2	SE	+1/2ni/+	SE								+	+	+	PA	PA	1	a
2021	8084	Raw poultry meat	-	0,0	0,0	31.86	0,0	0,0	61.70	-	0,0	0,0	32.84	0,0	0,0	62.41	-	+d(2)	-	-d	-								-	-	-	NA	NA	1	a
2021	8085	Raw chicken filet meat	+	25.89	0,0	32.13	66.34	0,0	61.99	+SE	28.51	0,0	33.51	66.71	0,0	63.09	+SE	-	/	+1/2ni/+ni/d	-d	-	+1/2	SE		+1/2	SE	+	+	+	PA	PA	1	a	
2022	61	Raw duck meat	+	0,0	33.65	33.07	0,0	55.76	62.44	+ST	0,0	34.98	34.09	0,0	55.78	62.72	+ST	+1d	ST	+dni/d	ST		+1/2	ST		+1/2	ST	+	+	+	PA	PA	1	a	
2022	62	Raw duck meat	+	0,0	31.64	31.60	0,0	56.21	56.09	+ST	0,0	31.79	31.91	0,0	56.29	62.36	+ST	+mni/+	ST	+mni/+	ST								+	+	+	PA	PA	1	a
2022	63	Raw poultry meat	+	0,0	31.45	31.28	0,0	56.27	61.98	+ST	0,0	33.31	32.80	0,0	56.20	62.27	+ST	+mni/+	ST	-	/								+	+	+	PA	PA	1	a
2022	64	Raw chicken meat	+	0,0	32.24	32.07	0,0	55.96	62.27	+ST	0,0	32.31	32.48	0,0	56.04	62.20	+ST	+mni/+	ST	+mni/+	ST								+	+	+	PA	PA	1	a
2022	65	Raw chicken meat	+	0,0	32.26	32.52	0,0	55.84	62.07	+ST	0,0	32.62	32.83	0,0	55.83	53.71	+ST	+mni/+	ST	+mni/+	ST								+	+	+	PA	PA	1	a
2022	529	Turkey meat	+	0,0	0,0	33	66,46	0,0	62,19	+SE	29,1	0,0	33,55	66,1	0,0	62,18	+SE	-	/	+mdni/+	SE								+	+	+	PA	PA	1	a
2022	530	Chicken meat	+	26,62	0,0	26,73	66,11	0,0	62,04	+SE	28,08	0,0	30,51	66,11	0,0	62,34	+SE	+d/-	/	+md/+	SE								+	+	+	PA	PA	1	a
2022	623	Raw chicken meat	+	26,92	0,0	33,15	66,56	0,0	62,68	+SE	27,63	0,0	34,23	67,24	0,0	62,38	+SE	+d(1)ni/+	SE	+mdni/+	SE								+	+	+	PA	PA	1	a
2022	624	Raw duck meat	+	26,11	0,0	26,21	66,17	0,0	66,05	+SE	26,44	0,0	26,89	66,25	0,0	62,28	+SE	-	/	+Mni/+	SE								+	+	+	PA	PA	1	a
2022	625	Raw cut poultry meat	-	0,0	0,0	34,2	0,0	0,0	62,42	-	0,0	0,0	32,92	0,0	0,0	62,07	-	-	/	+mdni/+	spp								-	-	-	NA	NA	1	a
2022	626	Raw poultry meat	-	0,0	0,0	33,84	0,0	0,0	62,18	-	0,0	0,0	32,96	0,0	0,0	62,28	-	-	/	d(2)ni/+	spp								-	-	-	NA	NA	1	a
2022	1997	Organic chicken meat	-	27,34	0,0	33,16	66,28	0,0	62,05	+SE	29,73	0,0	33,91	67,04	0,0	63,05	+SE	+mdni/+	-x5	+mdni/+	-x5		+m	-x5	+m	-x5		-	-	-	PPNA	PPNA	1	a	
2022	1998	Raw poultry meat	+	0,0	33,05	32,53	0,0	55,13	61,75	+ST	0,0	33,58	32,93	0,0	55,95	62,15	+ST	+d(1)ni/+	ST	+mdni/+	ST								+	+	+	PA	PA	1	a
2021	8086	Raw pork meat	+	0,0	0,0	30,91	66,17	0,0	61,35	+SE	28,45	0,0	33,16	66,74	0,0	62,17	+SE	-	/	+mni/+	SE	SE							+	+	+	PA	PA	1	b
2021	8087	Raw pork meat	+	22,00	0,0	33,91	66,17	0,0	63,40	+SE	21,86	0,0	22,66	66,83	0,0	62,87	+SE	+p	SE	+p	SE								+	+	+	PA	PA	1	b
2021	8088	Raw pork meat	+	25,58	0,0	33,99	66,47	0,0	62,49	+SE	27,59	0,0	27,85	66,63	0,0	63,00	+SE	+1/2	SE	+1/2ni/+	SE								+	+	+	PA	PA	1	b
2021	8089	Raw pork meat	+	26,37	0,0	32,11	66,47	0,0	61,69	+SE	27,88	0,0	33,80	66,69	0,0	63,50	+SE	-	/	+mni/+	SE	SE							+	+	+	PA	PA	1	b

* Analyses performed according to the COFRAC accreditation

MEAT PRODUCTS																																									
Year of analysis	Sample N°	Product	Reference method: ISO 6579-1*	GENE-UP® SE & ST (SEST) kit																									Category	Type											
				BPW 18h 34-38°C + 72 h at 5°C ± 3°C																																					
				PCR GENE-UP SEST -															Confirmation + 72h at 5°C ± 3°C																						
				BPW 72h							Lysate 72h								Direct streaking					Subculture SX2 (if necessary)							Confirmation SEST final result	Final result GENE UP 72h		Agreement GENE UP 72h							
				Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	Cp SE	Cp ST	Cp IC	TM (C) SE	TM (C) ST	TM (C) IC	Result	XLD			ASAP			XLD			ASAP					SEST	Lysate SEST	SEST	Lysate SEST						
																		Typical colonies	After purif	SSI	Typical colonies	After purif	SSI	ISO 6579-3 (if necessary)	Typical colonies	After purif	SSI	ISO 6579-3 (if necessary)								Typical colonies	After purif	SSI	ISO 6579-3 (if necessary)		
2021	8090	Raw pork meat	+	21.73	0,0	33.77	66.44	0,0	62.52	+SE	22.33	0,0	22.46	66.88	0,0	62.92	+SE												+p	SE	+p	SE									
2022	66	Raw cut pork meat	-	0,0	0,0	33.13	0,0	0,0	62.23	-	0,0	0,0	33.09	0,0	0,0	62.43	-	-	/	-	/																				
2022	67	Raw pork meat	+	0,0	30.42	31.07	0,0	56.61	55.02	+ST	0,0	31.15	31.72	0,0	56.21	54.28	+ST	+mni/+	ST	+mni/+	ST																				
2022	68	Raw pork meat	-	0,0	0,0	33.81	0,0	0,0	62.27	-	0,0	0,0	33.57	0,0	0,0	62.57	-	-	/	+mni/-	-																				
2022	69	Raw pork meat	+	0,0	30.01	30.20	0,0	56.59	56.66	+ST	0,0	30.68	30.79	0,0	56.69	56.57	+ST	+mni/+	ST	+m	ST																				
2022	70	Raw pork meat	-	0,0	0,0	33.24	0,0	0,0	62.06	-	0,0	0,0	33.53	0,0	0,0	62.02	-	-	/	-d	-																				
2022	456	Raw pork meat (knuckle rind)	+	0,0	32,15	32,02	0,0	55,3	61,67	+ST	0,0	31,65	32,03	0,0	55,82	53,82	+ST	+mni/+	ST	+1/2	ST																				
2022	457	Raw pork meat (pork belly with bones)	+	0,0	33,62	32,98	0,0	55,1	61,8	+ST	0,0	33,73	33,04	0,0	55,23	62,14	+ST	+mdni/+	ST	+m	ST																				
2022	458	Raw pork meat (pork chop)	+	0,0	31,6	31,53	0,0	56,07	55,93	+ST	0,0	31,49	31,31	0,0	56	55,88	+ST	+1/2	ST	+1/2	ST																				
2022	459	Raw pork meat (pork chop)	+	0,0	33,62	32,92	0,0	55,32	55,12	+ST	0,0	33,72	32,92	0,0	55,34	54,97	+ST	+mdni/+	ST	+mdni/+	ST																				
2022	631	Pork meat	-	0,0	0,0	33,57	0,0	0,0	61,95	-	0,0	0,0	33,78	0,0	0,0	62,22	-	+m	spp	+M	spp																				
2022	632	Pork meat (pork chop)	-	0,0	0,0	33,64	0,0	0,0	61,67	-	0,0	0,0	33,71	0,0	0,0	62,14	-	+m	spp	+M	spp																				
2022	633	Pork meat (pork chop)	-	0,0	0,0	32,96	0,0	0,0	61,83	-	0,0	0,0	34,45	0,0	0,0	62,28	-	+mni/+	spp	+1/2	spp																				
2022	634	Raw pork meat	-	0,0	0,0	33,43	0,0	0,0	61,66	-	0,0	0,0	32,81	0,0	0,0	62,35	-	+mdni/+	spp	+1/2	spp																				
2022	635	Raw ground meat	-	0,0	0,0	33,77	0,0	0,0	61,55	-	0,0	0,0	34,3	0,0	0,0	62,16	-	+m	spp	+M	spp																				
2022	2000	Raw pork meat	-	0,0	30,50	31,67	0,0	55,63	53,56	+ST	0,0	32,35	31,88	0,0	55,61	55,32	+ST	+mdni/+	ST	+mdni/+	ST																				
2022	2001	Raw pork meat	-	0,0	31,49	32,09	0,0	55,76	61,43	+ST	0,0	33,46	32,59	0,0	54,88	54,51	+ST	+mdni/+	ST	+mdni/+	ST																				
2022	102	Pâté with duck meat	+	20,48	0,0	20,61	66,82	0,0	62,54	+SE	21,09	0,0	33,72	66,02	0,0	61,78	+SE	+p	SE	+p	SE																				
2022	103	Pâté with duck meat	+	0,0	25,05	25,23	0,0	56,80	56,55	+ST	0,0	23,81	24,80	0,0	55,62	55,36	+ST	+p	ST	+M	ST																				
2022	104	Roasted cooked chicken meat	+	23,46	0,0	23,64	66,88	0,0	63,12	+SE	24,08	0,0	25,86	66,92	0,0	63,08	+SE	+m	SE	+1/2ni/+	SE																				
2022	105	Roasted cooked chicken meat	+	0,0	26,44	28,07	0,0	56,74	55,93	+ST	0,0	25,06	26,48	0,0	56,15	53,91	+ST	+p	ST	+p	ST																				

MEAT PRODUCTS																																			
Year of analysis	Sample N°	Product	Reference method: ISO 6579-1*	GENE-UP® SE & ST (SEST) kit																								Final result GENE UP 72h	Agreement GENE UP 72h		Category	Type			
				BPW 18h 34-38°C + 72 h at 5°C ± 3°C																															
				PCR GENE-UP SEST -												Confirmation + 72h at 5°C ± 3°C																			
				BPW 72h						Lysate 72h						Direct streaking						Subculture SX2 (if necessary)													
				Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	Cp SE	Cp ST	Cp IC	TM (C) SE	TM (C) ST	TM (C) IC	Result	XLD			ASAP			XLD			ASAP								
Typical colonies	After purif	Typical colonies	SSI															ISO 6579-3 (if necessary)	Typical colonies	After purif	Typical colonies	After purif	Typical colonies	After purif	Typical colonies	After purif									
				SE	ST	IC	SE	ST	IC	SE	ST	IC	SE	ST	IC	SE	ST										IC								
2022	106	Chipolatas	+	0,0	0,0	32.99	66.73	0,0	62.08	+SE	26.50	0,0	33.22	66.68	0,0	62.19	+SE	+mdni/-	/	+mdni/+	SE		+M	SE		+1/2ni/+	SE		+	+	+	PA	PA	1	c
2022	107	Sausage	-	0,0	0,0	33.47	0,0	0,0	62.12	-	0,0	0,0	33.77	0,0	0,0	62.08	-	+mdni/-	/	+d(1)ni/-	/		-			-			-	-	-	NA	NA	1	c
2022	108	Sweet chorizo	+	22,81	0	24,8	65,85	0	61,53	+SE	22,99	22,99	24,50	66,05	55,88	61,39	+SE	+M	SE	+M	SE		+M			+p			+	+	+	PA	PA	1	c
2022	109	Chorizo	-	0,0	0,0	33,68	0,0	0,0	62,22	-	0,0	0,0	33,24	0,0	0,0	62,35	-	-	/	-	/								-	-	-	NA	NA	1	c
2022	110	Cooked and cut pork meat	+	21,94	0,0	34,95	66,93	0,0	66,88	+SE	21,86	0,0	34,43	66,26	0,0	66,21	+SE	+p	SE	+p	SE								+	+	+	PA	PA	1	c
2022	111	Cooked and cut pork meat	+	0,0	23,53	23,77	0,0	56,43	56,22	+ST	0,0	23,27	24,43	0,0	56,07	55,79	+ST	+p	ST	+p	ST								+	+	+	PA	PA	1	c
2022	460	Delicatessen (rosette)	+	0,0	28,24	28,96	0,0	56,01	55,98	+ST	0,0	26,61	28,71	0,0	55,73	54,09	+ST	+p	ST	+p	ST								+	+	+	PA	PA	1	c
2022	461	Delicatessen (bacon)	+	0,0	26,18	26,6	0,0	55,58	55,37	+ST	0,0	26,21	28,02	0,0	55,57	54,8	+ST	+p	ST	+p	ST								+	+	+	PA	PA	1	c
2022	462	Cooked, roasted and cut pork meat	+	0,0	24,8	26,02	0,0	56,07	55,83	+ST	0,0	24,53	26	0,0	55,93	53,61	+ST	+p	ST	+p	ST								+	+	+	PA	PA	1	c
2022	2002	Sliced roasted chicken meat	+	22,47	0,0	24,70	66,52	0,0	63,44	+SE	21,47	0,0	21,64	66,10	0,0	62,14	+SE	+M	SE	+mdni/+	SE								+	+	+	PA	PA	1	c
2022	2004	Smoked garlic sausage	-	0,0	34,52	32,73	0,0	55,48	61,95	+ST	0,0	31,72	31,87	0,0	54,79	54,44	+ST	+M	-x5	+mdni/+	-x5	SEST pool x20:-	+m	ST		+m	ST	ST	-	-	-	PD	PD	1	c

EGG PRODUCTS											
Year of analysis	Sample N°	Product (French name)	Product	Reference method: ISO 6579-1*					Category	Type	
				RVS broth		MKTTn broth		Serotyping 6579-3			Result SEST
				XLD	ASAP	XLD	ASAP				
2022	575	Coquille d'œuf frais de poules élevées en plein air	Shell egg (Fresh free-range eggs)	+p	+p	+p	+p	Salmonella Enteritidis	+	2	a
2022	576	Coquille d'œuf frais de poules élevées en plein air	Shell egg (Fresh free-range eggs)	+p	+p	+p	+p	Salmonella Typhimurium	+	2	a
2022	577	Coquille d'œuf frais datés	Shell egg (dated fresh free-range eggs)	+p	+p	+p	+p	Salmonella Enteritidis	+	2	a
2022	578	Coquille d'œuf frais datés	Shell egg (dated fresh free-range eggs)	-	-	-	-	/	-	2	a
2022	579	Coquille d'œufs bretons plein air	Shell egg (Fresh free-range eggs from Brittany)	+p	+p	+p	+p	Salmonella Enteritidis	+	2	a
2022	580	Coquille d'œuf bretons plein air	Shell egg (Fresh free-range eggs from Brittany)	+p	+p	+p	+p	Salmonella Typhimurium	+	2	a
2022	581	Coquille d'œuf frais de poules élevées en plein air	Shell egg (Fresh free-range eggs)	+p	+p	+p	+p	Salmonella Enteritidis	+	2	a
2022	582	Coquille d'œuf frais de poules élevées en plein air	Shell egg (Fresh free-range eggs)	+p	+p	+p	+p	Salmonella 1,4,[5],12 :-:- : Typhimurium without flagellar phase	+	2	a
2022	583	Coquille d'œuf frais de poules élevées en plein air	Shell egg (Fresh free-range eggs)	+p	+p	+p	+p	Salmonella Enteritidis	+	2	a
2022	584	Coquille d'œuf frais de poules élevées en plein air	Shell egg (Fresh free-range eggs)	+p	+p	+p	+p	Salmonella Typhimurium	+	2	a
2022	585	Coquille de gros œufs de poules élevées en plein air	Shell egg (Big fresh free-range eggs)	+p	+p	+p	+p	Salmonella Enteritidis	+	2	a
2022	586	Coquille de gros œufs de poules élevées en plein air	Shell egg (Big fresh free-range eggs)	+M	+p	+M	+p	Salmonella Typhimurium	+	2	a
2022	839	Coquille de gros œuf breton plein air	Shell egg (big and fresh eggs)	+p	+p	+p	+p	Salmonella Livingstone	-	2	a
2022	840	Coquille d'œuf	Shell egg	+p	+p	+p	+p	Salmonella Livingstone	-	2	a
2022	841	Coquille d'œuf frais de poules bio	Shell egg (fresh and organic eggs)	+p	+p	+p	+p	Salmonella Livingstone	-	2	a
2022	842	Coquille d'œuf frais de poule élevée en plein air	Shell egg (fresh free-range eggs)	+p	+p	+p	+p	Salmonella Mbandaka	-	2	a
2022	843	Coquille d'œuf de poule élevée en plein air	Shell egg (fresh free-range eggs)	+p	+p	+p	+p	Salmonella Mbandaka	-	2	a
2022	844	Coquille d'œuf frais très gros	Shell egg (big and fresh eggs)	st	st	st	st	/	-	2	a
2022	845	Coquille d'œuf frais	Shell egg (fresh eggs)	st	st	st	st	/	-	2	a
2022	846	Coquille d'œuf frais de poule élevée en plein air	Shell egg (fresh free-range eggs)	st	st	st	st	/	-	2	a
2022	847	Coquille d'œuf frais bio de poule élevée en plein air	Shell egg (organic fresh free-range eggs)	st	-	-	-	/	-	2	a
2022	848	Coquille d'œuf poule élevée en Bretagne	Shell egg (fresh free-range eggs, Bretagne)	st	st	st	st	/	-	2	a
2016	4395	Poudre d'œuf entier	Whole egg powder	+p	+p	+p	+p		-	2	b
2016	4396	Poudre de blanc d'œuf	White egg powder	+p	+p	+p	+p		-	2	b
2016	4400	Poudre d'œuf pâtissier	Whole egg powder	+p	+p	+p	+p		-	2	b
2022	215	Poudre de blanc d'œuf	White egg powder	+p	+p	+p	+p	Salmonella Typhimurium	+	2	b
2022	216	Poudre d'œuf entier	Whole egg powder	+p	+p	+p	+p	Salmonella Typhimurium	+	2	b
2022	217	Poudre de blanc d'œuf	White egg powder	+p	+p	+p	+p	Salmonella Enteritidis	+	2	b
2022	218	Poudre de blanc d'œuf	White egg powder	+p	+p	+p	+p	Salmonella Enteritidis	+	2	b
2022	219	Poudre d'œuf entier	Whole egg powder	+p	+p	+p	+p	Salmonella Enteritidis	+	2	b
2022	220	Poudre de jaune d'œuf	Egg yolk powder	+p	+p	+M	+p	Salmonella Typhimurium	+	2	b
2022	221	Poudre de blanc d'œuf	White egg powder	+p	+p	+p	+p	Salmonella Enteritidis	+	2	b
2022	222	Poudre d'œuf entier	Whole egg powder	+p	+p	+p	+p	Salmonella Typhimurium	+	2	b
2022	223	Poudre de blanc d'œuf	White egg powder	+p	+p	+p	+p	Salmonella Enteritidis	+	2	b
2022	224	Poudre de blanc d'œuf	White egg powder	+p	+p	+p	+p	Salmonella Typhimurium	+	2	b
2022	225	Poudre de jaune d'œuf	Egg yolk powder	+p	+p	+p	+p	Salmonella Enteritidis	+	2	b
2022	226	Poudre d'œuf entier	Whole egg powder	-	st	st	st	/	-	2	b
2022	2005	Poudre d'œuf entier	Whole egg powder	+p	+p	+p	+p	Salmonella Enteritidis	+	2	b
2022	2006	Poudre de jaune d'œuf	Egg yolk powder	+p	+p	+p	+p	Salmonella Typhimurium	+	2	b
2022	2007	Poudre d'œuf entier	Whole egg powder	+p	+p	+p	+p	Salmonella Typhimurium Salmonella Infantis	+	2	b
2022	2008	Poudre de jaune d'œuf	Egg yolk powder	+p	+p	+p	+p	Salmonella Enteritidis	+	2	b

* Analyses performed according to the COFRAC accreditation

EGG PRODUCTS											
Year of analysis	Sample N°	Product (French name)	Product	Reference method: ISO 6579-1*					Category	Type	
				RVS broth		MKTTn broth		Serotyping 6579-3			Result SEST
				XLD	ASAP	XLD	ASAP				
2022	2215	Poudre d'œuf entier	Whole egg powder	st	st	st	st	/	-	2	b
2022	2216	Poudre de jaune d'œuf entier	Egg yolk powder	st	st	st	st	/	-	2	b
2022	2217	Poudre d'œuf entier	Whole egg powder	st	st	st	st	/	-	2	b
2022	2218	Poudre de jaune d'œuf entier	Egg yolk powder	st	st	st	st	/	-	2	b
2022	2219	Poudre de jaune d'œuf entier	Egg yolk powder	st	st	st	st	/	-	2	b
2016	4731	Jaune d'œuf pasteurisé	Pasteurized egg yolk	+p	+p	+p	+p		-	2	c
2016	4733	Œuf entier pasteurisé	Pasteurized whole egg	+p	+p	+p	+p		-	2	c
2016	4734	Blanc d'œuf pasteurisé	Pasteurized egg white	+p	+p	+p	+p		-	2	c
2022	209	Coule de blanc d'œuf pasteurisé	Pasteurised liquid white egg	+p	+p	+p	+p	Salmonella Enteritidis	+	2	c
2022	210	Coule de jaune d'œuf pasteurisé	Pasteurised liquid egg yolk	+p	+p	+p	+p	Salmonella Enteritidis	+	2	c
2022	211	Coule d'œuf entier pasteurisé	Pasteurised liquid whole egg	+p	+p	+p	+p	Salmonella Enteritidis	+	2	c
2022	212	Coule de blanc d'œuf pasteurisé	Pasteurised liquid white egg	+p	+p	+p	+p	Salmonella Typhimurium	+	2	c
2022	213	Coule de blanc d'œuf pasteurisé	Pasteurised liquid white egg	+p	+p	+p	+p	Salmonella Typhimurium	+	2	c
2022	214	Coule de jaune d'œuf pasteurisé	Pasteurised liquid egg yolk	+p	+p	+p	+p	Salmonella Typhimurium	+	2	c
2022	407	Blanc d'œuf liquide pasteurisé	Pasteurised liquid white egg	st	st	st	st	/	-	2	c
2022	408	Blanc d'œuf liquide pasteurisé	Pasteurised liquid white egg	+p (H2S-)	+p	+p (H2S-)	+p	Salmonella Enteritidis	+	2	c
2022	409	Jaune d'œuf liquide	Pasteurised liquid egg yolk	st	st	st	st	/	-	2	c
2022	410	Œuf entier liquide	Pasteurised liquid whole egg	+M	+p	st	+p	Salmonella Typhimurium	+	2	c
2022	411	Jaune d'œuf liquide	Pasteurised liquid egg yolk	+p (H2S-)	+p	+p	+p	Salmonella Enteritidis	+	2	c
2022	412	Œuf entier liquide	Pasteurised liquid whole egg	st	st	st	st	/	-	2	c
2022	527	Blanc d'œuf liquide pasteurisé	Pasteurised liquid white egg	+p	+p	+p	+p	Salmonella Typhimurium	+	2	c
2022	528	Œuf entier liquide	Pasteurised liquid whole egg	+p	+p	+p	+p	Salmonella Typhimurium	+	2	c
2022	2009	Coule de jaune d'œuf liquide pasteurisé	Egg yolk powder	+p	+p	+p	+p	Salmonella Infantis (SEST-x20 col)	-	2	c
2022	2010	Coule de jaune d'œuf liquide pasteurisé	Egg yolk powder	+p	+p	+p	+p	Salmonella Typhimurium	+	2	c
2022	2011	Coule d'œuf entier liquide pasteurisé	Whole egg powder	+p	+p	+p	+p	Salmonella Enteritidis	+	2	c
2022	2012	Coule d'œuf entier liquide pasteurisé	Whole egg powder	+p	+p	+p	+p	Salmonella Infantis (SEST-x20 col)	-	2	c
2022	2212	Blanc d'œuf liquide pasteurisé	Pasteurised liquid white egg	st	st	st	st	/	-	2	c
2022	2213	Blanc d'œuf liquide pasteurisé	Pasteurised liquid white egg	st	st	st	st	/	-	2	c
2022	2214	Œuf entier liquide pasteurisé	Pasteurised liquid whole egg	st	st	st	st	/	-	2	c

EGG PRODUCTS																																		
Year of analysis	Sample N°	Product	Reference method: ISO 6579-1*	Alternative method: GENE-UP® SE & ST (SEST) kit																									Category	Type				
				BPW 18h 34-38°C																														
				PCR result								Confirmation																						
				Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	Direct streaking						Subculture SX2																	
											XLD			ASAP			6h at 41,5°C±1,0°C					24h at 41,5°C±1,0°C												
Typical colonies	After purif	Final result SEST	Typical colonies								After purif	Final result SEST	Typical colonies	After purif (if necessary)	Final result SEST	Typical colonies	After purif (if necessary)	Final result SEST	Typical colonies	After purif	Final result SEST	Confirmation SEST final result	Final result GENE-UP - 18h - SEST	Agreement GENE-UP SEST										
2022	575	Shell egg (Fresh free-range eggs)	+	22,78	0,0	34,35	66,51	0,0	62,64	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p							+	+	PA	2	a	
2022	576	Shell egg (Fresh free-range eggs)	+	0,0	24,51	26,01	0,0	55,36	54,8	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p							+	+	PA	2	a	
2022	577	Shell egg (dated fresh free-range eggs)	+	21,8	0,0	23,45	65,9	0,0	62,09	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p							+	+	PA	2	a	
2022	578	Shell egg (dated fresh free-range eggs)	-	0,0	0,0	33,27	0,0	0,0	61,7	-	-	/	/	-	-	/	/	-	-			-							-	-	NA	2	a	
2022	579	Shell egg (Fresh free-range eggs from Brittany)	+	21,89	0,0	23,65	65,88	0,0	62,06	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p							+	+	PA	2	a	
2022	580	Shell egg (Fresh free-range eggs from Brittany)	+	0,0	24,57	26,59	0,0	55,5	52,54	+ST	+M	ST	/	+	+p	ST	ST	+	+p			+p							+	+	PA	2	a	
2022	581	Shell egg (Fresh free-range eggs)	+	21,49	0,0	22,83	65,47	0,0	62,73	+SE	+M	SE	/	+	+p	SE	SE	+	+p			+p							+	+	PA	2	a	
2022	582	Shell egg (Fresh free-range eggs)	+	0,0	25,54	27,49	0,0	55,71	53,92	+ST	+p	ST	/	+	+p	ST	Salmonella 1,4,[5],12 :- : Typhimurium without flagellar phase	+	+p			+p								+	+	PA	2	a
2022	583	Shell egg (Fresh free-range eggs)	+	22,04	0,0	34,07	66,04	0,0	62,36	+SE	+M	SE	/	+	+p	SE	SE	+	+p			+p							+	+	PA	2	a	
2022	584	Shell egg (Fresh free-range eggs)	+	0,0	24,25	25,68	0,0	55,01	54,84	+ST	+M	ST	/	+	+p	ST	ST	+	+p			+p							+	+	PA	2	a	
2022	585	Shell egg (Big fresh free-range eggs)	+	21,22	0,0	23,16	66,01	0,0	63,03	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p							+	+	PA	2	a	
2022	586	Shell egg (Big fresh free-range eggs)	+	0,0	24,11	25,51	0,0	55,55	52,9	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p							+	+	PA	2	a	
2022	839	Shell egg (big and fresh eggs)	-	0,0	0,0	36,76	0,0	0,0	62,30	-	+p	spp	/	-	+p	spp	S. Livingstone	-	+p			+p							-	-	NA	2	a	
2022	840	Shell egg	-	0,0	0,0	33,84	0,0	0,0	62,16	-	+p	spp	/	-	+p	spp	S. Livingstone	-	+p			+p							-	-	NA	2	a	
2022	841	Shell egg (fresh and organic eggs)	-	0,0	0,0	34,54	0,0	0,0	62,31	-	+p	spp	/	-	+p	spp	S. Livingstone	-	+p			+p							-	-	NA	2	a	
2022	842	Shell egg (fresh free-range eggs)	-	0,0	0,0	34,06	0,0	0,0	62,06	-	+p	spp	/	-	+p	spp	S. Mbandaka	-	+p			+p							-	-	NA	2	a	
2022	843	Shell egg (fresh free-range eggs)	-	0,0	0,0	33,70	0,0	0,0	61,62	-	+p	spp	/	-	+p	spp	S. Mbandaka	-	+p			+p							-	-	NA	2	a	
2022	844	Shell egg (big and fresh eggs)	-	0,0	0,0	33,76	0,0	0,0	61,59	-	st	/	/	-	st	/	/	-	st			st			st		st		-	-	NA	2	a	
2022	845	Shell egg (fresh eggs)	-	0,0	0,0	32,28	0,0	0,0	60,67	-	-	/	/	-	st	/	/	-	st			st			st		st		-	-	NA	2	a	

* Analyses performed according to the COFRAC accreditation

EGG PRODUCTS

Year of analysis	Sample N°	Product	Reference method: ISO 6579-1*	Alternative method: GENE-UP® SE & ST (SEST) kit																								Category	Type			
				BPW 18h 34-38°C																												
				PCR result							Confirmation																					
				Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	Direct streaking						Subculture SX2															
											XLD			ASAP			6h at 41,5°C±1,0°C					24h at 41,5°C±1,0°C										
Typical colonies	After purif	Final result SEST	Typical colonies								After purif	Final result SEST	Typical colonies	After purif (if necessary)	Final result SEST	Typical colonies	After purif (if necessary)	Final result SEST	Typical colonies	After purif	Final result SEST	Typical colonies	After purif	Final result SEST								
2022	846	Shell egg (fresh free-range eggs)	-	0,0	0,0	33,64	0,0	0,0	61,88	-	st	/	/	-	st	/	/	-	st			st			st			-	-	NA	2	a
2022	847	Shell egg (organic fresh free-range eggs)	-	0,0	0,0	33,79	0,0	0,0	62,34	-	-	/	/	-	-	/	/	-	-			st			st			-	-	NA	2	a
2022	848	Shell egg (fresh free-range eggs, Bretagne)	-	0,0	0,0	33,54	0,0	0,0	61,71	-	st	/	/	-	st	/	/	-	st			st			st			-	-	NA	2	a
2016	4395	Whole egg powder	-	0,0	0,0	33,83	0,0	0,0	62	-	+p			-	+p			-	+p			+p						-	-	NA	2	b
2016	4396	White egg powder	-	0,0	0,0	40,00	0,0	0,0	56,26	-	+p			-	+p			-	+p			+p						-	-	NA	2	b
2016	4400	Whole egg powder	-	0,0	0,0	33,64	0,0	0,0	60,96	-	+p			-	+p			-	+p			+p						-	-	NA	2	b
2022	215	White egg powder	+	0,0	25,86	27,84	0,0	53,78	51,74	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p						+	+	PA	2	b
2022	216	Whole egg powder	+	0,0	27,63	29,03	0,0	55	53,26	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p						+	+	PA	2	b
2022	217	White egg powder	+	22,87	0,0	23,2	64,83	0,0	64,72	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p						+	+	PA	2	b
2022	218	White egg powder	+	22,73	0,0	24,28	64,46	0,0	64,33	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p						+	+	PA	2	b
2022	219	Whole egg powder	+	20,71	0,0	22,28	65,22	0,0	61,26	+SE	+p	SE	/	+	+M	SE	SE	+	+p			+p						+	+	PA	2	b
2022	220	Egg yolk powder	+	0,0	34,49	33,44	0,0	54,74	61,02	+ST	+M	ST	/	+	+M	ST	ST	+	+p			+p						+	+	PA	2	b
2022	221	White egg powder	+	22,66	0,0	22,72	63,91	0,0	63,89	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p						+	+	PA	2	b
2022	222	Whole egg powder	+	0,0	25,55	25,73	0,0	53,41	53,01	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p						+	+	PA	2	b
2022	223	White egg powder	+	20,94	0,0	20,99	64,16	0,0	64,17	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p						+	+	PA	2	b
2022	224	White egg powder	+	0,0	24,81	25,09	0,0	52,96	52,63	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p						+	+	PA	2	b
2022	225	Egg yolk powder	+	21,45	0,0	21,45	64,01	0,0	64,00	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p						+	+	PA	2	b
2022	226	Whole egg powder	-	0,0	0,0	33,46	0,0	0,0	60,42	-	-	/	/	-	-	/	/	-	-			-						-	-	NA	2	b
2022	2005	Whole egg powder	+	23,44	0,0	23,45	65,41	0,0	63,59	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+M			+p			+	+	PA	2	b
2022	2006	Egg yolk powder	+	0,0	34,39	33,61	0,0	54,5	60,89	+ST	+p	ST	/	+	+M	ST	ST	+	+p			+M			+p			+	+	PA	2	b
2022	2007	Whole egg powder	+	0,0	28,93	29,48	0,0	54,08	53,85	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+M			+p			+	+	PA	2	b
2022	2008	Egg yolk powder	+	21,34	0,0	33,92	65,07	0,0	61,1	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p			+p			+	+	PA	2	b
2022	2215	Whole egg powder	-	0,0	0,0	33,56	0,0	0,0	61,7	-	st	/	/	-	st	/	/	-	st			st			st			-	-	NA	2	b
2022	2216	Egg yolk powder	-	0,0	0,0	33,64	0,0	0,0	61,5	-	st	/	/	-	st	/	/	-	st			st			st			-	-	NA	2	b
2022	2217	Whole egg powder	-	0,0	0,0	33,55	0,0	0,0	61,51	-	st	/	/	-	st	/	/	-	st			st			st			-	-	NA	2	b
2022	2218	Egg yolk powder	-	0,0	0,0	33,17	0,0	0,0	61,24	-	st	/	/	-	st	/	/	-	st			st			st			-	-	NA	2	b
2022	2219	Egg yolk powder	-	0,0	0,0	33,54	0,0	0,0	61,22	-	st	/	/	-	st	/	/	-	st			st			st			-	-	NA	2	b
2016	4731	Pasteurized egg yolk	-	0,0	0,0	33,53	0,0	0,0	61,53	-	+p			-	+p			-	+p			+p						-	-	NA	2	c
2016	4733	Pasteurized whole egg	-	0,0	0,0	33,5	0,0	0,0	62,01	-	+p			-	+p			-	+p			+p						-	-	NA	2	c
2016	4734	Pasteurized egg white	-	0,0	0,0	33,66	0,0	0,0	61,68	-	+p			-	+p			-	+p			+p			+p			-	-	NA	2	c
2022	209	Pasteurised liquid white egg	+	29,69	0,0	31,03	66,03	0,0	65,87	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p						+	+	PA	2	c
2022	210	Pasteurised liquid egg yolk	+	27,92	0,0	29,21	64,93	0,0	64,75	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p						+	+	PA	2	c
2022	211	Pasteurised liquid whole egg	+	22,15	0,0	23,99	65,74	0,0	61,88	+SE	+p	SE	/	+	+p	SE	SE	+	+p			+p						+	+	PA	2	c

EGG PRODUCTS																																			
Year of analysis	Sample N°	Product	Reference method: ISO 6579-1*	Alternative method: GENE-UP® SE & ST (SEST) kit																															
				BPW 18h 34-38°C																															
				PCR result								Confirmation																							
				Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	Direct streaking									Subculture SX2									Confirmation SEST final result	Final result GENE-UP - 18h - SEST	Agreement GENE-UP SEST				
											XLD			ASAP			6h at 41,5°C±1,0°C			24h at 41,5°C±1,0°C															
Typical colonies	After purif	Final result SEST	Typical colonies								After purif	Final result SEST	Typical colonies	After purif (if necessary)	Final result SEST	Typical colonies	After purif (if necessary)	Final result SEST	Typical colonies	After purif	Final result SEST														
SSI serotyping	ISO 6579-3 (if		SSI serotyping	ISO 6579-3		SSI serotyping	ISO 6579-3		SSI serotyping	ISO 6579-3		SSI serotyping	ISO 6579-3		SSI serotyping	ISO 6579-3																			
2022	212	Pasteurised liquid white egg	+	0,0	28,94	30,02	0,0	55,27	53,48	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p								+	+	PA	2	c	
2022	213	Pasteurised liquid white egg	+	0,0	27,82	28,9	0,0	55,31	53,3	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p								+	+	PA	2	c	
2022	214	Pasteurised liquid egg yolk	+	0,0	25,73	26,83	0,0	54,69	53,19	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p								+	+	PA	2	c	
2022	407	Pasteurised liquid white egg	-	0,0	0,0	33,75	0,0	0,0	61,94	-	st	/	/	-	st	/	/	-	st			st				st			-	-	NA	2	c		
2022	408	Pasteurised liquid white egg	+	27,7	0,0	29,41	65,24	0,0	65,17	+SE	+M (H2S-)	SE	/	+	+p	SE	SE	+	+M (H2S-)			+p			+M (H2S-)	+		+p			+	+	PA	2	c
2022	409	Pasteurised liquid egg yolk	-	0,0	0,0	33,55	0,0	0,0	61,18	-	st	/	/	-	st	/	/	-	st			st			st			st			-	-	NA	2	c
2022	410	Pasteurised liquid whole egg	+	0,0	26,85	28,57	0,0	55,41	53,02	+ST	+M	ST	/	+	+p	ST	ST	+	+M			+p								+	+	PA	2	c	
2022	411	Pasteurised liquid egg yolk	+	21,93	0,0	23,49	65,75	0,0	61,86	+SE	+M (H2S-)	SE	/	+	+p	SE	SE	+	+M (H2S-)			+p			+M (H2S-)	+		+p			+	+	PA	2	c
2022	412	Pasteurised liquid whole egg	-	0,0	0,0	33,63	0,0	0,0	61,76	-	st	/	/	-	st	/	/	-	st			st			st			st			-	-	NA	2	c
2022	527	Pasteurised liquid white egg	+	0,0	25,06	26,12	0,0	55,57	53,35	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p									+	+	PA	2	c
2022	528	Pasteurised liquid whole egg	+	0,0	24,05	24,15	0,0	55,4	54,98	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p									+	+	PA	2	c
2022	2009	Egg yolk powder	-	27,71	0,0	33,06	65,49	0,0	61,17	+SE	+p	-x5	/	-	+p	-x5	/	-	+p	-x5		+p	-x5		+p			+p	SE	SE	+	+	PD	2	c
2022	2010	Egg yolk powder	+	0,0	28,9	29,58	0,0	54,2	53,92	+ST	+p	ST	/	+	+p	ST	ST	+	+p			+p			+p			+p			+	+	PA	2	c
2022	2011	Whole egg powder	+	24,51	0,0	25,22	65,36	0,0	65,25	+SE	+p	SE	SE	+	+p	-x5	/	-	+p			+p			+p			+p			+	+	PA	2	c
2022	2012	Whole egg powder	-	0,0	29,86	30,56	0,0	55,19	54,5	+ST	+p	-x5	/	-	+p	ST	ST	+	+p			+p			+p			+p			+	+	PD	2	c
2022	2212	Pasteurised liquid white egg	-	0,0	0,0	33,11	0,0	0,0	61,62	-	st	/	/	-	st	/	/	-	st			st			st			st			-	-	NA	2	c
2022	2213	Pasteurised liquid white egg	-	0,0	0,0	33,25	0,0	0,0	61,42	-	st	/	/	-	st	/	/	-	st			st			st			st			-	-	NA	2	c
2022	2214	Pasteurised liquid whole egg	-	0,0	0,0	33,61	0,0	0,0	61,85	-	st	/	/	-	st	/	/	-	st			st			st			st			-	-	NA	2	c

EGG PRODUCTS																																								
Year of analysis	Sample N°	Product	Reference method: ISO 6579-1*	GENE-UP® SE & ST (SEST) kit																									Confirmation SEST final result	Final result GENE UP 72h		Agreement GENE UP 72h		Category	Type					
				BPW 18h 34-38°C + 72 h at 5°C ± 3°C																										SEST	Lysate SEST	SEST	Lysate SEST							
				PCR GENE-UP SEST -															Confirmation + 72h at 5°C ± 3°C																					
				BPW 72h								Lysate 72h							Direct streaking					Subculture SX2 (if necessary)																
				Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	Cp SE	Cp ST	Cp IC	TM (C) SE	TM (C) ST	TM (C) IC	Result	XLD		ASAP			XLD		ASAP			24h at 41,5°C±1,0°C												
														Typical colonies	After purif	Typical colonies	SSI	ISO 6579-3 (if necessary)	Typical colonies	After purif	Typical colonies	After purif	SEST	Lysate SEST	SEST	Lysate SEST														
2022	575	Shell egg (Fresh free-range eggs)	+	25,91	0,0	25,99	66,71	0,0	64,81	+SE	21,68	0,0	21,78	0,0	0,0	65,39	+SE	+p	SE	+p	SE													+	+	+	PA	PA	2	a
2022	576	Shell egg (Fresh free-range eggs)	+	0,0	24,81	24,89	0,0	55,46	55,27	+ST	0,0	23,93	24,03	65,5	54,85	54,36	+ST	+p	ST	+p	ST													+	+	+	PA	PA	2	a
2022	577	Shell egg (dated fresh free-range eggs)	+	23,66	0,0	23,85	66,48	0,0	66,34	+SE	24,96	0,0	26,65	0,0	0,0	62,35	+SE	+M	SE	+p	SE													+	+	+	PA	PA	2	a
2022	578	Shell egg (dated fresh free-range eggs)	-	0,0	0,0	37,58	0,0	0,0	62,68	-	0,0	0,0	33,29	66,49	0,0	62,31	-	-	/	-	/													-	-	-	NA	NA	2	a
2022	579	Shell egg (Fresh free-range eggs from Brittany)	+	23,92	0,0	24,63	66,31	0,0	66,19	+SE	21,83	0,0	22,73	0,0	0,0	61,81	+SE	+M	SE	+p	SE													+	+	+	PA	PA	2	a
2022	580	Shell egg (Fresh free-range eggs from Brittany)	+	0,0	26,15	27,56	0,0	55,96	56,06	+ST	0,0	23,97	24,95	65,35	55,07	54,85	+ST	+M	ST	+p	ST													+	+	+	PA	PA	2	a
2022	581	Shell egg (Fresh free-range eggs)	+	22,81	0,0	23,55	66,05	0,0	65,89	+SE	21,21	0,0	22,48	0,0	0,0	61,76	+SE	+M	SE	+p	SE													+	+	+	PA	PA	2	a
2022	582	Shell egg (Fresh free-range eggs)	+	0,0	26,75	27,16	0,0	55,53	55,08	+ST	0,0	24,35	25,07	65,43	54,95	54,42	+ST	+p	ST	+p	ST													+	+	+	PA	PA	2	a
2022	583	Shell egg (Fresh free-range eggs)	+	22	0,0	22,13	65,87	0,0	65,73	+SE	22,02	0,0	22,12	0,0	0,0	65,49	+SE	+p	SE	+p	SE													+	+	+	PA	PA	2	a
2022	584	Shell egg (Fresh free-range eggs)	+	0,0	23,87	24	0,0	55,13	54,75	+ST	0,0	24,48	24,56	65,58	55,04	54,64	+ST	+p	ST	+p	ST													+	+	+	PA	PA	2	a
2022	585	Shell egg (Big fresh free-range eggs)	+	22,63	0,0	23,77	66,2	0,0	62,49	+SE	27,01	0,0	27,94	0,0	0,0	62,34	+SE	+p	SE	+p	SE													+	+	+	PA	PA	2	a
2022	586	Shell egg (Big fresh free-range eggs)	+	0,0	29,68	30,16	0,0	56,36	54,83	+ST	0,0	28,25	29,45	66,46	55,78	54,16	+ST	+p	ST	+p	ST													+	+	+	PA	PA	2	a
2022	839	Shell egg (big and fresh eggs)	-	0,0	0,0	33,25	0,0	0,0	61,9	-	0,0	0,0	34,06	0,0	0,0	62,2	-	+p	spp	+p	spp													-	-	-	NA	NA	2	a
2022	840	Shell egg	-	0,0	0,0	33,54	0,0	0,0	61,68	-	0,0	0,0	33,21	0,0	0,0	61,85	-	+p	spp	+p	spp													-	-	-	NA	NA	2	a
2022	841	Shell egg (fresh and organic eggs)	-	0,0	0,0	33,81	0,0	0,0	62,07	-	0,0	0,0	34,05	0,0	0,0	61,98	-	+p	spp	+p	spp													-	-	-	NA	NA	2	a
2022	842	Shell egg (fresh free-range eggs)	-	0,0	0,0	33,7	0,0	0,0	61,78	-	0,0	0,0	34,04	0,0	0,0	61,75	-	+p	spp	+p	spp													-	-	-	NA	NA	2	a
2022	843	Shell egg (fresh free-range eggs)	-	0,0	0,0	33,57	0,0	0,0	61,61	-	0,0	0,0	33,88	0,0	0,0	61,92	-	+p	spp	+p	spp													-	-	-	NA	NA	2	a
2022	215	White egg powder	+	0,0	24,18	26,49	0,0	54,54	52,54	+ST	0,0	26,05	26,36	0,0	53,59	53,38	+ST	+p	ST	+p	ST												+	+	+	PA	PA	2	b	
2022	216	Whole egg powder	+	0,0	26,15	28,18	0,0	55,11	53,37	+ST	0,0	25,94	26,17	0,0	54,73	54,37	+ST	+p	ST	+p	ST												+	+	+	PA	PA	2	b	

EGG PRODUCTS																																				
Year of analysis	Sample N°	Product	Reference method: ISO 6579-1*	GENE-UP® SE & ST (SEST) kit																								Confirmation SEST final result	Final result GENE UP 72h		Agreement GENE UP 72h		Category	Type		
				BPW 18h 34-38°C + 72 h at 5°C ± 3°C																									SEST	Lysate SEST	SEST	Lysate SEST				
				PCR GENE-UP SEST -												Confirmation + 72h at 5°C ± 3°C																				
				BPW 72h						Lysate 72h						Direct streaking						Subculture SX2 (if necessary)														
				Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	Cp SE	Cp ST	Cp IC	TM (C) SE	TM (C) ST	TM (C) IC	Result	XLD			ASAP			XLD			ASAP								24h at 41,5°C±1,0°C	
Typical colonies	After purif	SSI	Typical colonies	After purif	SSI	ISO 6579-3 (if necessary)	Typical colonies	After purif	SSI	ISO 6579-3 (if necessary)	Typical colonies	After purif	SSI	ISO 6579-3 (if necessary)	Typical colonies	After purif	SSI	ISO 6579-3 (if necessary)	Typical colonies	After purif	SSI	ISO 6579-3 (if necessary)														
2022	217	White egg powder	+	22,02	0,0	22,56	65,44	0,0	65,29	+SE	23,61	0,0	23,73	64,92	0,0	63,86	+SE	+p	SE	+p	SE									+	+	+	PA	PA	2	b
2022	218	White egg powder	+	20,33	0,0	22,1	64,99	0,0	61	+SE	23,29	0,0	23,49	64,36	0,0	64,4	+SE	+p	SE	+p	SE									+	+	+	PA	PA	2	b
2022	219	Whole egg powder	+	20,88	0,0	22,6	65,43	0,0	61,41	+SE	22,08	0,0	22,47	65,3	0,0	65,15	+SE	+p	SE	+M	SE									+	+	+	PA	PA	2	b
2022	220	Egg yolk powder	+	0,0	33,79	33,01	0,0	54,62	61,1	+ST	0,0	34,86	33,48	0,0	54,71	61,28	+ST	+p	ST	+M	ST									+	+	+	PA	PA	2	b
2022	221	White egg powder	+	23,96	0,0	24,03	65,00	0,0	64,97	+SE	23,43	0,0	23,51	64,26	0,0	64,38	+SE	+p	SE	+p	SE									+	+	+	PA	PA	2	b
2022	222	Whole egg powder	+	0,0	24,88	25,10	0,0	53,17	52,74	+ST	0,0	24,84	24,95	0,0	54,20	53,82	+ST	+p	ST	+p	ST									+	+	+	PA	PA	2	b
2022	223	White egg powder	+	21,01	0,0	21,19	64,55	0,0	60,39	+SE	21,94	0,0	22,03	64,49	0,0	60,41	+SE	+p	SE	+p	SE									+	+	+	PA	PA	2	b
2022	224	White egg powder	+	0,0	23,86	23,97	0,0	53,78	53,36	+ST	0,0	23,89	24,01	0,0	53,66	53,29	+ST	+p	ST	+p	ST									+	+	+	PA	PA	2	b
2022	225	Egg yolk powder	+	21,31	0,0	21,49	64,09	0,0	60,14	+SE	21,70	0,0	21,79	64,78	0,0	60,71	+SE	+p	SE	+p	SE									+	+	+	PA	PA	2	b
2022	226	Whole egg powder	-	0,0	0,0	33,77	0,0	0,0	60,74	-	0,0	0,0	34,03	0,0	0,0	61,05	-	-	/	-	/									-	-	-	NA	NA	2	b
2022	2005	Whole egg powder	+	23,70	0,0	23,87	65,58	0,0	65,44	+SE	25,12	0,0	25,28	65,79	0,0	64,02	+SE	+p	SE	+p	SE									+	+	+	PA	PA	2	b
2022	2006	Egg yolk powder	+	0,0	33,57	32,70	0,0	53,45	53,02	+ST	0,0	36,18	34,02	0,0	55,08	61,71	+ST	+p	ST	+mdni /+	ST									+	+	+	PA	PA	2	b
2022	2007	Whole egg powder	+	0,0	28,09	29,96	0,0	55,04	52,81	+ST	0,0	28,79	29,15	0,0	54,43	54,16	+ST	+p	ST	+p	ST									+	+	+	PA	PA	2	b
2022	2008	Egg yolk powder	+	20,23	0,0	21,83	65,43	0,0	61,64	+SE	24,75	0,0	0,0	61,31	0,0	61,23	+SE	+p	SE	+mdni /+	SE									+	+	+	PA	PA	2	b
2022	209	Pasteurised liquid white egg	+	26,65	0,0	27,17	65,81	0,0	65,71	+SE	30,44	0,0	31,14	66,16	0,0	65,39	+SE	+p	SE	+p	SE									+	+	+	PA	PA	2	c
2022	210	Pasteurised liquid egg yolk	+	24,2	0,0	25,27	65,28	0,0	61,83	+SE	28,74	0,0	29,02	65,37	0,0	64,45	+SE	+p	SE	+p	SE									+	+	+	PA	PA	2	c
2022	211	Pasteurised liquid whole egg	+	21,72	0,0	23,56	66,03	0,0	62,23	+SE	23,03	0,0	23,12	65,85	0,0	65,89	+SE	+p	SE	+p	SE									+	+	+	PA	PA	2	c
2022	212	Pasteurised liquid white egg	+	0,0	26,24	27,24	0,0	55,4	53,38	+ST	0,0	31,48	31,47	0,0	55,06	54,62	+ST	+p	ST	+p	ST									+	+	+	PA	PA	2	c
2022	213	Pasteurised liquid white egg	+	0,0	25	26,05	0,0	55,85	53,58	+ST	0,0	30,08	30,74	0,0	55,01	54,58	+ST	+p	ST	+p	ST									+	+	+	PA	PA	2	c
2022	214	Pasteurised liquid egg yolk	+	0,0	26,06	27,21	0,0	55,53	53,65	+ST	0,0	25,81	26,12	0,0	55,05	54,67	+ST	+p	ST	+p	ST									+	+	+	PA	PA	2	c
2022	408	Pasteurised liquid white egg	+	24,95	0,0	25,02	66,32	0,0	66,28	+SE	28,62	0,0	30,14	65,54	0,0	65,35	+SE	+M (H2S-)	SE	+p	SE									+	+	+	PA	PA	2	c
2022	410	Pasteurised liquid whole egg	+	0,0	26,65	26,80	0,0	55,72	55,52	+ST	0,0	27,3	28,76	0,0	55,92	53,8	+ST	+p	ST	+p	ST									+	+	+	PA	PA	2	c
2022	411	Pasteurised liquid egg yolk	+	22,54	0,0	34,74	66,88	0,0	62,82	+SE	22,19	0,0	23,68	65,93	0,0	62,01	+SE	+M (H2S-)	SE	+p	SE									+	+	+	PA	PA	2	c

EGG PRODUCTS																																				
Year of analysis	Sample N°	Product	Reference method: ISO 6579-1♦	GENE-UP® SE & ST (SEST) kit																								Final result GENE UP 72h	Agreement GENE UP 72h	Category	Type					
				BPW 18h 34-38°C + 72 h at 5°C ± 3°C																																
				PCR GENE-UP SEST -												Confirmation + 72h at 5°C ± 3°C																				
				BPW 72h							Lysate 72h					Direct streaking						Subculture SX2 (if necessary)														
				Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	Cp SE	Cp ST	Cp IC	TM (C) SE	TM (C) ST	TM (C) IC	Result	XLD			ASAP			XLD			ASAP									
Typical colonies	After purif	SSI	Typical colonies															After purif	SSI	ISO 6579-3 (if necessary)	Typical colonies	After purif	SSI	ISO 6579-3 (if necessary)	Typical colonies	After purif	SSI	ISO 6579-3 (if necessary)								
2022	527	Pasteurised liquid white egg	+	24,77/24,62/25,5	24,77/24,62/25,5	25,8/25,55/26,24	65,35/64,96/65,45	56,1/55,25/54,97	54,72/53,36/54,62	+SE+ST/ +SE+ST/ +SE+ST	0,0	25,58	26,58	0,0	55,44	53,65	+ST	+m	ST	+p	ST									+	+	+	PA	PA	2	c
2022	528	Pasteurised liquid whole egg	+	0,0	23,75	24,63	0,0	55,36	54,35	+ST	0,0	25,89	26,49	0,0	55,61	55,26	+ST	+m	ST	+p	ST									+	+	+	PA	PA	2	c
2022	2009	Egg yolk powder	-	27,79	0,0	33,04	65,70	0,0	61,24	+SE	31,18	0,0	32,61	65,00	0,0	63,06	+SE	+p	-x5	+p	-x5			+p	SE		+p	SE								
2022	2010	Egg yolk powder	+	0,0	28,06	29,42	0,0	54,67	54,27	+ST	0,0	24,34	0,0	0,0	50,94	50,79	+ST	+p	ST	+p	ST									+	+	+	PA	PA	2	c
2022	2011	Whole egg powder	+	24,63	0,0	25,78	65,55	0,0	65,24	+SE	27,14	0,0	27,55	65,37	0,0	65,22	+SE	+p	SE	+p	SE									+	+	+	PA	PA	2	c
2022	2012	Whole egg powder	-	0,0	28,62	29,99	0,0	54,71	52,86	+ST	0,0	29,00	29,61	0,0	54,68	54,45	+ST	+p	ST	+p	ST									+	+	+	PD	PD	2	c

Appendix 5 – Relative level of detection study: raw data

Matrix : Raw pork
 Strain : S. Enteritidis 2532
 Seeding 48h at 5°C±3°C
 Aerobic mesophilic flora: 1,0.10³ CFU/g

N° sample	Level	Contamination level (CFU/sample)	Reference method: ISO 6579-1*						Number positive samples SEST/Total	Alternative method: GENE-UP® S. Enteritidis & S. Typhimurium (SEST) kit											
			RVS		MKTTn		Identification	Final result SEST		PCR result						Confirmation				Final result GENE-UP 18h SEST	Number positive samples SEST/ Total GENE-UP SEST
			XLD	ASAP	XLD	ASAP				Direct streaking			Serotyping								
							XLD	ASAP		SSI	ISO 6579-3										
1476	0	/	-	-	-	-	/	-	0,0	0,0	33,71	0,0	0,0	61,84	-	-	-	/	/	-	0/5
1477			-	-	-	-	/	-	0,0	0,0	33,32	0,0	0,0	61,58	-	-	-	/	/	-	
1478			-	-	-	-	/	-	0,0	0,0	33,90	0,0	0,0	61,63	-	-	-	/	/	-	
1479			-	-	-	-	/	-	0,0	0,0	33,47	0,0	0,0	61,60	-	-	-	/	/	-	
1480			-	-	-	-	/	-	0,0	0,0	32,98	0,0	0,0	61,65	-	-	-	/	/	-	
1561	Low	0,4	+M	+M	+M	+p	+SE	+	23,54	0,0	23,6	66,39	0,0	66,26	+SE	+1/2	+mni/+	+SE	+SE	+	9/20
1562			+M	+M	+M	+M	+SE	+	22,65	0,0	22,76	66,41	0,0	66,23	+SE	+1/2	+M	+SE	+SE	+	
1563			+1/2	+M	+M	+M	+SE	+	24,94	0,0	24,97	66,75	0,0	66,58	+SE	+1/2	+mni/+	+SE	+SE	+	
1564			-	-	-	-	/	-	0,0	0,0	33,62	0,0	0,0	61,37	-	-	-	/	/	-	
1565			-	-	-	-	/	-	0,0	0,0	33,56	0,0	0,0	61,68	-	-	-	/	/	-	
1566			+M	+M	+M	+M	+SE	+	23,61	0,0	23,64	66,17	0,0	65,99	+SE	+1/2	+m	+SE	+SE	+	
1567			-	-	-	-	/	-	0,0	0,0	32,11	0,0	0,0	61,61	-	-	-	/	/	-	
1568			-	-	-	-	/	-	0,0	0,0	33,84	0,0	0,0	61,87	-	-	-	/	/	-	
1569			-	-	-	-	/	-	0,0	0,0	33,52	0,0	0,0	61,83	-	-	-	/	/	-	
1570			+1/2	+M	+M	+1/2	+SE	+	26,15	0,0	33,46	65,73	0,0	61,94	+SE	+m	-	+SE	+SE	+	
1571			-	-	-	-	/	-	0,0	0,0	33,31/ 32,96/ 33,46	0,0	0,0	61,82/ 61,79/ 61,83	-/-	+md (NC)	-	-	/	-	
1572			+(5)	+M	+M	+M	+SE	+	22,24	0,0	23,08	66,04	0,0	65,83	+SE	+M	+m	+SE	+SE	+	
1573	-	-	-	-	/	-	0,0	0,0	33,48	0,0	0,0	61,52	-	-	-	/	/	-			
1574	-	st	-	-	/	-	0,0	0,0	33,29	0,0	0,0	61,84	-	-	-	/	/	-			
1575	-	-	-	-	/	-	0,0	0,0	33,7	0,0	0,0	61,45	-	-	-	/	/	-			
1576	-	-	-	-	/	-	0,0	0,0	33,77	0,0	0,0	61,8	-	-	-	/	/	-			
1577	+M	+M	+M	+p	+SE	+	23,84	0,0	24,35	66,04	0,0	66,09	+SE	+1/2	+M	+SE	+SE	+			
1578	-	-	-	-	/	-	0,0	0,0	33,65	0,0	0,0	61,78	-	-	-	/	/	-			
1579	+M	+M	+1/2	+M	+SE	+	22,23	0,0	23,56	65,85	0,0	62,21	+SE	+M	+M	+SE	+SE	+			
1580	+M	+M	+1/2	+M	+SE	+	22,7	0,0	24,02	66,11	0,0	62,25	+SE	+1/2	+mni/+	+SE	+SE	+			
1581	High	2,5	+M	+M	+1/2	+M	+SE	+	24,62	0,0	25,01	66,47	0,0	66,22	+SE	+1/2	+m	+SE	+SE	+	5/5
1582			+M	+M	+M	+p	+SE	+	22,69	0,0	24,12	66,13	0,0	62,16	+SE	+M	+mni/+	+SE	+SE	+	
1583			+M	+M	+1/2	+M	+SE	+	25,43	0,0	25,48	66,52	0,0	64,52	+SE	+m	+mni/+	+SE	+SE	+	
1584			+1/2	+1/2	+M	+M	+SE	+	25,11	0,0	25,22	66,24	0,0	66,06	+SE	+m	+m	+SE	+SE	+	
1585			+M	+M	+M	+M	+SE	+	22,46	0,0	22,57	66,67	0,0	62,61	+SE	+M	+m	+SE	+SE	+	

* Analyses performed according to the COFRAC accreditation
 ADRIA Développement
 Summary report (Version 0)
 GENE-UP SEST

Matrix : Liquid egg product

Strains : S. Typhimurium Ad1484 + S. Mbandaka Ad914

Seeding 48h at 5°C±3°C

Aerobic mesophilic flora: 4,9.10² CFU/g

N° sample	Level	Contamination level (CFU/sample)	Reference method: ISO 6579-1*						Number positive samples SEST/ Total	Alternative method: GENE-UP® S. Enteritidis & S. Typhimurium (SEST) kit													
			RVS		MKTTn		Identification	Final result SEST		PCR result							Confirmation				Final result GENE-UP 18h SEST	Number positive samples SEST/ Total GENE-UP SEST	
			XLD	ASAP	XLD	ASAP				Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Final result	Direct streaking		Serotyping				
			XLD	ASAP	XLD	ASAP	TM (°C) SE	TM (°C) ST		TM (°C) IC	Final result	XLD	ASAP	SSI	ISO 6579-3								
1699	0	/	st	st	st	st	/	-	0/5	0,0	0,0	33,67	0,0	0,0	61,66	-	st	st	/	/	-	0/5	
1700			st	st	st	st	/	-		0,0	0,0	33,47	0,0	0,0	61,33	-	st	st	/	/	-		
1701			st	st	st	st	/	-		0,0	0,0	33,61	0,0	0,0	61,49	-	st	st	/	/	-		
1702			st	st	st	st	/	-		0,0	0,0	33,48	0,0	0,0	61,59	-	st	st	/	/	-		
1703			st	st	st	st	/	-		0,0	0,0	33,32	0,0	0,0	61,35	-	st	st	/	/	-		
1704	Low	S.Typhimurium Ad1484:1,2 S.Mandaka Ad914:0,7	+p	+p	+p	+p	+ST	+	11/20	0,0	30,01	30,54	0,0	54,82	54,8	+ST	+p	+p	+ST	+ST	+	11/20	
1705			+p	+p	+p	+p	spp (SSI-x20col)	-		0,0	0,0	33,14	0,0	0,0	60,89	-	+p	+p	-	/	-		
1706			+p	+p	+p	+p	+ST	+		0,0	26,45	26,72	0,0	54,61	54,35	+ST	+p	+p	+ST	+ST	+		
1707			+p	+p	+p	+p	spp (SSI-x20col)	-		0,0	0,0	33,71	0,0	0,0	61,5	-	+p	+p	-	/	-		
1708			+p	+p	+p	+p	+ST	+		0,0	27,83	28,12	0,0	54,42	54,09	+ST	+p	+p	+ST	+ST	+		
1709			st	st	st	st	/	-		0,0	0,0	33,2	0,0	0,0	61,41	-	st	st	/	/	-		
1710			+p	+p	+p	+p	+ST	+		0,0/0,0/0,0	29,82/ 31,85/ 30,11	30,85/ 31,62/ 30,31	0,0/ 0,0/ 0,0	54,8/ 54,46/ 53,97	54,60/ 54,36/ 53,83	+ST/ +ST/ +ST	+p	+p	-	+ST	+		
1711			+p	+p	+p	+p	+ST	+		0,0	30,5	31,44	0,0	54,68	60,62	+ST	+p	+p	+ST	+ST	+		
1712			+p	+p	+p	+p	spp (SSI-x20col)	-		0,0	0,0	33,78	0,0	0,0	61,51	-	+p	+p	-	/	-		
1713			st	st	st	st	/	-		0,0	0,0	33,51	0,0	0,0	61,09	-	st	st	/	/	-		
1714			+p	+p	+p	+p	+ST	+		0,0	28,34	29,23	0,0	54,54	54,39	+ST	+p	+p	+ST	+ST	+		
1715			+p	+p	+p	+p	+ST	+		0,0	31,14	31,05	0,0	54,79	54,57	+ST	+p	+p	+ST	+ST	+		
1716			+p	+p	+p	+p	+ST	+		0,0	29,48	30,05	0,0	53,78	53,48	+ST	+p	+p	+ST	+ST	+		
1717			+p	+p	+p	+p	+ST	+		0,0	27,23	28,99	0,0	54,34	54,2	+ST	+p	+p	+ST	+ST	+		
1718			+p	+p	+p	+p	+ST	+		0,0	30,56	31,57	0,0	54,77	52,71	+ST	+p	+p	+ST	+ST	+		
1719			+p	+p	+p	+p	spp (SSI-x20col)	-		0,0	0,0	33,52	0,0	0,0	61,19	-	+p	+p	-	/	-		
1720			+p	+p	+p	+p	spp (SSI-x20col)	-		0,0	0,0	33,64	0,0	0,0	61,63	-	+p	+p	-	/	-		
1721	+p	+p	+p	+p	spp (SSI-x20col)	-	0,0	0,0	33,02	0,0	0,0	61,41	-	+p	+p	-	/	-					
1722	+p	+p	+p	+p	+ST	+	0,0	29,28	30,51	0,0	54,69	53,25	+ST	+p	+p	+ST	+ST	+					
1723	st	st	st	st	/	-	0,0	0,0	33,33	0,0	0,0	61,73	-	st	st	/	/	-					
1724	High	S.Typhimurium Ad1484:5,3 S.Mandaka Ad914:3,2	+p	+p	+p	+p	+ST	+	5/5	0,0	28,72	29,83	0,0	54,36	54,16	+ST	+p	+p	+ST	+ST	+	5/5	
1725			+p	+p	+p	+p	+ST	+		0,0/0,0/0,0	29,41/ 29,95/ 29,72	31,03/ 30,29/ 30,13	0,0/ 0,0/ 0,0	54,8/54,89/ 54,73	52,37/ 54,76/ 54,63	+ST/ +ST/ +ST	+p	+p	+ST	+ST	+		
1726			+p	+p	+p	+p	+ST	+		0,0	30,05	31,45	0,0	54,81	52,61	+ST	+p	+p	+ST	+ST	+		
1727			+p	+p	+p	+p	+ST	+		0,0	29,07	30,66	0,0	54,92	52,72	+ST	+p	+p	+ST	+ST	+		
1728			+p	+p	+p	+p	+ST	+		0,0	28,91	30,53	0,0	55,09	52,89	+ST	+p	+p	+ST	+ST	+		

* Analyses performed according to the COFRAC accreditation

Appendix 6 – Inclusivity and exclusivity study: raw data

INCLUSIVITY (<i>Salmonella</i> Typhimurium strains)																								
No	Strain			Group	Antigenic formula	Strain reference	Origin	Inoculation Level (CFU/225ml)	BPW - 18h at 34-38°C														Cofirmation	
									GENE-UP SLM 2021-2022					GENE-UP SEST										
									PCR results					Direct streaking		After purification								
									Cp SLM	Cp IC	TM (°C) SLM	TM (°C) IC	Result	Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	ASAP plates (typical colonies)	SSI Diagnostic Salmonella Sero-Quick ID kit		
1	<i>Salmonella enterica</i>	<i>enterica</i>	variant Typhimurium	O:4 (B)	4,5:i:-	Ad2509	Environmental sample (meat)	45	20.06	20.49	66.67	66.14	+	0,0	24.70	24.77	0,0	56.14	56.01	+ST	+	+ST		
2	<i>Salmonella enterica</i>	<i>enterica</i>	Typhimurium	B	4:i:1,2	Ad1070	Environmental sample (pork industry)	21	20.04	20.48	66.21	65.79	+	0,0	23.95	24.69	0,0	55.78	55.59	+ST	+	+ST		
3	<i>Salmonella enterica</i>	<i>enterica</i>	Typhimurium	B	4:i:1,2	Ad1410	Ground pork meat	54	20.44	20.74	66.69	66.02	+	0,0	24.08	25.24	0,0	55.67	54.57	+ST	+	+ST		
4	<i>Salmonella enterica</i>	<i>enterica</i>	Typhimurium	B	4:i:1,2	Ad1484	Liquid egg product	60	19.80	20.19	66.57	65.59	+	0,0	22.27	23.52	0,0	55.37	55.30	+ST	+	+ST		
5	<i>Salmonella enterica</i>	<i>enterica</i>	Typhimurium	B	4:i:1,2	Ad1876	Low moisture sausage	59	20.00	20.70	66.40	65.63	+	0,0	23.27	24.43	0,0	55.17	54.92	+ST	+	+ST		
6	<i>Salmonella enterica</i>	<i>enterica</i>	Typhimurium	B	4:i:1,2	Ad2226	Merguez	40	20.17	20.75	66.58	65.94	+	0,0	23.30	24.29	0,0	55.26	53.75	+ST	+	+ST		
7	<i>Salmonella enterica</i>	<i>enterica (I)</i>	Typhimurium	B	1,4,[5],12:i:1,2	2014LSAL04593	Eggs	34	21,89	22,13	66,8	66,78	+	0,0	25,94	26,63	0,0	56,23	55,94	+ST	+	+ST		
8	<i>Salmonella enterica</i>	<i>enterica (I)</i>	Typhimurium	B	1,4,[5],12:i:1,2	2014LSAL04863	Environment (Poultry)	38	21,28	21,75	66,52	66,22	+	0,0	25,29	26,59	0,0	55,71	55,38	+ST	+	+ST		
9	<i>Salmonella enterica</i>	<i>enterica (I)</i>	Typhimurium	B	1,4,[5],12:i:1,2	2014LSAL05112	Emissaries	34	21,66	22,01	66,67	66,45	+	0,0	25,62	26,85	0,0	55,77	53,71	+ST	+ (pale colonies)	+ST		
10	<i>Salmonella enterica</i>	<i>enterica (I)</i>	Typhimurium	B	1,4,[5],12:i:1,2	2013LSAL00808	Cattle	39	24,99	25,44	66,87	66,79	+	0,0	23	0,0	0,0	54,83	54,29	+ST	+	+ST		
11	<i>Salmonella enterica</i>	<i>enterica (I)</i>	Typhimurium	B	1,4,[5],12:i:1,2	2011LSAL06976	Pork meat	27	20,58	21,19	66,5	66,02	+	0,0	24,03	25,18	0,0	56,44	54,09	+ST	+	+ST		
12	<i>Salmonella enterica</i>	<i>enterica (I)</i>	Typhimurium	B	1,4,[5],12:i:1,2	2017LSAL01523	Soybean meal	33	20,81	21,51	66,59	66,36	+	0,0	24,96	26,08	0,0	56,72	54,68	+ST	+	+ST		
13	<i>Salmonella enterica</i>	<i>enterica (I)</i>	Typhimurium	B	1,4,[5],12:i:1,2	2014LSAL01170	Chicken carcass	39	21,06	21,29	66,55	66,33	+	0,0	25,03	26,06	0,0	56,06	54,13	+ST	+	+ST		
14	<i>Salmonella enterica</i>	<i>enterica (I)</i>	Typhimurium	B	1,4,[5],12:i:1,2	2014LSAL04138	Emissaries	37	21,43	21,94	66,79	66,6	+	0,0	25,11	26,09	0,0	55,38	53,6	+ST	+	+ST		
15	<i>Salmonella enterica</i>	<i>enterica (I)</i>	Typhimurium	B	1,4,[5],12:i:1,2	2014LSAL02324	Chicken meat	65	21,57	21,84	66,53	66,25	+	0,0	26,22	26,71	0,0	54,42	53,95	+ST	+	+ST		
16	<i>Salmonella enterica</i>	<i>enterica (I)</i>	Typhimurium	B	1,4,[5],12:i:1,2	2014LSAL03800	Pork meat	31	21,13	21,6	66,27	65,81	+	0,0	25,07	26,28	0,0	55,5	55,35	+ST	+	+ST		
17	<i>Salmonella enterica</i>	<i>enterica (I)</i>	S.I (VITI)	B	1,4,[5],12:-	2014LSAL05371	Duck meat	51	20,91	21,24	66,47	66,11	+	0,0	25,04	26,12	0,0	56,04	53,75	+ST	+	+ST		
18	<i>Salmonella enterica</i>	<i>enterica (I)</i>	S.I (VMTI)	B	1,4,[5],12:-	2014LSAL03826	Nandou	42	21,79	21,94	66,42	65,7	+	0,0	26,02	27,18	0,0	55,78	53,53	+ST	+ (irregular colonies)	+ST		
19	<i>Salmonella enterica</i>	<i>enterica (I)</i>	S.I (VMTI)	B	1,4,[5],12:i-	2014LSAL04529	Environment (Poultry)	34	21,78	22,25	66,53	66,17	+	0,0	25,58	26,65	0,0	55,78	53,52	+ST	+	+ST		
20	<i>Salmonella enterica</i>	<i>enterica (I)</i>	S.I (VMTC)	B	1,4,[5],12:i-	2014LSAL03854	Pork meat	24	21,07	21,6	66,53	66,16	+	0,0	25,65	26,76	0,0	56,26	54,09	+ST	+	+ST		
21	<i>Salmonella enterica</i>	<i>enterica (I)</i>	S.I (VMTC)	B	1,4,[5],12:i-	2013LSAL04650	Beef meat	50	20,8	21,37	66,19	65,41	+	0,0	24,97	26,03	0,0	55,83	53,86	+ST	+	+ST		
22	<i>Salmonella enterica</i>	<i>enterica (I)</i>	S.I (VMTC)	B	1,4,[5],12:i-	2014LSAL04070	Turkey meat	57	20,6	0,0	66,42	65,59	+	0,0	25,45	26,46	0,0	55,96	54,43	+ST	+	+ST		
23	<i>Salmonella enterica</i>	<i>enterica (I)</i>	S.I (VMTC)	B	1,4,[5],12:i-	2014LSAL03802	Chicken meat	33	20,85	21,29	66,49	66,2	+	0,0	26,22	26,74	0,0	55,75	55,45	+ST	+	+ST		

INCLUSIVITY (*Salmonella* Typhimurium strains)

No	Strain		Group	Antigenic formula	Strain reference	Origin	Inoculation Level (CFU/225ml)	BPW - 18h at 34-38°C														Cofirmation	
								PCR results							Cofirmation								
								GENE-UP SLM 2021-2022					GENE-UP SEST					Direct streaking		After purification			
								Cp SLM	Cp IC	TM (°C) SLM	TM (°C) IC	Result	Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	ASAP plates (typical colonies)	SSI Diagnostic Salmonella Sero-Quick ID kit		
24	<i>Salmonella enterica</i>	<i>enterica</i> (I)	S.I (VMTC)	B	1,4,[5],12: i :-	2013LSAL01351	Cattle	22	22,08	22,62	66,66	66,39	+	0,0	26,17	27,27	0,0	54,94	54,84	+ST	+ (pale and spread colonies)	+ST	
25	<i>Salmonella enterica</i>	<i>enterica</i> (I)	S.I (VITC)	B	1,4,[5],12: - :-	2014LSAL00024	Boar meat	73	21,5	21,98	66,72	66,17	+	0,0	25,15	26,26	0,0	55,32	52,97	+ST	+	+ST	
26	<i>Salmonella enterica</i>	<i>enterica</i> (I)	S.I (VITC)	B	1,4,[5],12: - :-	2014LSAL00070	Fillet of doe	76	20,91	21,52	66,47	66,01	+	0,0	24,83	26,04	0,0	55,54	53,32	+ST	+	+ST	

INCLUSIVITY (<i>Salmonella</i> Enteritidis strains)																								
No	Strain			Group	Antigenic formula	Strain reference	Origin	Inoculation level (CFU/225ml)	BPW - 18h at 34-38°C														Cofirmation	
									GENE-UP SLM 2021-2022					GENE-UP SEST										
									Cp SLM	Cp IC	TM (°C) SLM	TM (°C) IC	Result	Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result	ASAP plates (typical colonies)	SSI Diagnostic Salmonella Sero-Quick ID kit		
1	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	9:g,m:1,7	657	Egg product	40	20.33	21.00	66.64	66.02	+	20.48	0	21.89	66.26	0	62.37	+SE	+	+SE		
2	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	9:g,m:1,7	2532	Ham	51	19.98	20.58	66.77	66.16	+	20.69	0	21.90	66.71	0	62.75	+SE	+	+SE		
3	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	9:g,m:1,7	Ad477	Poultry meat	42	20.29	20.64	66.52	65.83	+	21.50	0	33.82	66.80	0	63.10	+SE	+	+SE		
4	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	9:g,m:1,7	Ad2294	Beef meat	52	20.11	20.59	66.19	65.63	+	21.17	0	22.34	66.31	0	62.33	+SE	+	+SE		
5	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	9:g,m:1,7	Ad2721	Poultry meat	20	20.12	20.39	66.40	65.75	+	20.29	0	22.11	66.24	0	62.39	+SE	+	+SE		
6	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	1,9,12: g,m : -	2002LSAL13251	Chicken meat	40	20,92	21,28	66,38	66,01	+	21,95	0,0	23,84	66,12	0,0	63,27	+SE	+	+SE		
7	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	1,9,12: g,m : -	2003LSAL06400	Cooked carrots	35	21,34	21,71	66,58	66,05	+	22,15	0,0	23,87	65,91	0,0	61,9	+SE	+	+SE		
8	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	1,9,12: g,m : -	2005LSAL13846	Environment (Poultry)	59	20,57	21,02	66,34	65,82	+	21,81	0,0	23,6	66,28	0,0	62,44	+SE	+	+SE		
9	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	1,9,12: g,m : -	2010LSAL00788	Duck meat	59	20,91	21,29	66,63	66,24	+	22,1	0,0	23,63	66,52	0,0	62,58	+SE	+	+SE		
10	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	1,9,12: g,m : -	2011LSAL02686	Environment (Poultry)	47	21,45	21,92	66,82	66,44	+	22,85	0,0	33,99	66,09	0,0	66,08	+SE	+	+SE		
11	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	1,9,12: g,m : -	2015LSAL00802	Animal feed	60	20,49	20,84	66,71	66,14	+	21,48	0,0	22,52	65,89	0,0	61,8	+SE	+	+SE		
12	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	1,9,12: g,m : -	2010LSAL01431	Ground beef meat	46	20,62	21,55	66,55	65,86	+	21,29	0,0	23,06	65,86	0,0	61,99	+SE	+	+SE		
13	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	1,9,12: g,m : -	2009LSAL06251	Cooked beef	45	20,32	21,28	66,44	65,79	+	20,89	0,0	22,66	66,02	0,0	62,07	+SE	+	+SE		
14	<i>Salmonella enterica</i>	<i>enterica</i>	Enteritidis	D1	1,9,12: g,m : -	2009LSAL06252	Environment (Poultry)	39	20,74	0,00	66,46	65,86	+	21,64	0,0	23,51	65,93	0,0	62,08	+SE	+	+SE		

EXCLUSIVITY (Group B)																		
No	Strain			Group	Antigenic formula	Reference	Origin	Inoculation level (CFU/225ml)	BPW - 18h at 34-38°C								Confirmation	
									PCR results							Direct streaking		After purification
									GENE-UP SEST							ASAP plates (typical colonies)	SSI Diagnostic Salmonella Sero-Quick ID kit	
									Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result			
1	<i>Salmonella enterica</i>	<i>enterica</i>	Essen	O:4 (B)	4,12:g,m:-	38	/	31	0	0	34.51	0	0	62.01	-	+	/	
2	<i>Salmonella enterica</i>	<i>enterica</i>	Lagos	O:4 (B)	1,4,[5],12:i:1,5	173	Sausages	21	0	0	33.64	0	0	62.00	-	+	/	
3	<i>Salmonella enterica</i>	<i>enterica</i>	Indiana	O:4 (B)	1,4,12::z:1,7	Ad174	Dairy product	26	0	0	33.98	0	0	61.73	-	+	/	
4	<i>Salmonella enterica</i>	<i>enterica</i>	Saintpaul	O:4 (B)	1,4,[5],12:e,h:1,2	Ad203	/	45	0	0	34.83	0	0	61.74	-	+	/	
5	<i>Salmonella enterica</i>	<i>enterica</i>	Heidelberg	O:4 (B)	1,4,[5],12:r:1,2	Ad335	/	64	0	0	34.99	0	0	61.91	-	+	/	
6	<i>Salmonella enterica</i>	<i>enterica</i>	Chester	O:4 (B)	1,4,[5],12:e,h:e,n,x	CIP103543	/	23	0	0	34.60	0	0	61.88	-	+	/	
7	<i>Salmonella enterica</i>	<i>enterica</i>	Wien	O:4 (B)	1,4,12,27:b:l,w	CIP8122	/	63	0	0	33.88	0	0	61.77	-	+	/	
8	<i>Salmonella enterica</i>	<i>enterica</i>	Paratyphi B var java	O:4 (B)	1,4,[5],12:b:1,2	CIP56.26	/	27	0	0	34.13	0	0	62.31	-	+	/	
9	<i>Salmonella enterica</i>	<i>enterica</i>	Paratyphi B	O:4 (B)	1,4,[5],12:b:1,2	Ad1439	Poultry meat	73	0	0	36.21	0	0	62.03	-	+	/	
10	<i>Salmonella enterica</i>	<i>enterica</i>	Stanley	O:4 (B)	1,4,[5],12,27:d:1,2	Ad1688	Environmental sample (chocolate)	57	0	0	35.61	0	0	62.08	-	+	/	
11	<i>Salmonella enterica</i>	<i>enterica</i>	Kingston	O:4 (B)	1,4,[5],12,27:g,s,t:[1,2]	Ad1726	Primary production samples	37	0	0	35.28	0	0	62.06	-	+	/	
12	<i>Salmonella enterica</i>	<i>enterica</i>	Duisburg	O:4 (B)	1,4,12,27:d:e,n,z15	Ad1812	Raw ewe milk	46	0	0	35.09	0	0	61.94	-	+	/	
13	<i>Salmonella enterica</i>	<i>enterica</i>	Hessarek	O:4 (B)	4,12,27:a:1,5	Ad1871	/	107	0	0	33.46	0	0	61.67	-	+	/	
14	<i>Salmonella enterica</i>	<i>enterica</i>	Bredeney	O:4 (B)	1,4,12,27:l,v:1,7	Ad2042	Turkey meat	58	0	0	34.80	0	0	61.98	-	+	/	
15	<i>Salmonella enterica</i>	<i>enterica</i>	Agona	O:4 (B)	1,4,[5],12:,f,g,s:[1,2]	Ad2281	Pork meat	48	0	0	35.13	0	0	61.83	-	+	/	
16	<i>Salmonella enterica</i>	<i>enterica</i>	Abortusovis	O:4 (B)	4,12:c:1,6	Ad2320	PPS	8	0	0	33.61	0	0	62.02	-	+	/	
17	<i>Salmonella enterica</i>	<i>enterica</i>	Abortusequi	O:4 (B)	4,12:-:e,n,x	Ad2321	/	78	0	0	33.07	0	0	61.92	-	+	/	
18	<i>Salmonella enterica</i>	<i>enterica</i>	Brandenburg	O:4 (B)	4,[5],12:l,v:e,n,z15	Ad2420	Sausages	37	0	0	33.72	0	0	61.73	-	+	/	
19	<i>Salmonella enterica</i>	<i>enterica</i>	Schwarzengrund	O:4 (B)	1,4,12,27:d:1,7	Ad2704	Turkey meat	54	0	0	33.67	0	0	61.84	-	+	/	
20	<i>Salmonella enterica</i>	<i>enterica</i>	Derby	O:4 (B)	1,4,[5],12:f,g:[1,2]	Ad2713	Environmental sample (Feed)	51	0	0	33.55	0	0	61.63	-	+	/	
21	<i>Salmonella enterica</i>	<i>enterica</i>	Agama	O:4 (B)	4,12 : i : 1,6	2016LSAL04181	Horse	35	0	0	33,7	0	0	61,91	-	+	/	
22	<i>Salmonella enterica</i>	<i>enterica</i>	Gloucester	O:4 (B)	1,4,12,27 : i : l,w	2014LSAL06001	Environment (poultry)	27	0	0	33,71	0	0	62,08	-	+	/	
23	<i>Salmonella enterica</i>	<i>enterica</i>	Farsta	O:4 (B)	4,12 : i : e,n,x	2009LSAL07133	Environment (poultry)	32	0	0	32,94	0	0	61,47	-	- (white colonies)	/	
24	<i>Salmonella enterica</i>	<i>enterica</i>	Lagos	O:4 (B)	1,4,[5],12 : i : 1,5	2009LSAL09082	/	33	0	0	33,46	0	0	61,57	-	+	/	
25	<i>Salmonella enterica</i>	<i>enterica (I)</i>	Saintpaul	O:4 (B)	1,4,[5],12 : - : -	2013LSAL03035	Turkey meat	22	0	0	33,27	0	0	61,73	-	+	/	
26	<i>Salmonella enterica</i>	<i>enterica (I)</i>	Agona	O:4 (B)	1,4,[5],12 : - : -	2014LSAL05711	Chicken meat	71	0	0	33,19	0	0	61,5	-	+	/	
27	<i>Salmonella enterica</i>	<i>enterica (I)</i>	Agama	O:4 (B)	1,4,[5],12 : i : -	2015LSAL00306	Beef carcass	33	0	0	33,73	0	0	61,67	-	+	/	

EXCLUSIVITY (Groups D1 and D2)

No	Strain		Group	Antigenic formula	Reference	Origin	Inoculation level (CFU/225ml)	BPW - 18h at 34-38°C								Confirmation	
								PCR results							Direct streaking		After purification
								GENE-UP SEST							ASAP plates (typical colonies)	SSI Diagnostic Salmonella Sero-Quick ID kit	
								Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result			
1	<i>Salmonella enterica</i>	<i>enterica</i>	Berta	D1	1,9,12:g:-	CIP105682	/	40	0	0	33,29	0	0	61,95	-	+	/
2	<i>Salmonella enterica</i>	<i>enterica</i>	Berta	D1	1,9,12 : [f],g,[t] : -	2011LSAL00786	Composite	56	0	0	33,57	0	0	62,19	-	+	/
3	<i>Salmonella enterica</i>	<i>enterica</i>	Dublin	D1	1,9,12:g,p:-	Ad1336	Raw milk cheese	63	0	0	33,53	0	0	61,86	-	+ (white colonies)	/
4	<i>Salmonella enterica</i>	<i>enterica</i>	Dublin	D1	1,9,12:g,p:-	Ad531	Raw milk cheese	48	0	0	33,65	0	0	61,91	-	+ (white colonies)	/
5	<i>Salmonella enterica</i>	<i>enterica</i>	Gallinarum	D1	1,9,12:-:-	1	Environment (poultry)	4	0	0	33,00	0	0	61,54	-	+ (small colonies)	/
6	<i>Salmonella enterica</i>	<i>enterica</i>	Gallinarum	D1	1,9,12:-:-	Ad1840	PPS	6	0	0	33,61	0	0	61,45	-	+ (small and pale colonies)	/
7	<i>Salmonella enterica</i>	<i>enterica</i>	Gallinarum	D1	1,9,12:-:-	Ad300	Environment (poultry)	15	0	0	33,41	0	0	61,73	-	+ (small colonies)	/
8	<i>Salmonella enterica</i>	<i>enterica</i>	Javiana	D1	1,9,12:l,z28:1,5	Ad2326	Turkey meat	24	0	0	33,24	0	0	61,56	-	+	/
9	<i>Salmonella enterica</i>	<i>enterica</i>	Napoli	D1	1,9,12:l,z13:e,n,x	Ad928	Bovine	61	0	0	34,55	0	0	61,73	-	+	/
10	<i>Salmonella enterica</i>	<i>enterica</i>	Panama	D1	1,9,12:l,v:1,5	882	Sausages	53	0	0	32,96	0	0	61,62	-	+	/
11	<i>Salmonella enterica</i>	<i>enterica</i>	Panama	D1	1,9,12:l,v:1,5	Ad1733	Infant cereals	33	0	0	33,54	0	0	61,58	-	+ (blue colonies)	/
12	<i>Salmonella enterica</i>	<i>enterica</i>	Typhi	D1	9,12:d:-	Ad302	Clinic	26	0	0	33,07	0	0	61,71	-	+	/
13	<i>Salmonella enterica</i>	<i>enterica</i>	Blegdam	D1	1,9,12 : g,m,q : -	2011LSAL04969	Environment (poultry)	54	21,93	0	23,14	66,46	0	62,54	+SE	+	-SE
14	<i>Salmonella enterica</i>	<i>enterica</i>	Moscow	D1	1,9,12 : g,q : -	1995LSAL05721	/	12	22,15	0	24	66,16	0	62,26	+SE	+ (spread and irregular colonies)	-SE
15	<i>Salmonella enterica</i>	<i>enterica</i>	Strasbourg	D2	9,46:d:1,7	CIP105632	/	23	0	0	33,46	0	0	61,43	-	+	/
16	<i>Salmonella enterica</i>	<i>enterica</i>	Ouakam	D2	9,46:z29:-	Ad1647	Compost	4	0	0	32,90	0	0	61,38	-	+	/
17	<i>Salmonella enterica</i>	<i>enterica</i>	Linguere	D2	9,46 : b : z6	2016LSAL02414	Feeding stuff	53	0	0	33,66	0	0	61,55	-	+	/
18	<i>Salmonella enterica</i>	<i>enterica</i>	Fresno	D2	9,46 : z38 : -	2017LSAL02158	Cheese (Reblochon)	61	0	0	33,71	0	0	61,8	-	+ (white colonies)	/
19	<i>Salmonella enterica</i>	<i>enterica</i>	Hillingdon	D2	9,46 : g,m : -	2012LSAL04152	/	46	0	0	33,95	0	0	61,98	-	+	/

EXCLUSIVITY (Groups D1 and D2)

No	Strain	Reference	Origin	Inoculation level (CFU/225ml)	BPW - 18h at 34-38°C								Confirmation	
					PCR results							Direct streaking		After purification
					GENE-UP SEST							ASAP plates (typical colonies)	SSI Diagnostic Salmonella Sero-Quick ID kit	
					Cp SE	Cp ST	Cp IC	TM (°C) SE	TM (°C) ST	TM (°C) IC	Result			
1	<i>Citrobacter braakii</i>	Ad833	Raw beef meat	2,8.10 ⁵	0	0	33,5	0	0	62,29	-	-	/	
2	<i>Enterobacter amnigenus</i>	A00C068	Raw poultry meat	2,4.10 ⁵	0	0	34,71	0	0	62,1	-	-	/	
3	<i>Enterobacter kobei</i>	Ad 342	Ham	1,8.10 ⁵	0	0	33,07	0	0	62,33	-	-	/	
4	<i>Escherichia hermanii</i>	Ad 461	Dessert	1,8.10 ⁵	0	0	33,65	0	0	62,12	-	-	/	
5	<i>Klebsiella oxytoca</i>	57	Food product	2,0.10 ⁵	0	0	33,8	0	0	61,75	-	-	/	
6	<i>Morganella morganii</i>	CIP A236	/	3,2.10 ⁵	0	0	33,43	0	0	62,01	-	-	/	
7	<i>Proteus mirabilis</i>	Ad639	Mayonnaise	1,8.10 ⁵	0	0	33,59	0	0	61,73	-	-	/	
8	<i>Providencia rettgeri</i>	adria 112	White liquid egg	2,5.10 ⁵	0	0	33,74	0	0	62,41	-	-	/	
9	<i>Shigella flexneri</i>	CIP 8248	/	1,8.10 ⁵	0	0	32,87	0	0	61,79	-	-	/	
10	<i>Yersinia enterocolitica</i>	adria 32	Bacon	1,4.10 ⁵	0	0	33,14	0	0	61,52	-	-	/	

Appendix 7 - Results obtained by the collaborative laboratories and the expert laboratory

Laboratory A1
Aerobic mesophilic flora: 1,0.10² CFU/g

N°Sample	Reference method: ISO 6579-1						Alternative method: GENE-UP SEST®												Final result	Agreement
							GENE-UP®S. Enteritidis & S. Typhimurium (SEST) kit-PCR results						Confirmation							
	RVS		MKTTn		Serological confirmation tests	Final result	CP ST value	CP SE value	CP IC value	TM ST value	TM SE value	TM IC value	Final result	Direct streaking		After subculture in SX2		Serological confirmation tests		
	XLD	ASAP	XLD	ASAP	SSI									XLD	ASAP	XLD	ASAP	SSI		
4	-	-	-	-	/	-	0,00	0,00	32,63	0,00	0,00	61,08	-	-	-	-	/	-	NA	
7	-	-	-	-	/	-	0,00	0,00	32,50	0,00	0,00	60,97	-	-	-	-	/	-	NA	
9	-	-	-	-	/	-	0,00	0,00	32,64	0,00	0,00	61,25	-	-	-	-	/	-	NA	
13	-	-	-	-	/	-	0,00	0,00	32,88	0,00	0,00	61,18	-	-	-	-	/	-	NA	
16	-	-	-	-	/	-	0,00	0,00	32,73	0,00	0,00	61,39	-	-	-	-	/	-	NA	
18	-	-	-	-	/	-	0,00	0,00	32,71	0,00	0,00	61,25	-	-	-	-	/	-	NA	
19	-	-	-	-	/	-	0,00	0,00	32,65	0,00	0,00	61,18	-	-	-	-	/	-	NA	
24	-	-	-	-	/	-	0,00	0,00	32,69	0,00	0,00	61,40	-	-	-	-	/	-	NA	
1	+	+	+	+	+SE	+	0,00	22,51	22,59	0,00	65,38	65,35	+SE	+	+	+	+	+SE	+	PA
2	-	-	-	-	/	-	0,00	0,00	32,72	0,00	0,00	60,96	-	-	-	-	/	-	NA	
8	-	-	-	-	/	-	0,00	0,00	32,69	0,00	0,00	61,22	-	-	-	-	/	-	NA	
11	-	-	-	-	/	-	0,00	0,00	32,68	0,00	0,00	61,06	-	-	-	-	/	-	NA	
12	+	+	+	+	+SE	+	0,00	23,45	25,13	0,00	65,23	61,70	+SE	+	+	+	+	+SE	+	PA
17	+	+	+	+	+SE	+	0,00	22,87	22,99	0,00	65,21	65,39	+SE	+	+	+	+	+SE	+	PA
21	+	+	+	+	+SE	+	0,00	22,34	23,80	0,00	65,31	65,25	+SE	+	+	+	+	+SE	+	PA
22	+	+	+	+	+SE	+	0,00	23,55	24,89	0,00	65,37	65,25	+SE	+	+	+	+	+SE	+	PA
3	+	+	+	+	+SE	+	0,00	22,71	23,13	0,00	65,48	65,41	+SE	+	+	+	+	+SE	+	PA
5	+	+	+	+	+SE	+	0,00	22,31	23,13	0,00	64,99	64,89	+SE	+	+	+	+	+SE	+	PA
6	+	+	+	+	+SE	+	0,00	22,27	22,91	0,00	65,28	65,19	+SE	+	+	+	+	+SE	+	PA
10	+	+	+	+	+SE	+	0,00	24,16	24,79	0,00	65,00	64,91	+SE	+	+	+	+	+SE	+	PA
14	+	+	+	+	+SE	+	0,00	20,67	32,48	0,00	64,50	60,65	+SE	+	+	+	+	+SE	+	PA
15	+	+	+	+	+SE	+	0,00	22,02	23,57	0,00	65,09	65,21	+SE	+	+	+	+	+SE	+	PA
20	+	+	+	+	+SE	+	0,00	22,66	23,81	0,00	65,25	65,11	+SE	+	+	+	+	+SE	+	PA
23	+	+	+	+	+SE	+	0,00	22,13	23,24	0,00	65,24	65,13	+SE	+	+	+	+	+SE	+	PA

Laboratory A2
 Aerobic mesophilic flora: 3,0.10³ CFU/g

N°Sample	Reference method: ISO 6579-1						Alternative method: GENE-UP SEST®												Final result	Agreement			
							GENE-UP®S. Enteritidis & S. Typhimurium (SEST) kit-PCR results						Confirmation										
	RVS		MKTTn		Serological confirmation tests	Final result	CP ST value	CP SE value	CP IC value	TM ST value	TM SE value	TM IC value	Final result	Direct streaking		After subculture in SX2		Serological confirmation tests					
	XLD	ASAP	XLD	ASAP	SSI									XLD	ASAP	XLD	ASAP	SSI					
25	-	-	-	-	/	-	0,00	0,00	33,22	0,00	0,00	61,31	-	-	-	-	-	-	-	-	-	-	NA
26	-	-	-	-	/	-	0,00	0,00	33,02	0,00	0,00	61,27	-	-	-	-	-	-	-	-	-	-	NA
31	-	-	-	-	/	-	0,00	0,00	32,86	0,00	0,00	61,08	-	-	-	-	-	-	-	-	-	-	NA
37	-	-	-	-	/	-	0,00	0,00	32,85	0,00	0,00	61,31	-	-	-	-	-	-	-	-	-	-	NA
38	-	-	-	-	/	-	0,00	0,00	32,82	0,00	0,00	61,36	-	-	-	-	-	-	-	-	-	-	NA
42	-	-	-	-	/	-	0,00	0,00	32,73	0,00	0,00	61,39	-	-	-	-	-	-	-	-	-	-	NA
46	-	-	-	-	/	-	0,00	0,00	32,88	0,00	0,00	61,40	-	-	-	-	-	-	-	-	-	-	NA
47	-	-	-	-	/	-	0,00	0,00	32,96	0,00	0,00	61,34	-	-	-	-	-	-	-	-	-	-	NA
28	+	+	+	+	+SE	+	0,00	22,62	22,88	0,00	65,41	65,23	+SE	+	+	+	+	+	+	+	+	+	PA
32	+	+	+	+	+SE	+	0,00	24,45	24,57	0,00	65,45	65,33	+SE	+	+	+	+	+	+	+	+	+	PA
34	+	+	+	+	+SE	+	0,00	24,53	25,60	0,00	65,17	65,03	+SE	+	+	+	+	+	+	+	+	+	PA
35	-	-	-	-	/	-	0,00	0,00	32,80	0,00	0,00	61,32	-	-	-	-	-	-	-	-	-	-	NA
41	+	+	+	+	+SE	+	0,00	23,59	23,68	0,00	65,38	65,23	+SE	+	+	+	+	+	+	+	+	+	PA
43	+	+	+	+	+SE	+	0,00	22,96	24,63	0,00	65,26	65,11	+SE	+	+	+	+	+	+	+	+	+	PA
44	+	+	+	+	+SE	+	0,00	23,19	24,90	0,00	65,29	65,09	+SE	+	+	+	+	+	+	+	+	+	PA
48	+	+	+	+	+SE	+	0,00	23,62	24,88	0,00	65,57	63,39	+SE	+	+	+	+	+	+	+	+	+	PA
27	+	+	+	+	+SE	+	0,00	22,88	22,96	0,00	65,36	65,21	+SE	+	+	+	+	+	+	+	+	+	PA
29	+	+	+	+	+SE	+	0,00	22,30	22,64	0,00	65,23	65,18	+SE	+	+	+	+	+	+	+	+	+	PA
30	+	+	+	+	+SE	+	0,00	22,31	22,70	0,00	65,43	65,18	+SE	+	+	+	+	+	+	+	+	+	PA
33	+	+	+	+	+SE	+	0,00	22,57	22,72	0,00	65,65	65,49	+SE	+	+	+	+	+	+	+	+	+	PA
36	+	+	+	+	+SE	+	0,00	21,95	23,75	0,00	65,41	65,19	+SE	+	+	+	+	+	+	+	+	+	PA
39	+	+	+	+	+SE	+	0,00	22,46	23,97	0,00	65,09	64,98	+SE	+	+	+	+	+	+	+	+	+	PA
40	+	+	+	+	+SE	+	0,00	22,83	24,20	0,00	65,60	65,44	+SE	+	+	+	+	+	+	+	+	+	PA
45	+	+	+	+	+SE	+	0,00	22,43	24,11	0,00	65,49	65,26	+SE	+	+	+	+	+	+	+	+	+	PA

Laboratory B1
 Aerobic mesophilic flora: 3,2.10³ CFU/g

N°Sample	Reference method: ISO 6579-1						Alternative method: GENE-UP SEST®												Final result	Agreement
							GENE-UP®S. Enteritidis & S. Typhimurium (SEST) kit-PCR results						Confirmation							
	RVS		MKTTn		Serological confirmation tests	Final result	CP ST value	CP SE value	CP IC value	TM ST value	TM SE value	TM IC value	Final result	Direct streaking		After subculture in SX2		Serological confirmation tests		
XLD	ASAP	XLD	ASAP	SSI									XLD	ASAP	XLD	ASAP	SSI			
4	-	-	-	-	/	-	0,00	0,00	32,73	0,00	0,00	61,02	-	-	-	-	-	/	-	NA
7	-	-	-	-	/	-	0,00	0,00	33,02	0,00	0,00	61,39	-	-	-	-	-	/	-	NA
9	-	-	-	-	/	-	0,00	0,00	31,90	0,00	0,00	61,04	-	-	-	-	-	/	-	NA
13	-	-	-	-	/	-	0,00	0,00	32,91	0,00	0,00	61,17	-	-	-	-	-	/	-	NA
16	-	-	-	-	/	-	0,00	0,00	33,05	0,00	0,00	61,46	-	-	-	-	-	/	-	NA
18	-	-	-	-	/	-	0,00	0,00	32,77	0,00	0,00	61,36	-	-	-	-	-	/	-	NA
19	-	-	-	-	/	-	0,00	0,00	32,67	0,00	0,00	60,73	-	-	-	-	-	/	-	NA
24	-	-	-	-	/	-	0,00	0,00	32,62	0,00	0,00	60,83	-	-	-	-	-	/	-	NA
1	-	-	-	-	/	-	0,00	0,00	32,89	0,00	0,00	61,24	-	-	-	-	-	/	-	NA
2	+	+	+	+	+SE	+	0,00	23,65	23,70	0,00	65,60	64,36	+SE	+	+	+	+	+SE	+	PA
8	-	-	-	-	/	-	0,00	0,00	32,55	0,00	0,00	61,41	-	-	-	-	-	/	-	NA
11	+	+	+	+	+SE	+	21,13/ 0,00*	21,13/ 23,82*	21,45/ 23,90*	52,63/ 0,00*	61,68/ 65,47*	61,26/ 64,63*	+SE+ST/ +SE*	+	+	+	+	+SE	+	PA
12	-	-	-	-	/	-	0,00	0,00	32,53	0,00	0,00	60,94	-	-	-	-	-	/	-	NA
17	+	+	+	+	+SE	+	0,00	23,77	23,89	0,00	64,15	62,86	+SE	+	+	+	+	+SE	+	PA
21	+	+	+	+	+SE	+	0,00	24,48	24,57	0,00	65,45	63,85	+SE	+	+	+	+	+SE	+	PA
22	+	+	+	+	+SE	+	0,00	23,25	23,93	0,00	65,26	65,14	+SE	+	+	+	+	+SE	+	PA
3	+	+	+	+	+SE	+	0,00	22,20	22,82	0,00	64,42	63,01	+SE	+	+	+	+	+SE	+	PA
5	+	+	+	+	+SE	+	0,00	22,63	22,70	0,00	65,20	63,84	+SE	+	+	+	+	+SE	+	PA
6	+	+	+	+	+SE	+	0,00	22,45	22,48	0,00	65,32	65,28	+SE	+	+	+	+	+SE	+	PA
10	+	+	+	+	+SE	+	22,78/ 0,00*	22,78/ 23,65*	22,89/ 23,71*	54,27/ 0,00*	62,85/ 65,48*	61,96/ 65,49*	+SE+ST/ +SE*	+	+	+	+	+SE	+	PA
14	+	+	+	+	+SE	+	0,00	22,48	22,55	0,00	65,26	65,13	+SE	+	+	+	+	+SE	+	PA
15	+	+	+	+	+SE	+	0,00	23,12	23,20	0,00	65,52	64,13	+SE	+	+	+	+	+SE	+	PA
20	+	+	+	+	+SE	+	20,01/ 0,00*	20,01/ 22,95*	20,21/ 23,01*	55,36/ 0,00*	63,37/ 65,43*	58,74/ 65,44*	+SE+ST/ +SE*	+	+	+	+	+SE	+	PA
23	+	+	+	+	+SE	+	0,00	23,44	23,58	0,00	65,60	65,60	+SE	+	+	+	+	+SE	+	PA

*New DNA extract

Laboratory B2
 Aerobic mesophilic flora: 2,8.10⁴ CFU/g

N°Sample	Reference method: ISO 6579-1						Alternative method: GENE-UP SEST®												Final result	Agreement	
							GENE-UP®S. Enteritidis & S. Typhimurium (SEST) kit-PCR results						Confirmation								
	RVS		MKTTn		Serological confirmation tests	Final result	CP ST value	CP SE value	CP IC value	TM ST value	TM SE value	TM IC value	Final result	Direct streaking		After subculture in SX2		Serological confirmation tests			
	XLD	ASAP	XLD	ASAP	SSI									XLD	ASAP	XLD	ASAP	SSI			
25	-	-	-	-	/	-	0,00	0,00	32,80	0,00	0,00	61,48	-	-	-	-	-	-	-	-	NA
26	-	-	-	-	/	-	0,00	0,00	32,61	0,00	0,00	61,17	-	-	-	-	-	-	-	-	NA
31	+	+	+	+	+SE	+	0,00/ 0,00*	0,00/ 27,78*	32,86/ 32,55*	0,00/ 0,00*	65,40/ 65,53*	61,31/ 65,44*	+SE/+SE*	-	-	+	+	+SE	+	PA	
37	+	+	+	+	+SE	+	0,00/ 0,00*	28,06/ 0,00*	32,39/ 32,86*	0,00/ 0,00*	65,32/ 65,74*	61,38/ 61,40*	+SE/+SE*	-	-	+	+	+SE	+	PA	
38	+	+	+	+	+SE	+	0,00	0,00	34,78	0,00	0,00	57,31	-	-	-	+	+	+SE	-	ND	
42	+	+	+	+	+SE	+	0,00	28,67/ 0,0*	32,21/ 32,31*	0,00	65,66/ 65,87*	61,90/ 61,72*	+SE/+SE*	-	-	+	+	+SE	+	PA	
46	+	+	+	+	+SE	+	0,00	0,00	32,66	0,00	0,00	61,57	-	-	-	+	+	+SE	-	ND	
47	+	+	+	+	+SE	+	0,00/ 0,00*	0,00/ 0,00*	32,64/ 32,95*	0,00/ 0,00*	65,35/ 0,00*	61,14/ 61,50*	+SE/-*	-	-	+	+	+SE	+	PA	
28	-	-	-	-	/	-	0,00	0,00	32,89	0,00	0,00	61,38	-	-	-	-	-	-	-	-	NA
32	+	+	+	+	+SE	+	0,00	22,88	22,97	0,00	65,32	65,03	+SE	+	+	+	+	+SE	+	PA	
34	+	+	+	+	+SE	+	0,00	24,01	24,11	0,00	65,39	63,37	+SE	+	+	+	+	+SE	+	PA	
35	+	+	+	+	+SE	+	0,00	23,24	23,67	0,00	65,41	65,35	+SE	+	+	+	+	+SE	+	PA	
41	+	+	+	+	+SE	+	0,00	22,96	23,03	0,00	65,61	65,61	+SE	+	+	+	+	+SE	+	PA	
43	+	+	+	+	+SE	+	0,00	24,04	24,35	0,00	65,30	63,83	+SE	+	+	+	+	+SE	+	PA	
44	+	+	+	+	+SE	+	0,00	23,85	24,49	0,00	65,19	63,93	+SE	+	+	+	+	+SE	+	PA	
48	+	+	+	+	+SE	+	22,73/ 0,00*	22,73/ 25,50*	32,67/ 25,59*	56,45/ 0,0*	63,88/ 65,66*	63,71/ 64,90*	+SE+ST/+SE*	+	+	+	+	+SE	+	PA	
27	+	+	+	+	+SE	+	0,00	22,10	22,60	0,00	65,38	65,30	+SE	+	+	+	+	+SE	+	PA	
29	+	+	+	+	+SE	+	0,00	22,92	25,57	0,00	65,30	65,19	+SE	+	+	+	+	+SE	+	PA	
30	+	+	+	+	+SE	+	0,00	22,49	22,98	0,00	65,13	64,96	+SE	+	+	+	+	+SE	+	PA	
33	+	+	+	+	+SE	+	0,00	22,90	22,99	0,00	65,73	64,82	+SE	+	+	+	+	+SE	+	PA	
36	+	+	+	+	+SE	+	0,00	21,29	22,28	0,00	64,90	63,06	+SE	+	+	+	+	+SE	+	PA	
39	+	+	+	+	+SE	+	0,00	22,97	23,28	0,00	65,39	63,62	+SE	+	+	+	+	+SE	+	PA	
40	+	+	+	+	+SE	+	0,00	22,71	22,95	0,00	65,67	65,68	+SE	+	+	+	+	+SE	+	PA	
45	+	+	+	+	+SE	+	0,00	23,11	23,57	0,00	65,55	65,48	+SE	+	+	+	+	+SE	+	PA	

*New DNA extract

Laboratory C1
 Aerobic mesophilic flora: 5,9.10³ CFU/g

N°Sample	Reference method: ISO 6579-1						Alternative method: GENE-UP SEST®												Final result	Agreement		
							GENE-UP®S. Enteritidis & S. Typhimurium (SEST) kit-PCR results						Confirmation									
	RVS		MKTTn		Serological confirmation tests	Final result	CP ST value	CP SE value	CP IC value	TM ST value	TM SE value	TM IC value	Final result	Direct streaking		After subculture in SX2		Serological confirmation tests				
	XLD	ASAP	XLD	ASAP	SSI									XLD	ASAP	XLD	ASAP	SSI				
4	-	-	-	-	/	-	0,00	0,00	32,30	0,00	0,00	61,00	-	-	-	-	-	-	-	-	-	NA
7	-	-	-	-	/	-	0,00	0,00	32,21	0,00	0,00	60,77	-	-	-	-	-	-	-	-	-	NA
9	-	-	-	-	/	-	0,00	0,00	32,51	0,00	0,00	61,16	-	-	-	-	-	-	-	-	-	NA
13	-	-	-	-	/	-	0,00	0,00	32,49	0,00	0,00	61,04	-	-	-	-	-	-	-	-	-	NA
16	-	-	-	-	/	-	0,00	0,00	32,46	0,00	0,00	60,99	-	-	-	-	-	-	-	-	-	NA
18	-	-	-	-	/	-	0,00	0,00	32,79	0,00	0,00	61,02	-	-	-	-	-	-	-	-	-	NA
19	-	-	-	-	/	-	0,00	0,00	32,81	0,00	0,00	61,18	-	-	-	-	-	-	-	-	-	NA
24	-	-	-	-	/	-	0,00	0,00	32,41	0,00	0,00	61,03	-	-	-	-	-	-	-	-	-	NA
1	+	+	+	+	+SE	+	0,00	22,88	23,16	0,00	65,38	65,37	+SE	+	+	+	+	+	+	+	+	PA
2	+	+	+	+	+SE	+	0,00	21,29	22,50	0,00	65,26	65,28	+SE	+	+	+	+	+	+	+	+	PA
8	+	+	+	+	+SE	+	0,00	23,28	23,97	0,00	65,40	61,71	+SE	+	+	+	+	+	+	+	+	PA
11	+	+	+	+	+SE	+	0,00	21,10	22,70	0,00	65,16	61,70	+SE	+	+	+	+	+	+	+	+	PA
12	+	+	+	+	+SE	+	0,00	22,48	23,93	0,00	65,21	61,65	+SE	+	+	+	+	+	+	+	+	PA
17	-	-	-	-	/	-	0,00	0,00	32,27	0,00	0,00	61,14	-	-	-	-	-	-	-	-	-	NA
21	-	-	-	-	/	-	0,00	0,00	32,61	0,00	0,00	61,11	-	-	-	-	-	-	-	-	-	NA
22	+	+	+	+	+SE	+	0,00	23,16	24,52	0,00	65,33	61,74	+SE	+	+	+	+	+	+	+	+	PA
3	+	+	+	+	+SE	+	0,00	21,39	23,55	0,00	65,30	61,68	+SE	+	+	+	+	+	+	+	+	PA
5	+	+	+	+	+SE	+	0,00	21,61	23,00	0,00	65,00	61,36	+SE	+	+	+	+	+	+	+	+	PA
6	+	+	+	+	+SE	+	0,00	21,91	23,11	0,00	65,40	61,46	+SE	+	+	+	+	+	+	+	+	PA
10	+	+	+	+	+SE	+	0,00	21,81	23,00	0,00	65,27	61,52	+SE	+	+	+	+	+	+	+	+	PA
14	+	+	+	+	+SE	+	0,00	21,80	23,04	0,00	65,34	61,47	+SE	+	+	+	+	+	+	+	+	PA
15	+	+	+	+	+SE	+	0,00	22,21	22,94	0,00	65,23	61,19	+SE	+	+	+	+	+	+	+	+	PA
20	+	+	+	+	+SE	+	0,00	22,18	23,84	0,00	65,29	61,66	+SE	+	+	+	+	+	+	+	+	PA
23	+	+	+	+	+SE	+	0,00	22,81	23,81	0,00	65,20	61,70	+SE	+	+	+	+	+	+	+	+	PA

Laboratory C2
 Aerobic mesophilic flora: 4,6.10³ CFU/g

N°Sample	Reference method: ISO 6579-1						Alternative method: GENE-UP SEST®												Final result	Agreement		
							GENE-UP®S. Enteritidis & S. Typhimurium (SEST) kit-PCR results						Confirmation									
	RVS		MKTTn		Serological confirmation tests	Final result	CP ST value	CP SE value	CP IC value	TM ST value	TM SE value	TM IC value	Final result	Direct streaking		After subculture in SX2		Serological confirmation tests				
	XLD	ASAP	XLD	ASAP	SSI									XLD	ASAP	XLD	ASAP	SSI				
25	-	-	-	-	/	-	0,00	0,00	33,61	0,00	0,00	61,39	-	-	-	-	-	-	-	-	-	NA
26	-	-	-	-	/	-	0,00	0,00	32,71	0,00	0,00	61,21	-	-	-	-	-	-	-	-	-	NA
31	-	-	-	-	/	-	0,00	0,00	32,77	0,00	0,00	61,06	-	-	-	-	-	-	-	-	-	NA
37	-	-	-	-	/	-	0,00	0,00	32,69	0,00	0,00	61,12	-	-	-	-	-	-	-	-	-	NA
38	-	-	-	-	/	-	0,00	0,00	32,57	0,00	0,00	61,21	-	-	-	-	-	-	-	-	-	NA
42	-	-	-	-	/	-	0,00	0,00	32,49	0,00	0,00	60,83	-	-	-	-	-	-	-	-	-	NA
46	-	-	-	-	/	-	0,00	0,00	32,15	0,00	0,00	61,42	-	-	-	-	-	-	-	-	-	NA
47	-	-	-	-	/	-	0,00	0,00	32,43	0,00	0,00	61,21	-	-	-	-	-	-	-	-	-	NA
28	+	+	+	+	+SE	+	0,00	22,26	23,86	0,00	65,30	65,25	+SE	+	+	+	+	+	+	+	+	PA
32	+	+	+	+	+SE	+	0,00	22,93	23,64	0,00	65,43	65,30	+SE	+	+	+	+	+	+	+	+	PA
34	-	-	-	-	/	-	0,00	0,00	32,62	0,00	0,00	61,17	-	-	-	-	-	-	-	-	-	NA
35	+	+	+	+	+SE	+	0,00	22,83	24,45	0,00	65,17	61,91	+SE	+	+	+	+	+	+	+	+	PA
41	-	-	-	-	/	-	0,00	0,00	32,21	0,00	0,00	60,64	-	-	-	-	-	-	-	-	-	NA
43	+	+	+	+	+SE	+	0,00	23,06	24,71	0,00	65,30	65,23	+SE	+	+	+	+	+	+	+	+	PA
44	+	+	+	+	+SE	+	0,00	22,55	24,14	0,00	65,30	61,90	+SE	+	+	+	+	+	+	+	+	PA
48	+	+	+	+	+SE	+	0,00	22,25	22,86	0,00	65,46	61,73	+SE	+	+	+	+	+	+	+	+	PA
27	+	+	+	+	+SE	+	0,00	21,84	23,50	0,00	65,43	61,88	+SE	+	+	+	+	+	+	+	+	PA
29	+	+	+	+	+SE	+	0,00	21,24	22,81	0,00	65,27	61,69	+SE	+	+	+	+	+	+	+	+	PA
30	+	+	+	+	+SE	+	0,00	21,04	22,31	0,00	66,25	61,68	+SE	+	+	+	+	+	+	+	+	PA
33	+	+	+	+	+SE	+	0,00	22,78	23,01	0,00	65,39	65,35	+SE	+	+	+	+	+	+	+	+	PA
36	+	+	+	+	+SE	+	0,00	21,63	23,29	0,00	65,48	61,86	+SE	+	+	+	+	+	+	+	+	PA
39	+	+	+	+	+SE	+	0,00	21,48	22,15	0,00	65,20	61,65	+SE	+	+	+	+	+	+	+	+	PA
40	+	+	+	+	+SE	+	0,00	20,87	21,62	0,00	65,20	61,56	+SE	+	+	+	+	+	+	+	+	PA
45	+	+	+	+	+SE	+	0,00	22,30	24,14	0,00	65,38	65,29	+SE	+	+	+	+	+	+	+	+	PA

Laboratory D
 Aerobic mesophilic flora: 1,7.10³ CFU/g

N°Sample	Reference method: ISO 6579-1						Alternative method: GENE-UP SEST®												Final result	Agreement		
							GENE-UP®S. Enteritidis & S. Typhimurium (SEST) kit-PCR results						Confirmation									
	RVS		MKTTn		Serological confirmation tests	Final result	CP ST value	CP SE value	CP IC value	TM ST value	TM SE value	TM IC value	Final result	Direct streaking		After subculture in SX2		Serological confirmation tests				
	XLD	ASAP	XLD	ASAP	SSI									XLD	ASAP	XLD	ASAP	SSI				
4	-	-	-	-	/	-	0,00	0,00	32,84	0,00	0,00	61,68	-	-	-	-	-	-	-	-	-	NA
7	-	-	-	-	/	-	0,00	0,00	32,25	0,00	0,00	61,15	-	-	-	-	-	-	-	-	-	NA
9	-	-	-	-	/	-	0,00	0,00	32,96	0,00	0,00	61,89	-	-	-	-	-	-	-	-	-	NA
13	-	-	-	-	/	-	0,00	0,00	32,69	0,00	0,00	61,60	-	-	-	-	-	-	-	-	-	NA
16	-	-	-	-	/	-	0,00	0,00	32,93	0,00	0,00	61,61	-	-	-	-	-	-	-	-	-	NA
18	-	-	-	-	/	-	0,00	0,00	33,20	0,00	0,00	61,88	-	-	-	-	-	-	-	-	-	NA
19	-	-	-	-	/	-	0,00	0,00	32,63	0,00	0,00	61,54	-	-	-	-	-	-	-	-	-	NA
24	-	-	-	-	/	-	0,00	0,00	32,32	0,00	0,00	61,37	-	-	-	-	-	-	-	-	-	NA
1	+	+	+	+	+SE	+	23,70/ 0,00*/ 0,00*	23,70/ 23,02*/ 22,79*	23,79	57,71/ 0,00*/ 0,00*	65,74/ 65,30*/ 65,48*	68,74	+SE+ST/+SE*/ +SE*	+	+	+	+	+	+	+	PA	
2	+	+	+	+	+SE	+	0,00	25,16	25,16	0,00	66,16	65,39	+SE	+	+	+	+	+	+	+	+	PA
8	-	-	-	-	/	-	0,00	0,00	32,15	0,00	0,00	61,37	-	-	-	-	-	-	-	-	-	NA
11	+	+	+	+	+SE	+	0,00	23,43	23,91	0,00	65,89	65,66	+SE	+	+	+	+	+	+	+	+	PA
12	+	+	+	+	+SE	+	0,00	22,78	23,64	0,00	65,72	64,30	+SE	+	+	+	+	+	+	+	+	PA
17	+	+	+	+	+SE	+	0,00	24,43	24,89	0,00	65,55	65,29	+SE	+	+	+	+	+	+	+	+	PA
21	-	-	-	-	/	-	0,00	0,00	32,58	0,00	0,00	61,40	-	-	-	-	-	-	-	-	-	NA
22	+	+	+	+	+SE	+	0,00	23,23	24,06	0,00	65,89	65,59	+SE	+	+	+	+	+	+	+	+	PA
3	+	+	+	+	+SE	+	0,00	23,22	23,34	0,00	65,81	64,15	+SE	+	+	+	+	+	+	+	+	PA
5	+	+	+	+	+SE	+	0,00	23,13	23,24	0,00	65,90	65,05	+SE	+	+	+	+	+	+	+	+	PA
6	+	+	+	+	+SE	+	0,00	26,64	23,76	0,00	65,89	65,67	+SE	+	+	+	+	+	+	+	+	PA
10	+	+	+	+	+SE	+	0,00	22,84	23,01	0,00	65,97	65,61	+SE	+	+	+	+	+	+	+	+	PA
14	+	+	+	+	+SE	+	0,00	22,74	23,58	0,00	65,85	65,58	+SE	+	+	+	+	+	+	+	+	PA
15	+	+	+	+	+SE	+	0,00	22,33	22,74	0,00	65,88	65,53	+SE	+	+	+	+	+	+	+	+	PA
20	+	+	+	+	+SE	+	0,00	21,90	23,43	0,00	65,82	65,47	+SE	+	+	+	+	+	+	+	+	PA
23	+	+	+	+	+SE	+	0,00	21,30	21,63	0,00	65,73	65,34	+SE	+	+	+	+	+	+	+	+	PA

*New DNA extract

Laboratory E1
 Aerobic mesophilic flora: 2,4.10³ CFU/g

N°Sample	Reference method: ISO 6579-1						Alternative method: GENE-UP SEST®												Final result	Agreement	
							GENE-UP®S. Enteritidis & S. Typhimurium (SEST) kit-PCR results						Confirmation								
	RVS		MKTTn		Serological confirmation tests	Final result	CP ST value	CP SE value	CP IC value	TM ST value	TM SE value	TM IC value	Final result	Direct streaking		After subculture in SX2		Serological confirmation tests			
	XLD	ASAP	XLD	ASAP	SSI									XLD	ASAP	XLD	ASAP	SSI			
4	-	-	-	-	/	-	0,00	0,00	33,06	0,00	0,00	60,86	-	-	-	-	-	-	/	-	NA
7	-	-	-	-	/	-	0,00	0,00	32,88	0,00	0,00	60,67	-	-	-	-	-	-	/	-	NA
9	-	-	-	-	/	-	0,00	0,00	32,86	0,00	0,00	61,01	-	-	-	-	-	-	/	-	NA
13	-	-	-	-	/	-	0,00	0,00	33,42	0,00	0,00	61,22	-	-	-	-	-	-	/	-	NA
16	-	-	-	-	/	-	0,00	0,00	32,91	0,00	0,00	61,33	-	-	-	-	-	-	/	-	NA
18	-	-	-	-	/	-	0,00	0,00	32,68	0,00	0,00	60,99	-	-	-	-	-	-	/	-	NA
19	-	-	-	-	/	-	0,00	0,00	33,00	0,00	0,00	61,15	-	-	-	-	-	-	/	-	NA
24	-	-	-	-	/	-	0,00	0,00	32,90	0,00	0,00	61,27	-	-	-	-	-	-	/	-	NA
1	-	-	-	-	/	-	0,00	0,00	33,14	0,00	0,00	60,92	-	-	-	-	-	-	/	-	NA
2	+	+	+	+	+SE	+	0,00	22,57	23,00	0,00	65,16	65,10	+SE	+	+	+	+	+SE	+	PA	
8	+	+	+	+	+SE	+	0,00	23,82	24,07	0,00	65,38	63,57	+SE	+	+	+	+	+SE	+	PA	
11	+	+	+	+	+SE	+	22,78/ 0,00*	22,78/ 22,90*	23,97/ 23,96*	56,95/ 0,00*	65,11/ 65,09*	65,11/ 64,93*	+SE+ST/+SE*	+	+	+	+	+SE	+	PA	
12	+	+	+	+	+SE	+	0,00	23,73	24,99	0,00	65,34	63,63	+SE	+	+	+	+	+SE	+	PA	
17	+	+	+	+	+SE	+	23,07/ 0,00*	23,07/ 22,74*	23,28/ 23,95*	57,77/ 0,00*	65,41/ 64,98*	63,92/ 64,83*	+SE+ST/+SE*	+	+	+	+	+SE	+	PA	
21	+	+	+	+	+SE	+	0,00	23,65	24,87	0,00	65,79	65,61	+SE	+	+	+	+	+SE	+	PA	
22	-	-	-	-	/	-	0,00	0,00	33,92	0,00	0,00	61,58	-	-	-	-	-	-	/	-	NA
3	+	+	+	+	+SE	+	22,72/ 0,00*	22,72/ 23,43*	23,63/ 23,51*	57,22/ 0,00*	65,11/ 65,38*	63,48/ 64,51*	+SE+ST/+SE*	+	+	+	+	+SE	+	PA	
5	+	+	+	+	+SE	+	0,00	22,10	23,10	0,00	65,22	63,37	+SE	+	+	+	+	+SE	+	PA	
6	+	+	+	+	+SE	+	22,06/ 0,00*	22,06/ 22,46*	22,94/ 23,00*	56,67/ 0,00*	65,04/ 65,21**	65,04/ 65,11*	+SE+ST/+SE*	+	+	+	+	+SE	+	PA	
10	+	+	+	+	+SE	+	0,00	22,19	23,22	0,00	65,22	63,58	+SE	+	+	+	+	+SE	+	PA	
14	+	+	+	+	+SE	+	0,00	23,83	24,37	0,00	65,97	65,92	+SE	+	+	+	+	+SE	+	PA	
15	+	+	+	+	+SE	+	22,14/ 0,00*	22,14/ 21,53*	22,79/ 22,71*	57,77/ 0,00*	65,2/ 64,62*	63,40/ 64,46*	+SE+ST/+SE*	+	+	+	+	+SE	+	PA	
20	+	+	+	+	+SE	+	0,00	23,51	24,81	0,00	65,68	63,71	+SE	+	+	+	+	+SE	+	PA	
23	+	+	+	+	+SE	+	0,00	23,31	24,52	0,00	65,46	63,68	+SE	+	+	+	+	+SE	+	PA	

*New DNA extract

Laboratory E2
 Aerobic mesophilic flora: 5,0.10³ CFU/g

N°Sample	Reference method: ISO 6579-1						Alternative method: GENE-UP SEST®												Final result	Agreement		
							GENE-UP®S. Enteritidis & S. Typhimurium (SEST) kit-PCR results						Confirmation									
	RVS		MKTTn		Serological confirmation tests	Final result	CP ST value	CP SE value	CP IC value	TM ST value	TM SE value	TM IC value	Final result	Direct streaking		After subculture in SX2		Serological confirmation tests				
	XLD	ASAP	XLD	ASAP	SSI									XLD	ASAP	XLD	ASAP	SSI				
25	-	-	-	-	-	-	0,00	0,00	32,75	0,00	0,00	60,49	-	-	-	-	-	-	-	-	-	NA
26	-	-	-	-	-	-	0,00	0,00	32,85	0,00	0,00	60,93	-	-	-	-	-	-	-	-	-	NA
31	-	-	-	-	-	-	0,00	0,00	32,74	0,00	0,00	60,73	-	-	-	-	-	-	-	-	-	NA
37	-	-	-	-	-	-	0,00	0,00	33,14	0,00	0,00	60,91	-	-	-	-	-	-	-	-	-	NA
38	-	-	-	-	-	-	0,00	0,00	32,95	0,00	0,00	61,00	-	-	-	-	-	-	-	-	-	NA
42	-	-	-	-	-	-	0,00	0,00	32,84	0,00	0,00	60,60	-	-	-	-	-	-	-	-	-	NA
46	-	-	-	-	-	-	0,00	0,00	32,77	0,00	0,00	60,97	-	-	-	-	-	-	-	-	-	NA
47	-	-	-	-	-	-	0,00	0,00	32,73	0,00	0,00	61,01	-	-	-	-	-	-	-	-	-	NA
28	+	+	+	+	+SE	+	0,00	23,14	23,54	0,00	65,11	65,08	+SE	+	+	+	+	+	+	+	+	PA
32	+	+	+	+	+SE	+	0,00	23,30	23,46	0,00	65,06	65,13	+SE	+	+	+	+	+	+	+	+	PA
34	+	+	+	+	+SE	+	0,00	23,50	23,86	0,00	65,20	63,72	+SE	+	+	+	+	+	+	+	+	PA
35	+	+	+	+	+SE	+	0,00	22,92	23,75	0,00	65,24	65,12	+SE	+	+	+	+	+	+	+	+	PA
41	-	-	-	-	-	-	0,00	0,00	32,97	0,00	0,00	61,04	-	-	-	-	-	-	-	-	-	NA
43	+	+	+	+	+SE	+	0,00	23,78	24,89	0,00	65,17	63,61	+SE	+	+	+	+	+	+	+	+	PA
44	-	-	-	-	-	-	0,00	0,00	33,21	0,00	0,00	61,03	-	-	-	-	-	-	-	-	-	NA
48	+	+	+	+	+SE	+	0,00	23,61	23,94	0,00	65,38	65,21	+SE	+	+	+	+	+	+	+	+	PA
27	+	+	+	+	+SE	+	0,00	22,53	22,77	0,00	65,22	65,16	+SE	+	+	+	+	+	+	+	+	PA
29	+	+	+	+	+SE	+	0,00	22,60	22,93	0,00	65,19	65,12	+SE	+	+	+	+	+	+	+	+	PA
30	+	+	+	+	+SE	+	0,00	23,31	23,64	0,00	65,20	65,08	+SE	+	+	+	+	+	+	+	+	PA
33	+	+	+	+	+SE	+	0,00	22,42	22,51	0,00	65,44	64,60	+SE	+	+	+	+	+	+	+	+	PA
36	+	+	+	+	+SE	+	0,00	23,20	24,17	0,00	65,21	63,61	+SE	+	+	+	+	+	+	+	+	PA
39	+	+	+	+	+SE	+	0,00	22,65	22,97	0,00	65,16	65,00	+SE	+	+	+	+	+	+	+	+	PA
40	+	+	+	+	+SE	+	0,00	22,44	22,62	0,00	65,30	65,21	+SE	+	+	+	+	+	+	+	+	PA
45	+	+	+	+	+SE	+	0,00	22,67	23,84	0,00	65,13	64,99	+SE	+	+	+	+	+	+	+	+	PA

Laboratory F1
 Aerobic mesophilic flora: 2,2.10³ CFU/g

N°Sample	Reference method: ISO 6579-1						Alternative method: GENE-UP SEST®												Final result	Agreement		
							GENE-UP®S. Enteritidis & S. Typhimurium (SEST) kit-PCR results						Confirmation									
	RVS		MKTTn		Serological confirmation tests	Final result	CP ST value	CP SE value	CP IC value	TM ST value	TM SE value	TM IC value	Final result	Direct streaking		After subculture in SX2		Serological confirmation tests				
	XLD	ASAP	XLD	ASAP	SSI									XLD	ASAP	XLD	ASAP	SSI				
4	-	-	-	-	/	-	0,00	0,00	33,26	0,00	0,00	60,48	-	-	-	-	-	-	-	-	-	NA
7	-	-	-	-	/	-	0,00	0,00	33,08	0,00	0,00	60,49	-	-	-	-	-	-	-	-	-	NA
9	-	-	-	-	/	-	0,00	0,00	32,86	0,00	0,00	60,45	-	-	-	-	-	-	-	-	-	NA
13	-	-	-	-	/	-	0,00	0,00	33,51	0,00	0,00	60,74	-	-	-	-	-	-	-	-	-	NA
16	-	-	-	-	/	-	0,00	0,00	33,76	0,00	0,00	60,88	-	-	-	-	-	-	-	-	-	NA
18	-	-	-	-	/	-	0,00	0,00	34,10	0,00	0,00	60,93	-	-	-	-	-	-	-	-	-	NA
19	-	-	-	-	/	-	0,00	0,00	33,67	0,00	0,00	60,87	-	-	-	-	-	-	-	-	-	NA
24	-	-	-	-	/	-	0,00	0,00	32,80	0,00	0,00	60,78	-	-	-	-	-	-	-	-	-	NA
1	-	-	-	-	/	-	0,00	0,00	33,03	0,00	0,00	59,41	-	-	-	-	-	-	-	-	-	NA
2	+	+	+	+	+SE	+	0,00	23,14	23,26	0,00	64,87	63,82	+SE	+	+	+	+	+	+	+	+	PA
8	+	+	+	+	+SE	+	0,00	23,13	23,19	0,00	64,88	63,33	+SE	+	+	+	+	+	+	+	+	PA
11	+	+	+	+	+SE	+	0,00	23,82	23,86	0,00	65,11	65,10	+SE	+	+	+	+	+	+	+	+	PA
12	-	+	+	+	+SE	+	0,00	22,70	22,82	0,00	64,64	62,74	+SE	+	+	+	+	+	+	+	+	PA
17	-	-	-	-	/	-	0,00	0,00	34,05	0,00	0,00	61,12	-	-	-	-	-	-	-	-	-	NA
21	-	-	-	-	/	-	0,00	0,00	32,68	0,00	0,00	60,69	-	-	-	-	-	-	-	-	-	NA
22	-	-	-	-	/	-	0,00	0,00	34,13	0,00	0,00	61,05	-	-	-	-	-	-	-	-	-	NA
3	+	+	+	+	+SE	+	0,00	22,49	22,57	0,00	64,81	64,82	+SE	+	+	+	+	+	+	+	+	PA
5	+	+	+	+	+SE	+	0,00	21,85	21,97	0,00	64,85	64,77	+SE	+	+	+	+	+	+	+	+	PA
6	+	+	+	+	+SE	+	0,00	22,80	22,85	0,00	64,79	64,77	+SE	+	+	+	+	+	+	+	+	PA
10	+	+	+	+	+SE	+	0,00	22,03	22,14	0,00	64,64	63,56	+SE	+	+	+	+	+	+	+	+	PA
14	+	+	+	+	+SE	+	0,00	22,56	22,67	0,00	64,82	64,72	+SE	+	+	+	+	+	+	+	+	PA
15	+	+	+	+	+SE	+	0,00	23,65	23,64	0,00	65,23	64,24	+SE	+	+	+	+	+	+	+	+	PA
20	+	+	+	+	+SE	+	0,00	24,12	24,29	0,00	65,16	65,27	+SE	+	+	+	+	+	+	+	+	PA
23	+	+	+	+	+SE	+	23,78/ 0,00*/ 0,00*/ 0,00*	23,78/ 23,43*/ 21,87*/ 21,80*	24,1 / 23,46*/ 21,92*/ 21,87*	55,57/ 0,00*/ 0,00*/ 0,00*	65,12/ 65,48*/ 64,57*/ 64,71*	65,16/ 64,08*/ 63,75*/ 63,19*	+SE+ST/+SE*/ +SE*/+SE*	+	+	+	+	+	+	+	+	PA

*New DNA extract

Laboratory F2
 Aerobic mesophilic flora: 4,3.10³ CFU/g

N°Sample	Reference method: ISO 6579-1						Alternative method: GENE-UP SEST®												Final result	Agreement		
							GENE-UP®S. Enteritidis & S. Typhimurium (SEST) kit-PCR results						Confirmation									
	RVS		MKTTn		Serological confirmation tests	Final result	CP ST value	CP SE value	CP IC value	TM ST value	TM SE value	TM IC value	Final result	Direct streaking		After subculture in SX2		Serological confirmation tests				
	XLD	ASAP	XLD	ASAP	SSI									XLD	ASAP	XLD	ASAP	SSI				
25	-	-	-	-	/	-	0,00	0,00	33,46	0,00	0,00	60,97	-	-	-	-	-	-	-	-	-	NA
26	-	-	-	-	/	-	0,00	0,00	33,33	0,00	0,00	60,62	-	-	-	-	-	-	-	-	-	NA
31	-	-	-	-	/	-	0,00	0,00	33,26	0,00	0,00	60,77	-	-	-	-	-	-	-	-	-	NA
37	-	-	-	-	/	-	0,00	0,00	32,72	0,00	0,00	60,78	-	-	-	-	-	-	-	-	-	NA
38	-	-	-	-	/	-	0,00	0,00	32,99	0,00	0,00	60,55	-	-	-	-	-	-	-	-	-	NA
42	-	-	-	-	/	-	0,00	0,00	32,54	0,00	0,00	60,76	-	-	-	-	-	-	-	-	-	NA
46	-	-	-	-	/	-	0,00	0,00	32,99	0,00	0,00	60,65	-	-	-	-	-	-	-	-	-	NA
47	-	-	-	-	/	-	0,00	0,00	33,14	0,00	0,00	60,78	-	-	-	-	-	-	-	-	-	NA
28	+	+	+	+	+SE	+	0,00	23,73	23,80	0,00	64,97	64,09	+SE	+	+	+	+	+	+	+	+	PA
32	+	+	+	+	+SE	+	0,00	23,92	23,96	0,00	65,04	63,73	+SE	+	+	+	+	+	+	+	+	PA
34	+	+	+	+	+SE	+	0,00	24,22	24,30	0,00	64,53	63,16	+SE	+	+	+	+	+	+	+	+	PA
35	+	+	+	+	+SE	+	0,00	23,22	23,32	0,00	64,87	63,85	+SE	+	+	+	+	+	+	+	+	PA
41	+	+	+	+	+SE	+	0,00	23,73	23,84	0,00	65,04	64,03	+SE	+	+	+	+	+	+	+	+	PA
43	+	+	+	+	+SE	+	0,00	23,50	23,63	0,00	64,96	63,09	+SE	+	+	+	+	+	+	+	+	PA
44	-	-	-	-	/	-	0,00	0,00	33,12	0,00	0,00	60,77	-	-	-	-	-	-	-	-	-	NA
48	+	+	+	+	+SE	+	0,00	22,78	23,25	0,00	65,07	63,28	+SE	+	+	+	+	+	+	+	+	PA
27	+	+	+	+	+SE	+	0,00	24,15	24,20	0,00	64,97	64,15	+SE	+	+	+	+	+	+	+	+	PA
29	+	+	+	+	+SE	+	0,00	23,28	23,47	0,00	64,88	63,33	+SE	+	+	+	+	+	+	+	+	PA
30	+	+	+	+	+SE	+	0,00	22,95	23,04	0,00	64,94	63,23	+SE	+	+	+	+	+	+	+	+	PA
33	-	-	+	+	+SE	+	0,00	22,57	22,64	0,00	64,94	63,44	+SE	+	+	+	+	+	+	+	+	PA
36	+	+	+	+	+SE	+	0,00	23,16	23,32	0,00	64,61	62,99	+SE	+	+	+	+	+	+	+	+	PA
39	+	+	+	+	+SE	+	0,00	22,80	23,19	0,00	64,71	64,69	+SE	+	+	+	+	+	+	+	+	PA
40	+	+	+	+	+SE	+	0,00	22,87	23,06	0,00	64,78	63,36	+SE	+	+	+	+	+	+	+	+	PA
45	+	+	+	+	+SE	+	0,00	23,00	23,47	0,00	64,74	64,71	+SE	+	+	+	+	+	+	+	+	PA

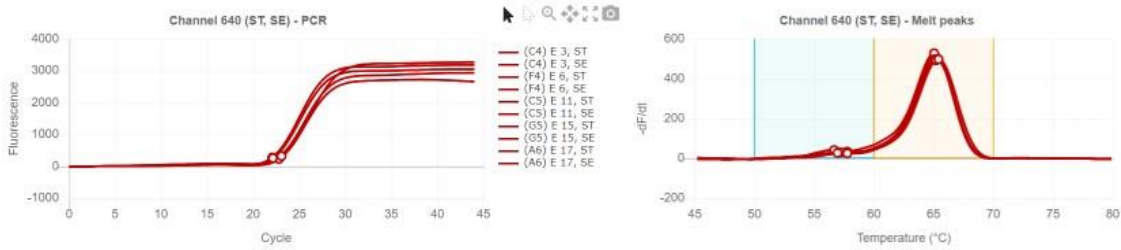
Laboratory G ADRIA
 Aerobic mesophilic flora: 1,3.10⁴ CFU/g

N°Sample	Reference method: ISO 6579-1*						Alternative method: GENE-UP SEST®												Final result	Agreement		
							GENE-UP®S. Enteritidis & S. Typhimurium (SEST) kit-PCR results						Confirmation									
	RVS		MKTTn		Serological confirmation tests	Final result	CP ST value	CP SE value	CP IC value	TM ST value	TM SE value	TM IC value	Final result	Direct streaking		After subculture in SX2		Serological confirmation tests				
	XLD	ASAP	XLD	ASAP	SSI									XLD	ASAP	XLD	ASAP	SSI				
4	-	-	-	-	/	-	0,000	0,00	32.78	0,00	0,00	61.29	-	-	-	-	-	-	-	-	-	NA
7	-	-	-	-	/	-	0,000	0,00	32.89	0,00	0,00	61.14	-	-	-	-	-	-	-	-	-	NA
9	-	-	-	-	/	-	0,000	0,00	33.62	0,00	0,00	61.39	-	-	-	-	-	-	-	-	-	NA
13	-	-	-	-	/	-	0,000	0,00	32.89	0,00	0,00	61.31	-	-	-	-	-	-	-	-	-	NA
16	-	-	-	-	/	-	0,000	0,00	33.47	0,00	0,00	61.54	-	-	-	-	-	-	-	-	-	NA
18	-	-	-	-	/	-	0,000	0,00	32.85	0,00	0,00	61.30	-	-	-	-	-	-	-	-	-	NA
19	-	-	-	-	/	-	0,000	0,00	33.23	0,00	0,00	61.27	-	-	-	-	-	-	-	-	-	NA
24	-	-	-	-	/	-	0,000	0,00	33.02	0,00	0,00	61.66	-	-	-	-	-	-	-	-	-	NA
1	+	+	+	+	+SE	+	0,00	24.91	24.95	0,00	65.44	64.54	+SE	+	+	+	+	+	+	+	+	PA
2	-	-	-	-	/	-	0,000	0,00	32.88	0,00	0,00	61.24	-	-	-	-	-	-	-	-	-	NA
8	-	-	-	-	/	-	0,000	0,00	32.92	0,00	0,00	61.31	-	-	-	-	-	-	-	-	-	NA
11	+	+	+	+	+SE	+	0,000	23.28	23.96	0,00	65.22	63.85	+SE	+	+	+	+	+	+	+	+	PA
12	+	+	+	+	+SE	+	0,000	23.72	24.17	0,00	65.31	63.76	+SE	+	+	+	+	+	+	+	+	PA
17	-	-	-	-	/	-	0,000	0,00	33.01	0,00	0,00	61.41	-	-	-	-	-	-	-	-	-	NA
21	+	+	+	+	+SE	+	0,000	23.63	24.75	0,00	65.31	65.20	+SE	+	+	+	+	+	+	+	+	PA
22	+	+	+	+	+SE	+	0,000	24.68	25.47	0,00	65.26	63.88	+SE	+	+	+	+	+	+	+	+	PA
3	+	+	+	+	+SE	+	0,000	23.69	23.74	0,00	65.69	65.58	+SE	+	+	+	+	+	+	+	+	PA
5	+	+	+	+	+SE	+	0,000	22.86	22.96	0,00	65.43	64.06	+SE	+	+	+	+	+	+	+	+	PA
6	+	+	+	+	+SE	+	0,000	23.00	23.08	0,00	65.53	65.45	+SE	+	+	+	+	+	+	+	+	PA
10	+	+	+	+	+SE	+	0,000	24.47	24.53	0,00	65.21	63.94	+SE	+	+	+	+	+	+	+	+	PA
14	+	+	+	+	+SE	+	0,000	22.51	23.02	0,00	65.35	65.38	+SE	+	+	+	+	+	+	+	+	PA
15	+	+	+	+	+SE	+	0,000	22.83	23.55	0,00	65.29	65.22	+SE	+	+	+	+	+	+	+	+	PA
20	+	+	+	+	+SE	+	0,000	22.88	24.00	0,00	65.24	65.15	+SE	+	+	+	+	+	+	+	+	PA
23	+	+	+	+	+SE	+	0,000	22.57	23.45	0,00	65.20	65.09	+SE	+	+	+	+	+	+	+	+	PA

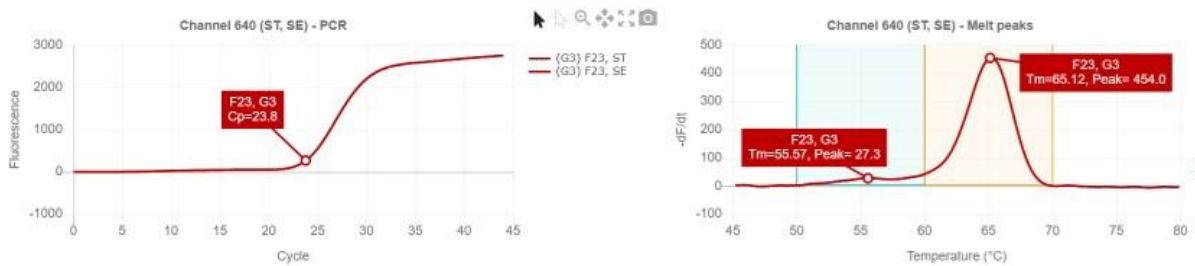
* Analyses performed according to the COFRAC accreditation
 ADRIA Développement
 Summary report (Version 0)
 GENE-UP SEST

Appendix 8 – Curves obtained for the samples concerned by the positive ST results

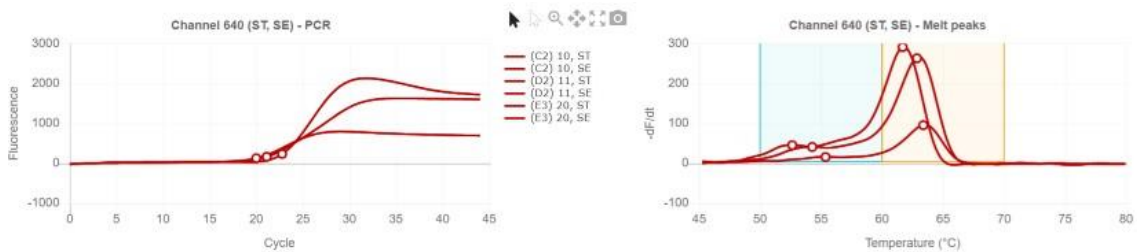
Labo E1



Labo F1



Labo B1



Labo D

