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FOOD EXPERTISE

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NF VALIDATION
Validation of alternative analytical methods
Application in food microbiology

Summary report

Validation study according to the ISO 16140-2

TEMPO® TC
(Certificate number: BIO 12/17 - 12/05)
for the enumeration of total coliforms in all human food products and pet food products

Quantitative method

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This report consists of 70 pages, including 11 appendices.
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Competencies of the laboratory are certified by COFRAC accreditation for the analyses marked with the symbol◆.

Version 0
27 November 2025

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

Measurement uncertainty on the reference method results is not taken into account to provide the conclusion in this report; this measurement uncertainty is however available.

The technical protocol and the result interpretation were carried out according to the ISO 16140-2:2016, ISO 16140-2/A1:2024, the ISO 7218:2024 and the AFNOR technical rules (Revision 12).

Validation protocols	▪ ISO 16140-1:2016: Microbiology of the food chain - Method validation — *Part 1: Vocabulary* ▪ ISO 16140-2:2016 & ISO 16140-2/A1:2024: Microbiology of the food chain - Method validation — *Part 2: Protocol for the validation of alternative (proprietary) methods against a reference method* ▪ AFNOR technical rules (Revision 12)
Reference method♦	ISO 4832:2006: Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique
Alternative method	**TEMPO TC**
Scope	> **All human food** > **Pet food**
Certification organism	AFNOR Certification (http://nf-validation.afnor.org/)

♦ Analyses performed according to the COFRAC accreditation (Accreditation Testing n°1-0144, scope available on www.cofrac.fr)

1 INTRODUCTION

The **TEMPO® TC** method was validated on the 8th of December 2005 (Certificate BIO 12/17 – 12/05) according to the ISO 16140 (2003).

Since this date, the following renewal and extension studies have been conducted:

Date	Study	Reference method	Validation standard	Conducted by
2005	Initial validation	ISO 4832:2006	ISO 16140-2:2003	ADRIA
2009	Renewal study	ISO 4832:2006	ISO 16140-2:2003	ADRIA
2011	Renewal with extension of the scope to raw milk	ISO 4832:2006	ISO 16140-2:2003	ADRIA
2013	Renewal study	ISO 4832:2006	ISO 16140-2:2003	ADRIA
2017	Renewal study conducted according to ISO 16140-2:2016, with the addition of new samples to complete the dataset	ISO 4832:2006	ISO 16140-2:2016	ADRIA
2021	Renewal study	ISO 4832:2006	ISO 16140-2:2016	ADRIA
2025	Renewal study according to the ISO 16140-2/A1:2024 and ISO 7218: 2024 with a reanalysis of the dataset	ISO 4832:2006	ISO 16140-2:2016 & ISO 16140-2/A1:2024	ADRIA

2 METHODS DESCRIPTION

2.1 Alternative method

2.1.1 Principle

TEMPO® system is an automated method associating an innovative card with an adapted medium to ensure rapid enumeration of several quality indicators.

The method is based on the MPN principle (Most Probable Number), with the TEMPO® card.

The TEMPO® test consists in a culture medium associated to the TEMPO® card. The culture medium is inoculated with the sample to be tested and transferred by the TEMPO® Filler into the card.

Depending on the number and size of the positive wells, the TEMPO® Reader calculates the total coliforms count. Card reading, interpretation and reporting are directly managed by the TEMPO® system.

2.1.2 Protocol

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

2.1.3 Restrictions

There is no restriction.

2.2 Reference method◆

The reference method corresponds to the ISO 4832:2006: Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique (See **Appendix 2**).

According to ISO 4832:2006, up to five colonies of each atypical type, if available, must be confirmed using the brilliant green lactose bile broth test. Colonies producing gas in the Durham tube are to be considered coliforms. In the present analysis, no atypical colonies were observed; consequently, no confirmation tests with BLBVB medium were performed.

For the renewal in 2025, the raw data were reanalysed according to ISO 7218:2024 interpretation rules by considering only the results of “replicate 1”, “plate a” if several replicates/plates were available.

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/.

◆ Analyses performed according to the COFRAC accreditation (Accreditation Testing n°1-0144, scope available on www.cofrac.fr)

3.1 Relative trueness study

The relative trueness is the degree of correspondence between the response obtained by the reference method and the response obtained by the alternative method on identical samples.

3.1.1 Number and nature of the samples

Six categories were tested with three different types per category. The samples were analysed in duplicate for the initial validation study (2005) but in simplicate in 2011 and 2017. Only replicate 1, plate a was used for interpretation

Taking into account all the studies, 222 samples were tested leading to 147 interpretable results.
The repartition of the analysed samples and interpretable results per category and type is given in Table 1.

Table 1 – Categories and types

Category		Type		Number of tested samples	Number of samples with interpretable results by both methods
1	**Composite food**	a	RTE	9	6
		b	RTRH	16	15
		c	Deli salad	10	10
			Total	35	31
2	**Meat products**	a	Raw meat	15	12
		b	Ready to cook	16	14
		c	Ready to eat	12	7
			Total	43	33
3	**Dairy products**	a	Raw milk	19	10
		b	Cheeses and fermented product	16	7
		c	Desserts	14	6
			Total	49	23
4	**Seafood**	a	Raw	6	5
		b	Smoked	10	6
		c	RTRH	8	5
			Total	24	16
5	**Vegetables and fruits**	a	RTE	17	14
		b	RTRH, RTC	12	10
		c	Low moisture products	12	5
			Total	41	29
6	**Pet food**	a	Raw	5	5
		b	High moisture	7	5
		c	Low moisture	18	5
			Total	30	15
All categories				**222**	**147**

3.1.2 Artificial and natural contamination of the samples

Artificial contaminations were realized by spiking or seeding protocols. The inoculated strains, the contamination protocols, the injured protocols of the inoculated vegetative cells and the injury evaluation are provided in **Appendix 3**.
Injury efficiency was evaluated by enumerating the pure culture on selective and non-selective agars.

57 samples were artificially contaminated; 51 gave interpretable results with both methods. 96 samples were naturally contaminated.

65.3 % of the samples were naturally contaminated.

3.1.3 Raw data

The raw data are provided in **Appendix 4**.

The samples were analysed by the reference and the alternative methods in order to have 15 interpretable results per incubation protocol, and 5 interpretable results per tested type.

The data are classified in four categories (See Table 2):

- Interpretable results with the reference and the alternative methods.
- Results with less than 4 colonies per plate with the reference and/or the alternative method (indicated with "*" in the data) in order to have a more precise result. These results are not included in the calculation.
- Results below or above the quantification limit: according to the ISO 16140-2, if any result (either reference or alternative method) is below the quantification limit, the data should be plotted using a substituted value of 1 $\log_{10}$ units less than the observed value in case of a lower than value. Similarly, any value greater than the upper limit should be amended by adding 1 $\log_{10}$ unit. These results are not included in the calculations but also appear on the graphs.
- Samples with no result (ND): results not determined as the size of the colonies does not enable enumeration or incoherence in the enumeration between the dilutions are observed.

Table 2 - Classification of the data

Category		Type		Number of tested samples	Number of samples with interpretable results by both methods	Number of samples with no results (ND)	Number of samples with less than 4 colonies/plate	Number of samples below or above the quantification limit
1	Composite food	a	RTE	9	6	0	1	2
		b	RTRH	16	15	0	1	0
		c	Deli salad	10	10	0	0	0
			Total	35	31	0	2	2
2	Meat products	a	Raw meat	15	12	2	0	1
		b	Ready to cook	16	14	0	1	1
		c	Ready to eat	12	7	0	1	4
			Total	43	33	2	2	6
3	Dairy products	a	Raw milk	19	10	0	0	9
		b	Cheeses and fermented product	16	7	0	0	9
		c	Desserts	14	6	0	0	8
			Total	49	23	0	0	26
4	Seafood	a	Raw	6	5	0	0	1
		b	Smoked	10	6	0	0	4
		c	RTRH	8	5	0	2	1
			Total	24	16	0	2	6
5	Vegetables and fruits	a	RTE	17	14	0	0	3
		b	RTRH, RTC	12	10	0	0	2
		c	Low moisture products	12	5	0	1	6
			Total	41	29	0	1	11
6	Pet food	a	Raw	5	5	0	0	0
		b	High moisture	7	5	0	0	2
		c	Low moisture	18	5	0	1	12
			Total	30	15	0	1	14
All categories				**222**	**147**	**2**	**8**	**65**

The samples, which were not used in the calculations, are provided in Table 3.

Table 3 - Samples which were not used in the calculations

Sample N°	Product	ISO 4832	TEMPO TC	Category	Type
490	Pastry	1.48*	1.74	1	a
491	Buckwheat Crepe	<3.00	<2.00	1	a
492	Buckwheat Crepe	>8.18	>6.69	1	a
1655	Tomatoes and vegetables pie	1.30*	1.65	1	b
494	Poultry meat	ND	5.69	2	a
495	Poultry meat	ND	4.69	2	a
496	Duck meat	>4.18	4.57	2	a
501	Sausages	1.48*	1.32	2	b
1867	Columbo turkey skewer	>4.18	4.32	2	b
430	Dried ham	1.00*	<1.00	2	c
431	Dried ham	<1.00	<1.00	2	c
432	Dried beef meat ("viande des grisons)	1.00*	1.00	2	c
433	Delicatessen	<1.00	1.32	2	c
504	Duck pâté	>5.18	>5.69	2	c
4714	Raw cow milk	5.32	>5.69	3	a
4716	Raw cow milk	<1.00	<1.00	3	a
4913	Raw cow milk	<3.00	1.32	3	a
4914	Raw cow milk	<3.00	1.32	3	a
5056	Raw cow milk	<1.00	<1.00	3	a
5100	Raw cow milk	>5.18	5.48	3	a
5101	Raw cow milk	>5.18	5.57	3	a
5102	Raw cow milk	>5.18	>5.69	3	a
5114	Raw goat milk	<2.00	1.00	3	a
489	Butter	0.00*	<0.00	3	b
502	Grated cheese	<1.00	<1.00	3	b
911	Fresh cheese	<1.00	<1.00	3	b
912	Cheese	<1.00	<1.00	3	b
1126	Fermented milk	<1.00	<1.00	3	b
1127	Fermented milk	<1.00	<1.00	3	b
1136	Goat milk cheese	<1.00	<1.00	3	b
1139	Fermented milk	<1.00	<1.00	3	b
1140	Fermented milk	1.00*	<1.00	3	b
907	Pear ice cream	<1.00	<1.00	3	c
908	Blackcurrant ice cream	<1.00	<1	3	c
909	Strawberry ice cream	<1.00	<1.00	3	c
910	Tiramisu ice cream	<1.00	<1.00	3	c
984	Strawberry ice cream	<1.00	<1.00	3	c
985	Blackcurrant ice cream	<1.00	<2.00	3	c
1173	Strawberry ice cream	>7.18	>5.69	3	c
1174	Vanilla ice cream	7.04	>5.69	3	c
8268	Raw salmon	<1.00	1.32	4	a
847	Smoked salmon	1.00*	<1	4	b
848	Smoked trout	<1.00	<1	4	b
914	Smoked herring	<1.00	<1	4	b
915	Smoked mackerel	<1.00	<1	4	b
434	Cod brandade	1.48*	1.52	4	c
497	Cooked tuna	1.30*	1.32	4	c
498	Cooked tuna	<1.00	1.00	4	c

Sample N°	Product	ISO 4832	TEMPO TC	Category	Type
716	Grated carrots	6.66	>6.69	5	a
718	Red cabbage	>7.18	>6.69	5	a
854	Mixed vegetables	6.96	>5.69	5	a
748	Carrot purée	>7.18	>6.69	5	b
1131	Turnip	<1.00	<2.00	5	b
499	Dried mushrooms	<1.00	<2.00	5	c
855	Dried onions	<1.00	<2.00	5	c
857	Garlic powder	1.48*	2.32	5	c
999	Black pepper	<1.00	<1.00	5	c
1000	Cinnamon	<1.00	>3.69	5	c
1001	Dried banana	<1.00	<1.00	5	c
1667	Black mushrooms	>6.18	4.57	5	c
1122	Dog food	<1.00	<1.00	6	b
1124	Sausage for cat	<3.00	<1.00	6	b
858	Pellets for cat	<1.00	<1.00	6	c
916	Pellets for cat	<1.00	<1.00	6	c
917	Pellets for cat	<1.00	<1.00	6	c
918	Pellets for cat	<1.00	<1.00	6	c
986	Pellets for cat	1.00*	1.00	6	c
987	Pellets	<1.00	<1.00	6	c
988	Pellets	<1.00	<1.00	6	c
1123	Goldfish food	<1.00	<1.00	6	c
1175	Pellets	<1.00	<1.00	6	c
1176	Pellets for cat	<1.00	<1.00	6	c
8077	Pellets for dog (beef, chiken, liver)	<1.00	<1.00	6	c
8078	Pellets for dog (beef)	1.48*	<1.00	6	c
8251	Pellets for cat (liver/beef/chiken/cheese)	<1.00	<1.00	6	c

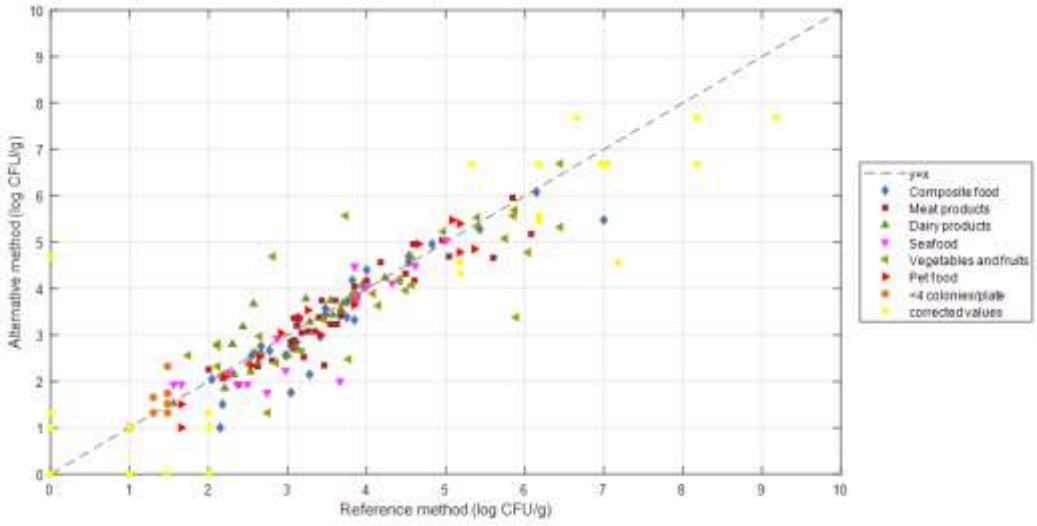
*: CFU/plate < 4 ND: not determined

3.1.4 Statistical interpretation

The obtained data were analysed using the scatter plot. The graphs are provided with the line of identity (y = x).

The data plotted for each individual category are given in **Appendix 5** and for all the products Figure 1.

Figure 1 - Data plotted for all the products



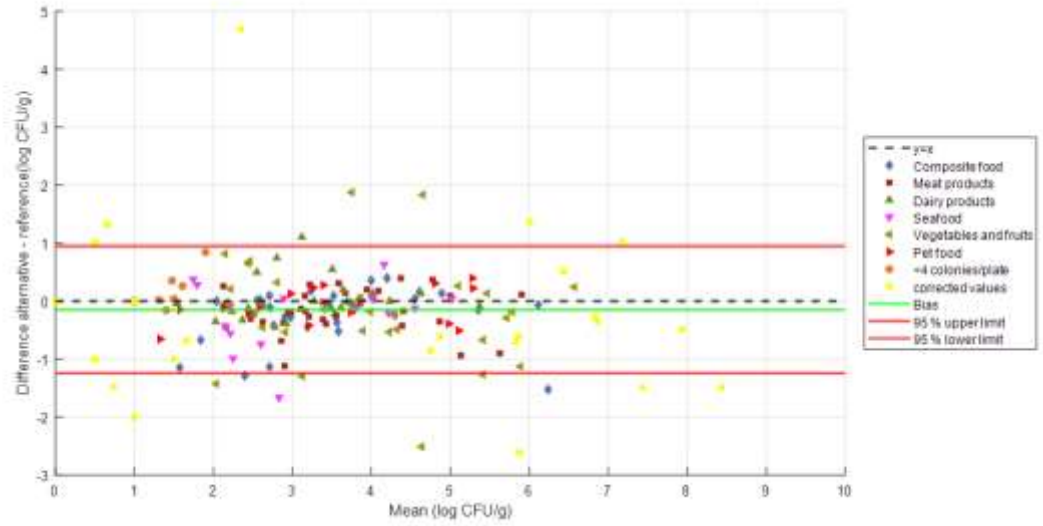
The calculated values for Average difference and Standard deviation differences per category are provided in Table 4.

Table 4 - Calculated values

Category	n	Average difference (bias)	Standard deviation of differences (SD)	95% lower limit	95% upper limit
1	31	-0.24	0.47	-1.22	0.74
2	33	-0.17	0.37	-0.95	0.60
3	23	0.04	0.37	-0.76	0.83
4	16	-0.22	0.56	-1.45	1.01
5	29	-0.17	0.90	-2.05	1.71
6	15	-0.08	0.33	-0.80	0.64
All categories	**147**	**-0.15**	**0.55**	**-1.24**	**0.95**

The Bland-Altman difference plot for each individual category is given in **Appendix 6** and for all the samples Figure 2.

Figure 2 – Bland-Altman difference plot for all the samples



The average difference observed varies from -0.24 log_{10} (Composite food) to 0.04 log_{10} (Dairy products). For all categories, the average difference between, the reference and the alternative method is -0.15.

Samples for which the difference between the result obtained with the reference and the alternative methods is above or lower than the 95 % confidence limits of agreement (CIs), are listed in Table 5.

Table 5 - Analysis of the data out of the confidence limits

Values in green: differences in favour of the alternative method
UCL: Upper confidence limit

Values in red: differences in favour of the reference method
LCL: Lower confidence limit

Classification of the data	Category	Type	N° Sample	Product	Reference method	Alternative method	Values before correction (Reference or/and alternative method)	Mean	Difference	LCL/ UCL
Interpretable result by both methods	1	b	1659	Chinese rolls	3.04	1.76	/	2.40	-1.29	
	1	b	1668	Chinese food (vegetables)	7.00	5.48	/	6.24	-1.52	
	3	c	1218	Vanilla ice cream	2.57	3.67	/	3.12	1.10	
	4	c	509	Ready to reheat fish	3.66	2.00	/	2.83	-1.66	
	5	a	1130	Beet	6.04	4.78	/	5.41	-1.26	
	5	a	1665	Carrot tomato terrine	2.75	1.32	/	2.04	-1.43	
	5	b	423	Frozen tomatoes	5.89	3.38	/	4.64	-2.51	
	5	b	1132	Frozen peas	3.77	2.48	/	3.12	-1.29	
	5	b	1555	Ratatouille	3.73	5.57	/	4.65	1.84	
	5	c	8264	Dried leeks	2.81	4.69	/	3.75	1.88	
< or > of the quantification limit	1	a	492	Buckwheat Crepe	9.18	7.69	8.18 / 6.69	8.44	-1.49	-1.24/ 0.95
	2	c	433	Delicatessen	0.00	1.32	1.00	0.66	1.32	
	3	a	4714	Raw cow milk	5.32	6.69	5.69	6.01	1.37	
	3	c	985	Blackcurrant ice cream	0.00	1.00	1.00 / 2.00	0.50	1.00	
	3	c	1173	Strawberry ice cream	8.18	6.69	7.18 / 5.69	7.44	-1.49	
	4	a	8268	Raw salmon	0.00	1.32	1.00	0.66	1.32	
	4	c	498	Cooked tuna	0.00	1.00	1.00	0.50	1.00	
	5	a	716	Grated carrots	6.66	7.69	6.69	7.18	1.03	
	5	b	1131	Turnip	0.00	1.00	1.00 / 2.00	0.50	1.00	
	5	c	499	Dried mushrooms	0.00	1.00	1.00 / 2.00	0.50	1.00	
	5	c	855	Dried onions	0.00	1.00	1.00 / 2.00	0.50	1.00	
	5	c	1000	Cinnamon	0.00	4.69	1.00 / 3.69	2.35	4.69	
	5	c	1667	Black mushrooms	7.18	4.57	6.18	5.87	-2.61	
	6	b	1124	Sausage for cat	2.00	0.00	3.00 / 1.00	1.00	-2.00	
	6	c	8078	Pellets for dog (beef)	1.48	0.00	1.00	0.74	-1.48	

3.1.5 Discordant results

The samples are classified in three categories (See Table 6).

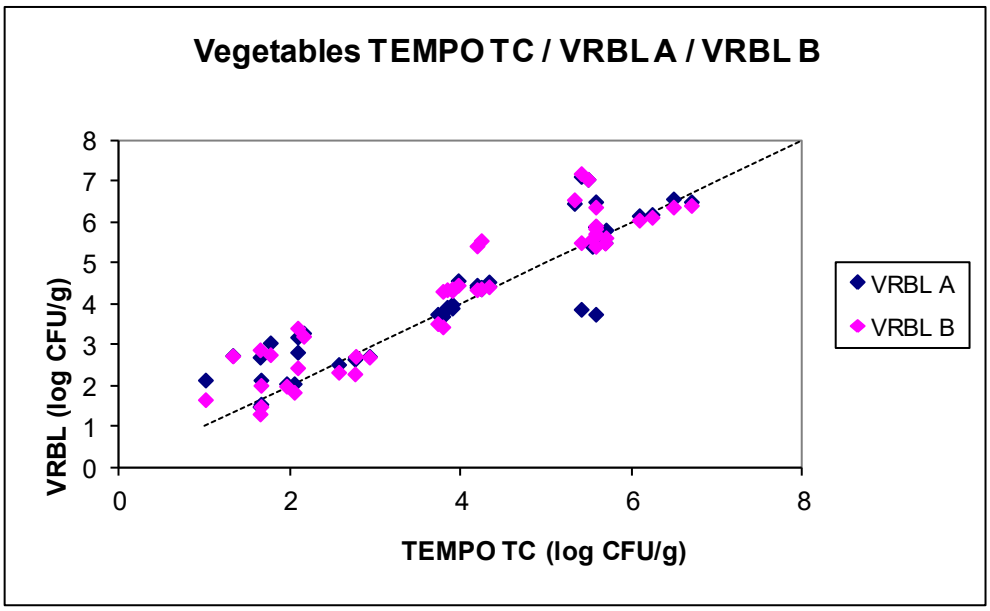
Table 6 - Classification of the samples

		Number of samples
Interpretable results by both methods	< LCL	7
	> UCL	3
	Total	10
< or > the quantification limit	< LCL	5
	> UCL	10
	Total	15
Total < LCL		12
Total >UCL		13
TOTAL		25

For 7 samples giving interpretable results by both methods, the enumeration was in favour of the reference method: 4 samples concern vegetables, 1 a ready to reheat fish and two composite foods. For some samples, the colonies enumerated on VRBL agar were identified. For 3 samples, the genus *Enterobacter* was identified; for one sample, the genus *Enterobacter* and *Serratia* were identified.
For 3 samples, the enumeration was in favour of the TEMPO TC method, this concerns two vegetables products and one vanilla ice cream.
These differences are probably due to the large variety of microorganisms included in the coliforms group.
For all samples, the number of samples with higher results with the reference method is slightly inferior to the number of samples with higher results with the alternative method (12 vs 13).

Note that for the vegetable products, complementary tests were done on 22 samples by running analyses using 2 different brands of VRBL agar.
Figure 3 shows the data obtained using the 2 VRBL brands.
The reference method presents a result variability due to the heterogeneity of the recovered microflora, which leads to characteristic colonies in function of the VRBL medium used.

Figure 3



3.1.6 Conclusion

The relative trueness study of the alternative method is satisfying. The alternative method is reliable when compared to the reference method.

3.2 Accuracy profile study

The accuracy profile is a graphical representation of the capacity of measurement of the quantitative method, obtained by combining acceptability intervals and β-expectation tolerance intervals, both reported to different levels of the reference value.

3.2.1 Matrices

Six matrix/strain pairs were tested. A minimum of one type per category, and therefore 2 different batches, was selected, using 6 samples per type. 2 samples will be contaminated at a low level, 2 at intermediate level, 2 at a high level. For each sample, 5 replicates (5 different test portions) were tested. Overall, 30 samples were tested per matrix type.
The tested categories, types, matrix and inoculated strains are provided in Table 7.

Table 7 - Categories, types and matrices

Category	Type	Matrix	Inoculated strain	Origin	Inoculation level (CFU/g)
Composite foods	Deli salad	Deli salad	*Serratia liquefaciens* 26	Egg product	
Meat products	Raw meat	Ground beef	*Klebsiella oxytoca* 42	Unknown	300
Dairy products	Dessert	Vanilla Dairy based cream	*Enterobacter agglomerans* 74	Cheese	5 000
Seafood	Raw	Raw fish	*Enterobacter cloacae Ad230*	Tuna	100 000
Vegetables and fruits	Ready to eat	Sliced carrots	*Escherichia coli* 19	Sliced carrots	
Pet food	High moisture	Pâté for dogs	*Citrobacter freundii* 35	Pork meat	

3.2.2 Calculation and interpretation

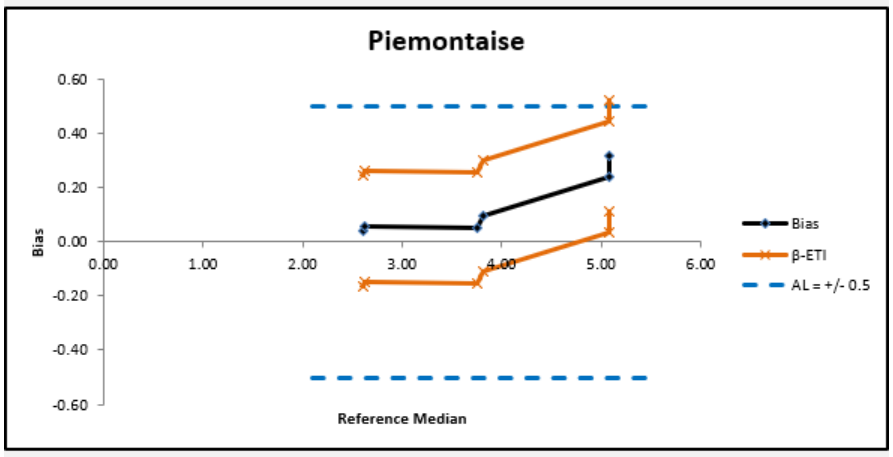
For this renewal, all results from the reference and the alternative method were reanalysed according to the ISO 7218:2024.

The raw data are provided in **Appendix 7**. The summary tables (in log CFU/g) and calculations are provided in **Appendix 8**. The statistical results and the accuracy profiles are provided Figure 4.

The calculations were done using the AP Calculation Tool MCS (Clause 6-1-3-3 calculation and interpretation of accuracy profile study) ver 31-07-2018 available on http://standards.iso.org/iso/16140.

Figure 4 – Accuracy profile

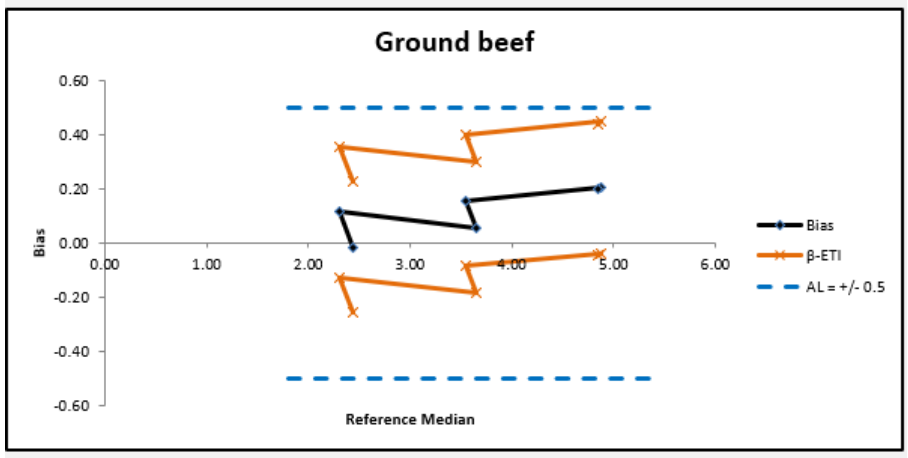
(Food) Category	RTE
(Food) Type	Piemontaise



Sample Name	Reference central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=±0.5 Acceptable	β-ETI compared to final AL Acceptable
6482-6486	2.60	0.041	-0.164	0.246	YES	YES
6497-6501	2.62	0.058	-0.147	0.263	YES	YES
6487-6491	3.75	0.051	-0.154	0.256	YES	YES
6502-6506	3.81	0.096	-0.109	0.301	YES	YES
6492-6496	5.08	0.243	0.038	0.448	YES	YES
6507-6511	5.08	0.319	0.114	0.524	NO	NO

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.081	0.142	YES	+/- 0.500

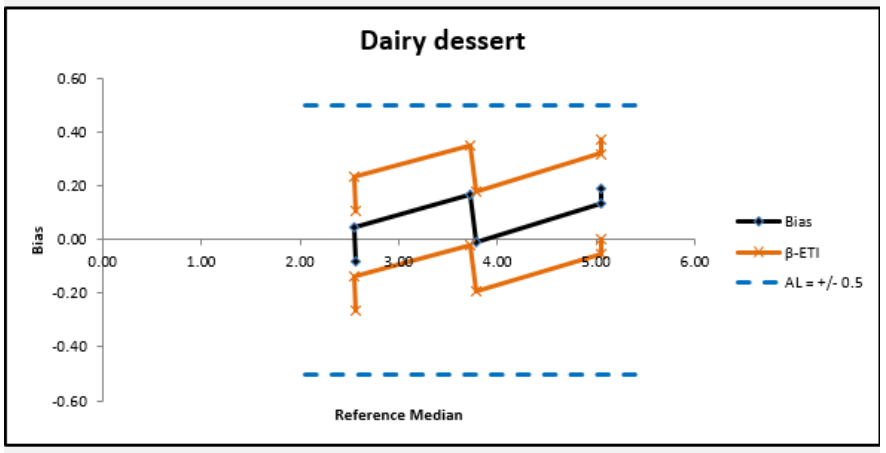
(Food) Category	Meat product
(Food) Type	Ground beef



Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=±0.5 Acceptable	β-ETI compared to final AL Acceptable
7468-7472	2.43	-0.016	-0.259	0.226	YES	YES
7483-7487	2.30	0.114	-0.129	0.356	YES	YES
7473-7477	3.64	0.056	-0.187	0.298	YES	YES
7488-7492	3.54	0.155	-0.088	0.397	YES	YES
7478-7482	4.88	0.204	-0.038	0.447	YES	YES
7493-7497	4.85	0.196	-0.046	0.439	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.089	0.168	YES	+/- 0.500

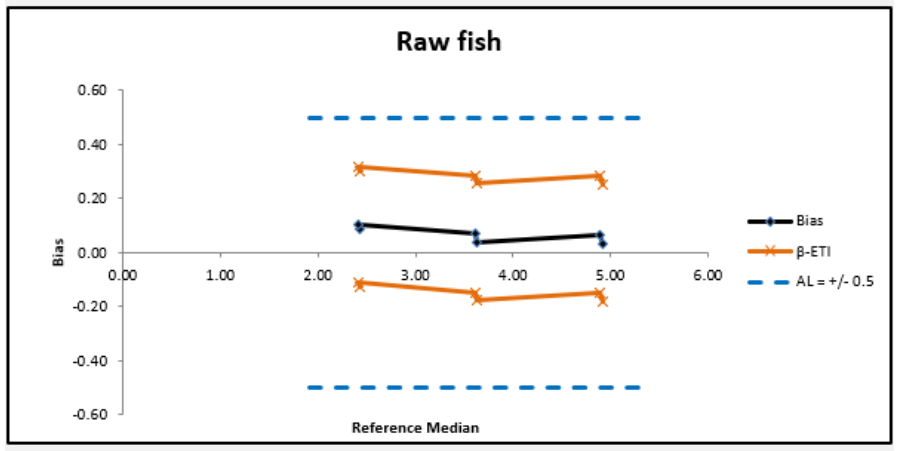
(Food) Category	Dairy
(Food) Type	Dairy dessert



Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=±0.5 Acceptable	β-ETI compared to final AL Acceptable
6641-6645	2.56	-0.079	-0.265	0.107	YES	YES
6656-6660	2.54	0.047	-0.139	0.233	YES	YES
6646-6650	3.72	0.168	-0.018	0.354	YES	YES
6661-6665	3.79	-0.007	-0.193	0.179	YES	YES
6651-6655	5.04	0.135	-0.052	0.321	YES	YES
6666-6670	5.04	0.189	0.003	0.375	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.096	0.129	YES	+/- 0.500

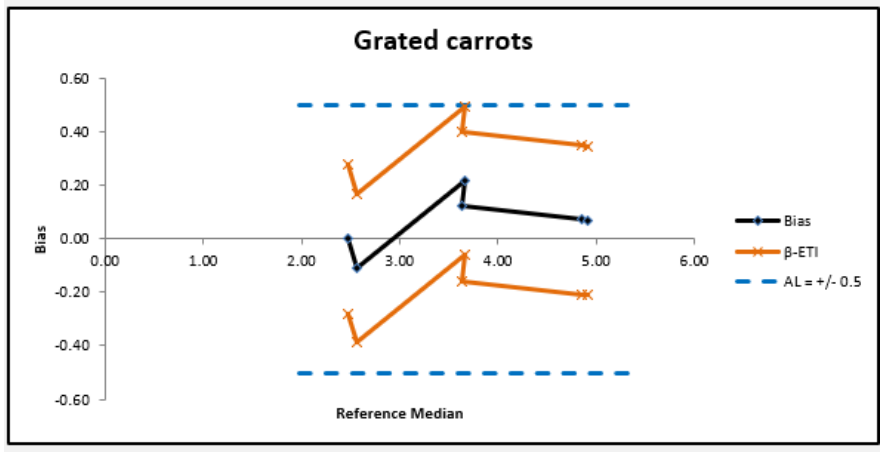
(Food) Category	Seafood
(Food) Type	Raw fish



Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=±0.5 Acceptable	β-ETI compared to final AL Acceptable
6817-6821	2.43	0.087	-0.128	0.302	YES	YES
6832-6836	2.41	0.104	-0.112	0.319	YES	YES
6822-6826	3.61	0.068	-0.147	0.284	YES	YES
6837-6841	3.62	0.040	-0.176	0.255	YES	YES
6827-6831	4.89	0.067	-0.148	0.282	YES	YES
6842-6846	4.92	0.035	-0.180	0.250	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.074	0.149	YES	+/- 0.500

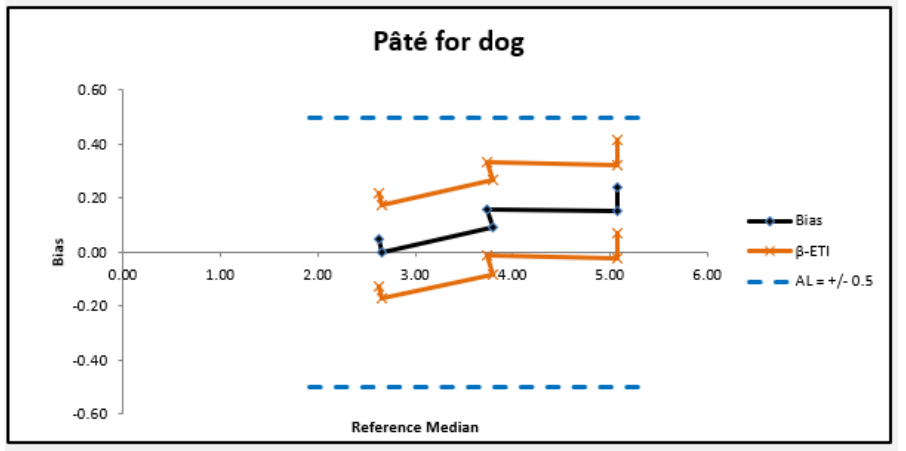
(Food) Category	Vegetables
(Food) Type	Grated carrots



Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=±0.5 Acceptable	β-ETI compared to final AL Acceptable
6536-6640	2.48	0.000	-0.279	0.279	YES	YES
6551-6555	2.56	-0.109	-0.388	0.169	YES	YES
6541-6545	3.66	0.218	-0.061	0.497	YES	YES
6556-6560	3.63	0.122	-0.156	0.401	YES	YES
6546-6550	4.86	0.072	-0.207	0.351	YES	YES
6561-6565	4.91	0.069	-0.209	0.348	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.089	0.193	YES	+/- 0.500

(Food) Category	Pet food
(Food) Type	Pâté for dog



Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=±0.5 Acceptable	β-ETI compared to final AL Acceptable
7733-7737	2.63	0.048	-0.125	0.221	YES	YES
7748-7752	2.66	0.000	-0.173	0.173	YES	YES
7738-7742	3.80	0.093	-0.080	0.266	YES	YES
7753-7757	3.73	0.160	-0.014	0.333	YES	YES
7743-7747	5.08	0.151	-0.022	0.325	YES	YES
7758-7762	5.08	0.243	0.070	0.416	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.040	0.120	YES	+/- 0.500

The lower and upper β ETI are within the acceptability limits for all the matrix/strain pairs tested, except for the deli salad (piémontaise) for which the upper β ETI value was higher than the AL for one batch at the higher inoculated level (upper β ETI = 0.524).
The value of 0.524 obtained during the accuracy profile study with the Piemontaise salad, remains close to the acceptability limit (0.524 vs 0.500) and is in favour of the alternative method.

3.2.3 Conclusion

The observed profiles are comprised within the AL except in one case (higher inoculation level for one batch of deli salad). The accuracy profiles fulfil the performance criteria.

3.3 Quantification limits (LOQ)

The limit of Quantification (LOQ) is the lowest analyte concentration that can be quantified with an acceptable level of precision and trueness under the conditions of the test.

The LOQ was determined as is it needed for the instrumental methods which are related to the growth of the microorganism.

3.3.1 Experimental design

Blank samples were tested for each category. These blank samples were used to verify the limit of quantification of the alternative method. 10 test portions from the same sample were analysed. The same food type matrices than those tested in the accuracy profile were used.

3.3.2 Calculation and interpretation

The threshold standard deviation S_0 was calculated as followed:

$$s_0 = \frac{1}{n-1}\sum_{j=1}^{n}(y_j - \bar{y})^2$$

where:
n = the total number of test portions used
yj = the log transformed result of test portion j
y = the average log transformed result of all test portions

The limit of quantification is calculated as LOQ = 10 s_o.

3.3.3 Results

Raw data and calculation are provided in **Appendix 9**. The results are summarized in Table 8.

Table 8 - Quantification limits per tested matrix

Matrix	S_0	LOQ
Deli salad	0	0
Ground beef	0	0
Vanilla Dairy based cream	0	0
Raw fish	0	0
Sliced carrots	0	0
Pâté for dogs	0	0

3.4 Inclusivity and exclusivity

The inclusivity study is a study involving pure target strains to be detected or enumerated by the alternative method.

The exclusivity study is a study involving pure non-target strains, which can be potentially cross-reactive, but are not expected to be detected or enumerated by the alternative method.

3.4.1 Protocol

Inclusivity

30 target strains were tested for the initial validation study. The study was completed by testing 20 additional strains. The pure culture was grown in BHI broth under optimal growth conditions (24 h) and diluted at an appropriate level before testing. Each test was performed once with the alternative method, the reference method and a non-selective agar. The inoculation level shall obtain a countable number of the plate and with the TEMPO TC method.

Exclusivity

20 non-target strains were tested for the initial validation study. The study was completed by testing 10 additional strains. The pure culture was grown in BHI broth under optimal growth conditions (24 h) and diluted at an appropriate level before testing. Each test was performed once with the alternative method, the reference method and a non-selective agar. The inoculation level shall obtain a countable number of the plate and with the TEMPO TC method.

3.4.2 Results

The raw data are provided in **Appendix 10**.

Inclusivity

Among the 50 strains tested, all gave typical colonies on VRBL plates. 9 strains were not enumerated with the TEMPO TC method. The strains were confirmed using the protocol described in the reference method (i.e. inoculation of a BLBVB tube incubated for 24 h at 30°C). All the strains gave a negative result (no gas producing).

Exclusivity

18 strains gave typical colonies on VRBL plates while only 10 of them were enumerated using the TEMPO TC method. Note that 4 strains were confirmed as coliforms when tested in BLBVB.

The TEMPO TC method is more specific than the reference method; this could explain the results observed for the vegetable products in the relative trueness study.

3.4.3 Conclusion

The TEMPO TC method is more specific and selective than the ISO 4832 method. This could explain some of the results observed for the vegetables category in the trueness study.

3.5 Practicability

The alternative method practicability was evaluated according to the AFNOR criteria relative to method comparison study.

Storage conditions and shelf-life	The storage temperatures are between 2 and 25°C (room temperature before analysing) depending on the materials and reagents	
Time to result		
Steps	**Reference method**	**Alternative method**
Sampling, stomach and analysis	Day 0	Day 0
Reading	Day 1 or 2	Day 1
Common step with the reference method	Sampling, dilution and stomach	

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

The inter-laboratory study was conducted in 2005.

Collaborators number

12 collaborators participated to the study.

Matrix and strain used

Pasteurised half-skimmed milk was inoculated with *Escherichia coli* 94 isolated from a dairy product.

Inoculation

The target inoculation levels were:

- < 10 CFU/ml,
- 100 – 1 000 CFU/ml,
- 1 000 – 10 000 CFU/ml,
- 10 000 – 100 000 CFU/ml.

Interpretation

Duplicate analyses were performed for the reference method for the initial validation study as required by ISO 16140 (2003).

For the renewal in 2025, only replicate No. 1 was then used an all the raw data of both the reference and the alternative method were reanalysed for interpretation according to ISO 16140-2:2016, ISO 16140-2/A1:2024 and the ISO 7218:2024.

4.2 Experimental parameters controls

4.2.1 Sample stability

In order to evaluate the stability of the inoculated strain during transport and storage, bacterial count of samples was checked at different times, *i.e.* inoculation time, after 24 h and 48 h of storage at 4°C.

Six test portions (3 contamination levels x 2 replicates) were enumerated according to ISO 4832. Results are reported in Table 9.

Table 9 - Strain stability in the matrix (in CFU/ml)

	Level 1		Level 2		Level 3	
	Replicate 1	Replicate 2	Replicate 1	Replicate 2	Replicate 1	Replicate 2
Day 0	1.91	2.04	2.97	2.93	3.96	3.83
Day 1	1.89	1.77	2.92	2.99	3.83	3.90
Day 2	1.98	2.04	2.88	2.93	3.84	3.90

No evolution of the inoculated strain was observed between Day 0 and Day 2.

4.2.2 Homogeneity of inoculation

This test was not run for the inter-laboratory study as it was not required in 2013 (inter-laboratory study run according to the ISO 16140:2003).

4.3 Result analysis

The raw data are given in **Appendix 11**.

4.3.1 Results obtained by the expert Lab.

The results obtained by the expert Lab. are the following (See Table 10).

Table 10 – Results obtained by the expert Lab.

Inoculation level (log CFU/g)	Reference method ISO 4832		Alternative method TEMPO® TC			
	Replicate 1	Replicate 2	Replicate 1		Replicate 2	
			D 1/40	D 1/400	D 1/40	D 1/400
< 1	< 1.00	< 1.00	< 1.00	< 2.00	< 1.00	< 2.00
1 to 2	1.86	1.74	1.85	2.00	2.08	< 2.00
2 to 3	2.91	2.99	2.92	2.93	2.86	2.86
3 to 4	3.85	3.95	3.83	4.32	3.83	4.08

Targeted contamination levels were reached.

4.3.2 *Results obtained by the collaborators*

A summary of the test results is given in Table 11 (CFU/mL) and Table 12 (log_{10} CFU/ml).

Table 11 - Summary of data (CFU/ml)

Collaborator	Level L0				Level L1				Level L2				Level L3			
	Reference method		Alternative method		Reference method		Alternative method		Reference method		Alternative method		Reference method		Alternative method	
A	<10	<10	<10	<10	73	82	100	71	830	850	930	1700	8700	8000	12000	5200
B	<10	<10	<10	<10	120	91	100	130	800	960	1100	1100	10000	8000	21000	11000
C	<10	10	<10	<10	100	120	73	130	660	650	730	530	6500	7100	9100	12000
D	<10	<10	<10	<10	110	120	44	100	730	770	1000	530	7200	8900	12000	11000
E	<10	<10	<10	<10	64	120	59	69	830	860	830	730	8800	9900	11000	7800
F	<10	<10	<10	<10	73	160	100	71	760	670	630	730	8200	7900	11000	12000
G	<10	<10	<10	<10	91	140	110	110	660	830	1300	580	7200	6100	9100	21000
H	<10	<10	<10	<10	110	73	140	140	530	730	920	1000	7800	8000	21000	25000
I	<10	<10	<10	<10	140	73	120	71	720	960	1100	1100	8100	9200	12000	15000
J	<10	<10	<10	<10	82	64	10	73	1000	890	730	830	7700	7000	9100	7800
K	<10	<10	<10	<10	91	45	86	59	860	860	830	1200	7500	8200	12000	11000
L	<10	<10	<10	<10	100	100	45	130	830	920	900	1200	8800	9200	15000	30000

Table 12 - Summary of data (log_{10} CFU/ml)

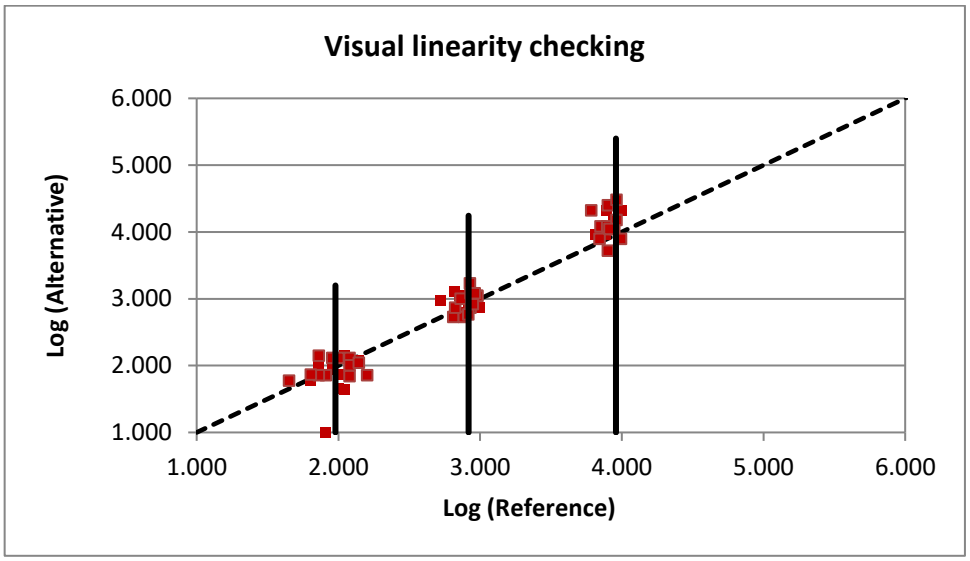
Collaborator	Level L0				Level L1				Level L2				Level L3			
	Reference method		Alternative method		Reference method		Alternative method		Reference method		Alternative method		Reference method		Alternative method	
A	<1.00	<1.00	<1.00	<1.00	1.86	1.91	2.00	1.85	2.92	2.93	2.97	3.23	3.94	3.90	4.08	3.72
B	<1.00	<1.00	<1.00	<1.00	2.08	1.96	2.00	2.11	2.90	2.98	3.04	3.04	4.00	3.90	4.32	4.04
C	<1.00	1.00*	<1.00	<1.00	2.00	2.08	1.86	2.11	2.82	2.81	2.86	2.72	3.81	3.85	3.96	4.08
D	<1.00	<1.00	<1.00	<1.00	2.04	2.08	1.64	2.00	2.86	2.89	3.00	2.72	3.86	3.95	4.08	4.04
E	<1.00	<1.00	<1.00	<1.00	1.81	2.08	1.77	1.84	2.92	2.93	2.92	2.86	3.94	4.00	4.04	3.89
F	<1.00	<1.00	<1.00	<1.00	1.86	2.20	2.00	1.85	2.88	2.83	2.80	2.86	3.91	3.90	4.04	4.08
G	<1.00	<1.00	<1.00	<1.00	1.96	2.15	2.04	2.04	2.82	2.92	3.11	2.76	3.86	3.79	3.96	4.32
H	<1.00	<1.00	<1.00	<1.00	2.04	1.86	2.15	2.15	2.72	2.86	2.96	3.00	3.89	3.90	4.32	4.40
I	<1.00	<1.00	<1.00	<1.00	2.15	1.86	2.08	1.85	2.86	2.98	3.04	3.04	3.91	3.96	4.08	4.18
J	<1.00	<1.00	<1.00	<1.00	1.91	1.81	1.00	1.86	3.00	2.95	2.86	2.92	3.89	3.85	3.96	3.89
K	<1.00	<1.00	<1.00	<1.00	1.96	1.65	1.93	1.77	2.93	2.93	2.92	3.08	3.88	3.91	4.08	4.04
L	<1.00	<1.00	<1.00	<1.00	2.00	2.00	1.65	2.11	2.92	2.96	2.95	3.08	3.94	3.96	4.18	4.48

4.4 Calculation and interpretation

4.4.1 Visual linearity checking

Figure 5 shows the data points after $\log_{10}$ transformation. The visual inspection shows that the alternative method gives results, which are proportional to those of the reference method. The data are distributed closely to the first bisecting lines with a slope equal to 1.

Figure 5 - Visual linearity checking



4.4.2 Accuracy profile calculation

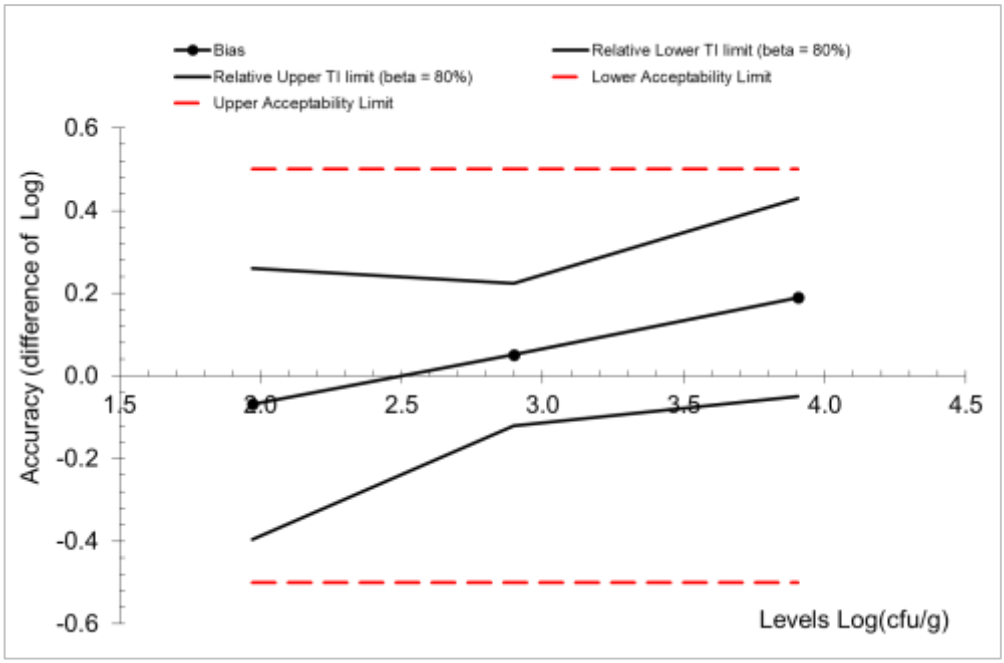
Statistical calculations were done according to the Excel spreadsheet available on http://standards.iso.org/ISO/16140. A summary of the statistical test is provided in Table 13.

Table 13 - Summary of statistical tests

Accuracy profile	0.5					
Study Name	TEMPO TC					
Date	2005 (re-interpretation 2025)					
Coordinator	ADRIA					
Tolerance probability (beta)	80%	80%	80%			
Acceptability limit in log (lambda)	0.50	0.50	0.50			
	Alternative method			**Reference method**		
Levels	**Low**	**Medium**	**High**	**Low**	**Medium**	**High**
Target value	**1.972**	**2.898**	**3.904**			
Number of participants (K)	12	12	12	12	12	12
Average for alternative method	1.904	2.949	4.094	1.972	2.898	3.904
Repeatability standard deviation (sr)	0.232	0.119	0.143	0.140	0.050	0.038
Between-labs standard deviation (sL)	0.074	0.045	0.102	0.000	0.043	0.038
Reproducibility standard deviation (sR)	0.243	0.127	0.176	0.140	0.066	0.054
Corrected number of dof	22.581	22.362	20.091	22.957	18.832	17.825
Coverage factor	1.350	1.351	1.362			
Interpolated Student t	1.320	1.321	1.325			
Tolerance interval standard deviation	0.2487	0.1302	0.1810			
Lower TI limit	1.575	2.777	3.854			
Upper TI limit	2.232	3.121	4.334			
Bias	**-0.068**	**0.051**	**0.189**			
Relative Lower TI limit (beta = 80%)	**-0.396**	**-0.121**	**-0.050**			
Relative Upper TI limit (beta = 80%)	**0.260**	**0.223**	**0.429**			
Lower Acceptability Limit	**-0.50**	**-0.50**	**-0.50**			
Upper Acceptability Limit	**0.50**	**0.50**	**0.50**			
New acceptability limits may be based on reference method pooled variance						
Pooled repro standard dev of reference	0.094					

These values are collected in a graphical representation together with the acceptability limits (AL). This representation is given Figure 6.

Figure 6 - Accuracy profile



It is observed that for all the levels, the tolerance interval limits of the alternative method meet the acceptable limits (AL) of ± 0.5 log.

4.4.3 Conclusion

The alternative method is equivalent to the reference method.

5 CONCLUSION

The **method comparison study conclusions** are:

- ☒ The relative trueness study of the alternative method is satisfying. The alternative method is reliable when compared to the reference method.
- ☒ The accuracy profiles fulfil the performance criteria.
- ☒ The TEMPO TC method is more specific and selective than the ISO 4832 method. This could explain some of the results observed for the vegetables category in the trueness study.

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

- ☒ The quality assurance parameters were verified (*i.e.* inoculation, targeted levels, strain stability, logistic conditions, analyses), confirming that the inter-laboratory study was conducted in appropriate conditions.
- ☒ For the three contamination levels, the alternative method is accepted as equivalent to the reference method.

The data and interpretation, according to the ISO 7218:2024, meet the requirements of ISO 16140- 2, ISO 16140-2/A1 and AFNOR technical rules; the TEMPO TC is considered equivalent to the reference method.

Quimper, 27 November 2025

Lizaïg GOUGUET
Study Engineer
Method performance in food microbiology

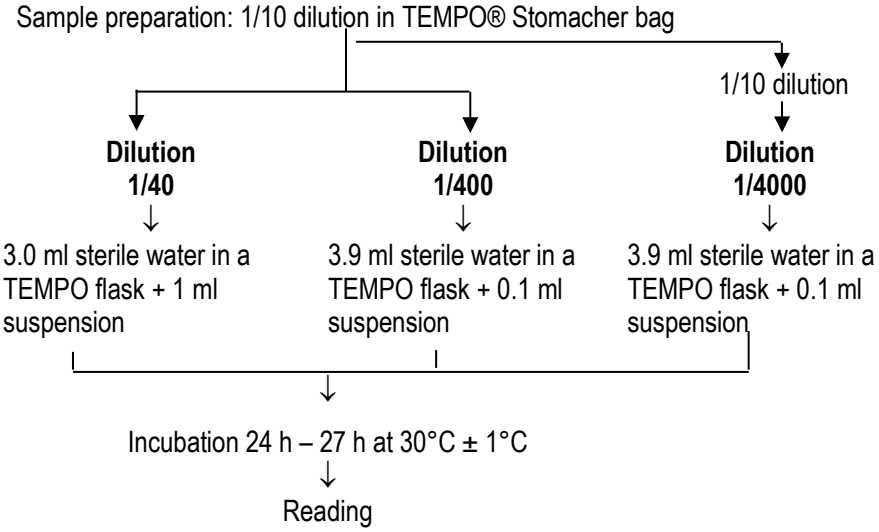
Astrid CARIOU
Manager
Method performance in food microbiology

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).

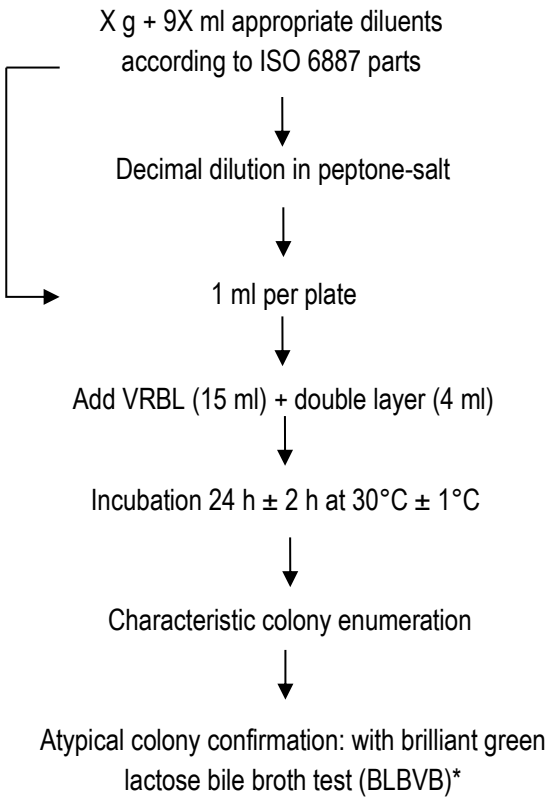
Appendix 1 - Flow diagram of the alternative method: TEMPO TC

Protocol



The 1/40 dilution allows 10 to 49 000 cfu/g enumeration.
The 1/400 dilution allows 100 to 490 000 cfu/g enumeration.
The 1/4000 dilution allows 1 000 to 4 900 000 cfu/g enumeration.

Appendix 2 - Flow diagram of the reference method: NF ISO 4832:2006: Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coliforms — Colony-count technique



*During the validation study: no atypical colonies were observed; consequently, no confirmation tests with BLBVB medium were performed

Appendix 3 – Artificial contaminations of samples

Year of analysis	Sample N°	Product	Inoculated strain	Origin	Injury applied	Injury evaluation	Category
2011	**2059**	**Chili con carné**	*Escherichia coli* 144	Paella	Seeding Heat treatment 15min 56°C	/	1
2011	**2061**	**Crab nem**	*Escherichia coli* 93	Ready to cook cod	Seeding Heat treatment 15min 56°C	/	1
2011	**2062**	**Cocktail pie**	*Escherichia coli* Ad 222	Egg product	Seeding Heat treatment 15min 56°C	/	1
2011	**2063**	**Cocktail pie**	*Escherichia coli* 142	Egg product	Seeding HT 56°C 10 min	/	1
2011	**2064**	**Strawberries pie**	*Escherichia coli* Ad 222	Egg product	Seeding HT 56°C 10 min	/	1
2011	**2065**	**Pork nem**	*Escherichia coli* 108	Ready to cook meal	Seeding HT 56°C 10 min	/	1
2011	**2066**	**Chinese ready to eat food**	*Escherichia coli* 108	Ready to cook meal	Seeding HT 56°C 15 min	/	1
2011	**2121**	**Salad (bulghur and vegetables)**	*Escherichia coli* 19	Sliced carrots	Seeding 4°C 8 days	/	1
2011	**2122**	**Sandwich (smoked salmon and chives)**	*Escherichia coli* 93	Ready to cook cod	Seeding 4°C 8 days	/	1
2011	**2123**	**Oriental tabbouleh**	*Escherichia coli* 108	Ready to cook meal	Seeding 4°C 8 days	/	1
2011	**2148**	**Cooked rice (tuna and basil)**	*Escherichia coli* 93	Ready to cook cod	Seeding HT 56°C 10 min	/	1
2011	**2149**	**Vegetable quiche**	*Escherichia coli* 93	Ready to cook cod	Seeding HT 56°C 10 min	/	1
2011	**2150**	**Pasta salad (Salmon and mayonnaise)**	*Escherichia coli* Ad 222	Egg product	Seeding HT 56°C 10 min	/	1
2011	**2151**	**Sandwich (ham and vegetables)**	*Escherichia coli* Ad 222	Egg product	Seeding 4°C 1 day	/	1
2011	**2183**	**Frozen links quiche**	*Escherichia coli* 142	Egg product	Seeding 6 days at -20°C	/	1
2011	**2363**	**Carrot celery salad**	*Escherichia coli* 19	Sausage	Seeding 7 days at 4°C	/	1

Year of analysis	Sample N°	Product	Inoculated strain	Origin	Injury applied	Injury evaluation	Category
2011	**2367**	**Frozen tomato and pepper pie**	*Escherichia coli* 142	Egg product	Seeding 7 days -20°C	/	1
2011	**2368**	**Ham, tomato and egg sandwich**	*Escherichia coli* 101	Pork	Seeding HT 56°C 10 min	/	1
2011	**2483**	**Salad (Piémontaise)**	*Escherichia coli* 108	Ready to eat meal	Seeding HT 56°C 10 min	/	1
2011	**2152**	**Smoked sausages**	*Escherichia coli* 21	Cured breast	Seeding HT 56°C 10 min	/	2
2011	**2153**	**Montbéliard sausage**	*Escherichia coli* 21	Cured breast	Seeding HT 56°C 10 min	/	2
2011	**2185**	**Sausages**	*Escherichia coli* 6	Sausage	6 days at 4°C	/	2
2011	**2369**	**Cooked ham**	*Escherichia coli* 101	Pork	Seeding HT 56°C 10 min	/	2
2011	**2370**	**Turkey cutley**	*Escherichia coli* Ad 218	Poultry	Seeding HT 56°C 10 min	/	2
2011	**2471**	**Chorizo**	*Escherichia coli* 1	Pork	Seeding HT 56°C 10 min	/	2
2011	**2472**	**Chorizo**	*Escherichia coli* 1	Pork	Seeding HT 56°C 10 min	/	2
2011	**2473**	**Garlic sausage**	*Escherichia coli* 1	Pork	Seeding HT 56°C 10 min	/	2
2011	**2474**	**White chicken meat**	*Escherichia coli* Ad 218	Poultry	Seeding HT 56°C 10 min	/	2
2011	**2477**	**Smoked bacon**	*Escherichia coli* 21	Pork	Seeding 7 days at 4°C	/	2
2011	**2478**	**Sliced bacon**	*Escherichia coli* 1	Pork	Seeding 7 days at 4°C	/	2
2011	**2479**	**Raw ham**	*Escherichia coli* 21	Pork	Seeding 7 days at 4°C	/	2
2011	**5100**	**Raw cow milk**	***Escherichia coli* 14**	**Raw milk**	Spiking 7 days at 4°C	0.5	3
2011	**5101**	**Raw cow milk**	***Escherichia coli* 94**	**Cheese**	Spiking 7 days at 4°C	0.5	3

Year of analysis	Sample N°	Product	Inoculated strain	Origin	Injury applied	Injury evaluation	Category
2011	**5102**	**Raw cow milk**	*Escherichia coli* E17	Raw milk	Spiking 7 days at 4°C	0.5	3
2011	**5103**	**Raw cow milk**	*Escherichia coli* 14	Raw milk	Spiking 7 days at 4°C	0.5	3
2011	**5104**	**Raw cow milk**	*Escherichia coli* 119	Raw milk	Spiking 7 days at 4°C	0.5	3
2011	**5105**	**Raw cow milk**	*Escherichia coli* 94	Cheese	Spiking 7 days at 4°C	0.5	3
2017	**8072**	**Dairy dessert**	Enterobacter aerogenes Ad2569	Cheese	Seeding 48h at 2-8°C	/	3
2017	**8073**	**Dairy dessert**	Enterobacter aerogenes Ad2569	Cheese	Seeding 48h at 2-8°C	/	3
2017	**8074**	**Custard**	Enterobacter aerogenes Ad2569	Cheese	Seeding 48h at 2-8°C	/	3
2017	**8075**	**Smoked trout**	*Citrobacter braakii* Ad2701	Squid	Seeding 48h at 2-8°C	/	4
2017	**8076**	**Smoked herring**	*Citrobacter braakii* Ad2701	Squid	Seeding 48h at 2-8°C	/	4
2017	**8267**	**Raw fish**	*Citrobacter braakii* Ad2701	Squid	Seeding 48h at 2-8°C	/	4
2011	**2058**	**Ratatouille**	*Escherichia coli* 19	Sliced carrots	Seeding HT 56°C 15 min	/	5
2011	**2060**	**Cooked sliced carrots**	*Escherichia coli* 144	Paella	Seeding HT 56°C 10 min	/	5
2011	**2120**	**Frozen ratatouille**	*Escherichia coli* 19	Sliced carrots	-20°C 8 days	/	5
2011	**2365**	**Mixed vegetables**	*Escherichia coli* 144	Paella	Seeding HT 56°C 10 min	/	5
2011	**2366**	**Mixed vegetables**	*Escherichia coli* 144	Paella	Seeding HT 56°C 10 min	/	5
2017	**8263**	**Dried carrots**	*Escherichia coli* 19	Grated carrots	Spiking HT 56°C 10 min	0.75	5
2017	**8264**	**Dried leeks**	*Escherichia coli* 19	Grated carrots	Spiking HT 56°C 10 min	0.75	5
2017	**8265**	**Dried carrots**	*Citrobacter freundii* 25	Spinach	Spiking HT 56°C 10 min	0.57	5
2017	**8077**	**Pellets for dog (beef, chicken, liver)**	*Escherichia fergusonii* 2876	Environmental sample	HT 56°C 8 min	1.28	6
2017	**8078**	**Pellets for dog (beef)**	*Escherichia fergusonii* 2876	Environmental sample	HT 56°C 8 min	1.28	6
2017	**8249**	**Pellets for dog (beef / vegetables)**	*Citrobacter koseri* Ad2731	Vegetables	HT 56°C 8 min	0.51	6

Year of analysis	Sample N°	Product	Inoculated strain	Origin	Injury applied	Injury evaluation	Category
2017	**8250**	**Pellets for dog (meats / vegetables / cereals)**	*Citrobacter koseri* Ad2731	Vegetables	HT 56°C 8 min	0.51	6
2017	**8251**	**Pellets for cat (liver / beef / chicken / cheese)**	*Escherichia fergusonii* 2876	Environmental sample	HT 56°C 8 min	0.53	6
2017	**8252**	**Pellets for dog (chicken / vegetables)**	*Citrobacter farmeri* Ad1116	Environmental sample	HT 56°C 8 min	0.47	6

Appendix 4 - Relative trueness study: raw data

COMPOSITE FOODS																
Year of analysis	N° Sample	Product (French name)	Product	Reference method: ISO 4832♦								Alternative method: TEMPO TC			Category	Type
				Dilution	Rep 1		Rep 2		Rep 1 - 2025			Rep 1 Result	Rep 2 Result	Rep 1 log CFU/g		
					CFU/plate a	CFU/ plate b	CFU /plate a	CFU/ plate b	CFU/g	CFU/g (rounded)	log CFU/g					
2005	490	Millefeuille chantilly	Pastry	10	3	4	2	7	30	30	1.48*	55 a	33 a	1.74	1	a
				100	0	0	0	0								
2005	491	Galette de blé noir	Buckwheat Crepe	1000	0	0	0	0	<1000	<1000	<0.03	<100 b	<100 b	<2.00	1	a
				10000	0	0	0	0								
2005	492	Galette de blé noir	Buckwheat Crepe	100000	>150	>150	>150	>150	>150000000	>150000000	>0.08	>4900000 c	>4900000 c	>6.69	1	a
				1000000	>150	>150	>150	>150								
2011	**2062**	**Tartelette cocktail**	**Cocktail pie**	10	34				382	380	2.58	400 a		2.60	1	a
				100	8											
2011	**2063**	**Tartelette cocktail**	**Cocktail pie**	100	31				3000	3000	3.48	3700 a		3.57	1	a
				1000	2											
2011	**2064**	**Tartelette fraise**	**Strawberries pie**	1000	35				33636	34000	4.53	49000 a		4.69	1	a
				10000	2											
2011	**2122**	**Sandwich saumon fumé ciboulette**	**Sandwich (smoked salmon and chives)**	1000	32				33636	34000	4.53	37000 a		4.57	1	a
				10000	5											
2011	**2151**	**Sandwich jambon œuf crudités**	**Sandwich (ham and vegetables)**	100	46				4636	4600	3.66	2600 a		3.41	1	a
				1000	5											
2005	488	Langue de bœuf sauce piquante	Beef tongue	100	68	57	70	69	7000	7000	3.85	2100 a	2900 a	3.32	1	b
				1000	9	7	8	15								
2005	503	Bouchée à la reine	Bouchée à la reine	10	58	53	50	31	591	590	2.77	460 a	360 a	2.66	1	b
				100	7	6	1	2								
2011	**2059**	**Chili con carné**	**Chili con carné**	10	>150				3000	3000	3.48	2700 a		3.43	1	b
				100	30											
2011	**2061**	**Nems au crabe**	**Crab nem**	10	110				1118	1100	3.04	580 a		2.76	1	b
				100	13											
2011	**2065**	**Nems au porc**	**Pork nem**	100	59				5636	5600	3.75	2400 a		3.38	1	b
				1000	3											
2011	**2066**	**Ravioli chinois au porc**	**Chinese ready to eat food**	10	92				936	940	2.97	360 a		2.56	1	b
				100	11											
2011	**2149**	**Quiche aux légumes**	**Vegetables quiche**	10	142				1391	1400	3.15	2100 a		3.32	1	b
				100	11											
2011	**2183**	**Quiche aux poireaux surgelée**	**Frozen links quiche**	1000	71				67273	67000	4.83	91000 b		4.96	1	b
				10000	3											
2011	**2367**	**Tarte tomate poivron surgelée**	**Frozen tomato and pepper pie**	1000	>150				270000	270000	5.43	190000 c		5.28	1	b
				10000	27											
2011	**2121**	**Salade boulghour légumes du soleil**	**Salad (boulghour and vegetables)**	100	91				9273	9300	3.97	11000 a		4.04	1	c
				1000	11											
2011	**2123**	**Taboulé à l'orientale**	**Oriental tabouleh**	10	13				145	150	2.18	32 a		1.51	1	c
				100	3											
2011	**2148**	**Riz à la provençale thon basilic**	**Cooked rize (tuna and basil)**	100	70				6636	6600	3.82	15000 a		4.18	1	c
				1000	3											
2011	**2150**	**Salade de pâtes saumon mayonnaise**	**Pasta salad (Salmon and matonnaise)**	10	127				1264	1300	3.11	690 a		2.84	1	c
				100	12											
2011	**2363**	**Salade carotte céleri**	**Carrots celery salad**	10	43				455	460	2.66	390 a		2.59	1	c
				100	7											

♦ Analyses performed according to the COFRAC accreditation (Accreditation Testing n°1-0144, scope available on www.cofrac.fr)

COMPOSITE FOODS																
Year of analysis	N° Sample	Product (French name)	Product	Reference method: ISO 4832♦								Alternative method: TEMPO TC			Category	Type
				Dilution	Rep 1		Rep 2		Rep 1 - 2025			Rep 1 Result	Rep 2 Result	Rep 1 log CFU/g		
					CFU/plate a	CFU/ plate b	CFU /plate a	CFU/ plate b	CFU/g	CFU/g (rounded)	log CFU/g					
2011	**2368**	**Sandwich jambon œuf tomate**	**Ham, tomato and egg sandwich**	10	>150				2600	2600	3.41	930 a		2.97	1	a
				100	26											
2011	**2483**	**Piémontaise au jambon**	**Salad (Piémontaise)**	100	101				10273	10000	4.00	25000 a		4.40	1	c
				1000	12											
2005	1549	Salade surimi carottes	Salad surimi carrots	10	11	12	15	7	109	110	2.04	110 a	89	2.04	1	c
				100	1	1	2	1								
2005	1556	Riz crabe carottes	Rice crab carrots	100	56	54	47	46	5727	5700	3.76	5300 a	6000	3.72	1	c
				1000	7	4	9	5								
2005	1557	Piémontaise	Salad (Piémontaise)	1000	26	25	24	28	26364	26000	4.41	15000 a	17000	4.18	1	c
				10000	3	0	1	2								
2005	1654	Piémontaise	Salad (Piémontaise)	10	15	15	17	13	136	140	2.15	10 a	45	1.00	1	c
				100	0	0	0	0								
2005	1659	Nems	Chinese rolls	10	>150	>150	>150	>150	1100	1100	3.04	57 a	120	1.76	1	b
				100	11	10	8	5								
2005	1666	Chili con carné (haricots)	Chilicon carne (beans)	100	19	18	11	19	1909	1900	3.28	140 a	120	2.15	1	b
				1000	2	2	2	2								
2005	1554	Feuilleté aux épinards	Puff pastry and spinach	10	44	53	45	52	455	460	2.66	570 a	830	2.76	1	b
				100	6	4	7	7								
2005	1655	Tarte tomates légumes	Tomatoes and vegetables pie	10	2	5	3	3	20	20	1.30*	45 a	44	1.65	1	b
				100	0	0	0	0								
2005	1656	Plat chinois carottes poivrons	Chinese food (carrots and pepper)	10000	136	134	170	138	1418182	1400000	6.15	1200000 b	1700000	6.08	1	b
				100000	20	12	16	14								
2005	1664	Feuilleté à la tomate	Puff pastry and tomato	10	36	30	44	44	345	350	2.54	360 a	560	2.56	1	b
				100	2	3	4	4								
2005	1668	Plat chinois à base de légumes	Chinese food (vegetables)	10000	>150	>150	>150	>150	10400000	10000000	7.00	300000 b	250000	5.48	1	b
				100000	104	114	116	137								

MEAT PRODUCTS																	
				Reference method: ISO 4832♦								Alternative method: TEMPO TC				
Year of analysis	N° Sample	Product (French name)	Product	Dilution	Rep 1		Rep 2		Rep 1 - 2025			Rep 1	Rep 2	Rep 1	Category	Type
					CFU/plate a	CFU/ plate b	CFU/ plate a	CFU/ plate b	CFU/g	CFU/g (rounded)	log CFU/g	Result	Result	log CFU/g		
2005	425	Blanc de poule sans peau	Poultry meat	10	24	19	25	17	236	240	2.38	86 a	130 a	1.93	2	a
				100	2	1	4	1								
2005	426	VSM	Mechanically separated meat	10	115	111	113	93	1164	1200	3.08	500 a	430 a	2.70	2	a
				100	13	7	12	7								
2005	427	Blanc de poule sans peau	Poultry meat	100	>150	>150	>150	>150	40000	40000	4.60	15000 a	8200 a	4.18	2	a
				1000	40	46	30	37								
2005	428	Blanc de poule	Poultry meat	100	15	30	23	22	1636	1600	3.20	330 a	530 a	2.52	2	a
				1000	3	5	3	1								
2005	494	Pilon de poulet	Poultry meat	100	ND				ND	ND	ND	490000 b	490000 b	5.69	2	a
				1000												
2005	495	Cuisse de poulet	Poultry meat	10	ND				ND	ND	ND	49000 a	49000 a	4.69	2	a
				100												
2005	496	Filet de canard	Duck meat	10	>150	>150	>150	>150	>15000	>15000	>0.04	37000 a	21000 a	4.57	2	a
				100	>150	>150	>150	>150								
2005	1913	Viande d'échine de dinde broyée	Ground turkey meat	1000	illisible				110000	110000	5.04	49000 a		4.69	2	a
				10000	11											
2005	1915	Carcasse de dinde	Turkey carcass	1000	30				30909	31000	4.49	21000 a		4.32	2	a
				10000	4											
2005	1916	Viande rouge de dinde dénervée	Turkey red meat	100	13				1273	1300	3.11	1600 a		3.20	2	a
				1000	1											
2005	1917	VSM de poulet	Chicken mechanically deboned meat	1000	>150				400000	400000	5.60	46000 a		4.66	2	a
				10000	40											
2005	1918	Cornet de porc	Pork meat	100	101				10182	10000	4.00	15000 a		4.18	2	a
				1000	11											
2005	1919	PV 3 mm Porc	Pork meat	1000	89				90000	90000	4.95	110000 b		5.04	2	a
				10000	10											
2011	**2370**	**Escalope de dinde**	**Turkey cutley**	10	109				1155	1200	3.08	2300 a		3.36	2	a
				100	18											
2011	**2474**	**Blanc de poulet**	**White chicken meat**	1000	>150				700000	700000	5.85	910000 c		5.96	2	a
				10000	70											
2005	424	Chipolatas aux herbes	Sausage with herbs	10	37	53	40	46	418	420	2.62	210 a	210 a	2.32	2	b
				100	9	7	3	2								
2005	429	Saucisses	Sausages	100	44	33	34	45	4182	4200	3.62	1700 a	2000 a	3.23	2	b
				1000	2	3	1	2								
2005	501	Saucisses de Francfort	Sausages	10	3	3	3	5	30	30	1.48*	21 a	10 a	1.32	2	b
				100	0	0	0	0								
2005	1865	Chipolatas surgelées	Frozen sausages	10	15				145	150	2.18	120 a		2.08	2	b
				100	1											
2005	1866	Brochette de dinde	Turkey skewer	1000	>150				1210000	1200000	6.08	150000 b		5.18	2	b
				10000	121											
2005	1867	Brochette de dinde colombo	Columbo turkey skewer	10	>150				>15000	>15000	>0.04	21000 a		4.32	2	b
				100	>150											
2005	1868	Viande d'épaule de dinde saumurée	Cured turkey meat	100	67				7000	7000	3.85	11000 a		4.04	2	b
				1000	10											
2005	1869	Chipolatas	Sausages	100	20				2182	2200	3.34	1200 a		3.08	2	b
				1000	4											

♦ Analyses performed according to the COFRAC accreditation (Accreditation Testing n°1-0144, scope available on www.cofrac.fr)

MEAT PRODUCTS																
				Reference method: ISO 4832◆								Alternative method: TEMPO TC				
					Rep 1		Rep 2		Rep 1 - 2025			Rep 1	Rep 2	Rep 1		
Year of analysis	N° Sample	Product (French name)	Product	Dilution	CFU/plate a	CFU/ plate b	CFU/ plate a	CFU/ plate b	CFU/g	CFU/g (rounded)	log CFU/g	Result	Result	log CFU/g	Category	Type
2005	1870	Chipolatas	Sausages	100	16				1545	1500	3.18	1100 a		3.04	2	b
				1000	1											
2005	1871	Saucisse fumée	Smoked sausage	100	17				1818	1800	3.26	1200 a		3.08	2	b
				1000	3											
2005	1911	Paupiette bardée	Meat balls	10	111				1091	1100	3.04	710 a		2.85	2	b
				100	9											
2005	1912	Paupiette bardée	Meat balls	10	111				1191	1200	3.08	770 a		2.89	2	b
				100	20											
2011	**2152**	**Saucisses fumées bio**	**Smoked sausages**	10	63				636	640	2.81	280 a		2.45	2	b
				100	7											
2011	**2153**	**Saucisses de Montbéliard fumées au bois de hêtre**	**Montbéliard sausage**	100	42				4000	4000	3.60	5500 a		3.74	2	b
				1000	2											
2011	**2185**	**Saucisses natures**	**Sausages**	100	48				4818	4800	3.68	2700 a		3.43	2	b
				1000	5											
2011	**2478**	**Poitrine fumée tranches fines**	**Sliced bacon**	100	>150				15000	15000	4.18	37000 a		4.57	2	b
				1000	15											
2005	430	Jambon sec italien	Dried ham	10	1	0	1	0	10	10	1.00*	<10 a	10 a	<1.00	2	c
				100	0	0	0	0								
2005	431	Jambon de Bayonne	Dried ham	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	2	c
				100	0	0	0	0								
2005	432	Viande des Grisons	Dried beef meat ("viande des grisons)	10	1	1	1	0	10	10	1.00*	10 a	<10 a	1.00	2	c
				100	0	0	0	0								
2005	433	Assortiment campagnard	Delicatessen	10	0	1	0	1	<10	<10	<0.01	21 a	<10 a	1.32	2	c
				100	0	0	0	0								
2005	504	Mousse de canard	Duck pâté	1000	>150	>150	>150	>150	>150000	>150000	>0.05	>490000 b	>490000 b	>5.69	2	c
2005	505	Jambon cuit	Ham	100	29	35	37	44	2909	2900	3.46	220 a	300 a	2.34	2	c
				1000	3	1	3	3								
2011	**2369**	**Jambon cuit à la broche**	**Cooked ham**	10	9				100	100	2.00	180 a		2.26	2	c
				100	2						Ne					
2011	**2471**	**Chorizo**	**Chorizo**	100	37				3545	3500	3.54	1700 a		3.23	2	c
				1000	2											
2011	**2472**	**Chorizo**	**Chorizo**	100	23				2545	2500	3.40	2400 a		3.38	2	c
				1000	5											
2011	**2473**	**Saucisson à l'ail**	**Garlic sausage**	100	77				7636	7600	3.88	6800 a		3.83	2	c
				1000	7											
2011	**2477**	**Filets de bacon fumé**	**Smoked bacon**	100	28				2727	2700	3.43	5500 a		3.74	2	c
				1000	2											
2011	**2479**	**Jambon cru**	**Raw ham**	1000	41				39091	39000	4.59	91000 b		4.96	2	c
				10000	2											

DAIRY PRODUCTS																
				Reference method: ISO 4832♦								Alternative method : TEMPO TC				
					Rep 1		Rep 2		Rep 1 - 2025			Rep 1	Rep 2	Rep 1		
Year of analysis	N° Sample	Product (French name)	Product	Dilution	CFU/ plate a	CFU/ plate b	CFU/ plate a	CFU/ plate b	CFU/g	CFU/g (rounded)	log CFU/g	Result	Result	log CFU/g	Category	Type
2011	4714	Lait cru de vache	Raw cow milk	1000	>150	126	145	158	210000	210000	5.32	>490000 b	>490000 b	>5.69	3	a
				10000	21	21	8	23								
2011	4715	Lait cru de vache	Raw cow milk	100	19	13	18	23	1727	1700	3.23	6000 a	12000 a	3.78	3	a
				1000	0	0	0	1								
2011	4716	Lait cru de vache	Raw cow milk	10	0	2	1	3	<10	<10	<0.01	<10 a	21 a	<1.00	3	a
				100	0	0	0	0								
2011	4717	Lait cru de vache	Raw cow milk	10	21	20	26	19	209	210	2.32	140 a	260 a	2.15	3	a
				100	2	1	1	0								
2011	4912	Lait cru de vache	Raw cow milk	10	28	21	20	14	273	270	2.43	1500 a	2100 a	3.18	3	a
				100	2	1	12	7								
2011	4913	Lait cru de vache	Raw cow milk	1000	0	0	0	0	<1000	<1000	<0.03	21 a	21 a	1.32	3	a
				10000	0	0	0	0								
2011	4914	Lait cru de vache	Raw cow milk	1000	0	0	0	0	<1000	<1000	<0.03	21 a	<10 a	1.32	3	a
				10000	0	0	0	0								
2011	5054	Lait cru de vache	Raw cow milk	100	47	46	42	47	4727	4700	3.67	3600 a	3000 a	3.56	3	a
				1000	5	5	6	4								
2011	5055	Lait cru de vache	Raw cow milk	10	41	52	37	42	418	420	2.62	250 a	330 a	2.40	3	a
				100	5	7	11	1								
2011	5056	Lait cru de vache	Raw cow milk	10	0	4	0	3	<10	<10	<0.01	<10 a	10 a	<1.00	3	a
				100	0	0	0	0								
2011	**5100**	**Lait cru de vache**	**Raw cow milk**	100	>150	>150	>150	>150	>150000	>150000	>0.05	300000 b	300000 b	5.48	3	a
				1000	>150	>150	>150	>150								
2011	**5101**	**Lait cru de vache**	**Raw cow milk**	100	>150	>150	>150	>150	>150000	>150000	>0.05	370000 b	370000 b	5.57	3	a
				1000	>150	>150	>150	>150								
2011	**5102**	**Lait cru de vache**	**Raw cow milk**	100	>150	>150	>150	>150	>150000	>150000	>0.05	>490000 b	370000 b	>5.69	3	a
				1000	>150	>150	>150	>150								
2011	**5103**	**Lait cru de vache**	**Raw cow milk**	100	35	43	42	33	3455	3500	3.54	5500 a	3400 a	3.74	3	a
				1000	3	4	4	4								
2011	**5104**	**Lait cru de vache**	**Raw cow milk**	100	39	29	35	30	3727	3700	3.57	2700 a	2900 a	3.43	3	a
				1000	2	2	1	5								
2011	**5105**	**Lait cru de vache**	**Raw cow milk**	100	20	22	19	8	1909	1900	3.28	1900 a	1500 a	3.28	3	a
				1000	1	1	1	1								
2011	5112	Lait cru de chèvre	Raw goat milk	100	10	4	4	3	1000	1000	3.00	360 a	390 a	2.56	3	a
				1000	1	1	0	0								
2011	5113	Lait cru de chèvre	Raw goat milk	100	52	60	73	55	5000	5000	3.70	4800 a	7800 a	3.68	3	a
				1000	3	5	5	10								
2011	5114	Lait cru de chèvre	Raw goat milk	100	0	0	0	0	<100	<100	<0.02	10 a	33 a	1.00	3	a
				1000	0	0	0	0								
2005	489	Beurre	Butter	1	1	0	1	0	1	1	0.00*	<1(1/4)	<1(1/4)	<0.00	3	b
				10	0	0	0	0								
2005	502	Emmental râpé	Grated cheese	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	3	b
				100	0	0	0	0								
2005	911	Fromage frais	Fresh cheese	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	3	b
				100	0	0	0	0								
2005	912	Tartare fromage	Cheese	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	3	b
				100	0	0	0	0								

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DAIRY PRODUCTS																
Year of analysis	N° Sample	Product (French name)	Product	Reference method: ISO 4832◆									Alternative method : TEMPO TC			Category	Type
				Dilution	Rep 1		Rep 2		Rep 1 - 2025				Rep 1	Rep 2	Rep 1		
					CFU/ plate a	CFU/ plate b	CFU/ plate a	CFU/ plate b	CFU/g	CFU/g (rounded)	log CFU/g		Result	Result	log CFU/g		
2005	980	Fromage frais persil	Fresh cheese with parsley	10	34	50	38	31	336	340	2.53		160 a	190 a	2.20	3	b
				100	3	6	4	6									
2005	983	Fromage Sveltesse ciboulette	Fresh cheese with chives	10	16	17	28	37	164	160	2.20		71 a	83 a	1.85	3	b
				100	2	4	4	0									
2005	1125	Lait Ribot	Fermented milk	10	20	39	38	20	200	200	2.30		630 a	570 a	2.80	3	b
				100	2	5	3	5									
2005	1126	Lait Ribot	Fermented milk	10	0	0	0	0	<10	<10	<0.01		<10 a	<10 a	<1.00	3	b
				100	0	0	0	0									
2005	1127	Lait Ribot	Fermented milk	10	0	0	0	0	<10	<10	<0.01		<10 a	<10 a	<1.00	3	b
				100	0	0	0	0									
2005	1128	Crottin de chèvre	Goat milk cheese	1000	178	187	206	188	260000	260000	5.41		210000 b	300000 b	5.32	3	b
				10000	26	31	16	26									
2005	1129	Crottin de chèvre	Goat milk cheese	100	152	147	172	157	17000	17000	4.23		17000 a	21000 a	4.23	3	b
				1000	17	22	24	23									
2005	1134	Crottin de Chavignol	Goat milk cheese	100	69	55	117	74	6636	6600	3.82		5500 a	11000 a	3.74	3	b
				1000	4	4	7	3									
2005	1135	Cantal	cow milk cheese	10	202	190	179	171	1300	1300	3.11		530 a	1000 a	2.72	3	b
				100	13	14	23	15									
2005	1136	Fromage de chèvre	Goat milk cheese	10	0	0	0	0	<10	<10	<0.01		<10 a	<10 a	<1.00	3	b
				100	0	0	0	0									
2005	1139	Lait Ribot	Fermented milk	10	0	1	1	2	<10	<10	<0.01		<10 a	<10 a	<1.00	3	b
				100	0	0	0	0									
2005	1140	Lait Ribot	Fermented milk	10	1	0	1	1	10	10	1.00*		<10 a	44 a	<1.00	3	b
				100	0	0	0	0									
2005	907	Glace poire	Pear ice cream	10	0	0	0	0	<10	<10	<0.01		<10 a	<10 a	<1.00	3	c
				100	0	0	0	0									
2005	908	Glace cassis	Blackcurrant ice cream	10	0	0	0	0	<10	<10	<0.01		<10 a	33 a	<1	3	c
				100	0	0	0	0									
2005	909	Glace fraise	Strawberry ice cream	10	0	0	0	0	<10	<10	<0.01		<10 a	<10 a	<1.00	3	c
				100	0	0	0	0									
2005	910	Glace Tiramisu	Tiramisu ice cream	10	0	0	0	0	<10	<10	<0.01		<10 a	<10 a	<1.00	3	c
				100	0	0	0	0									
2005	984	Glace fraise	Strawberry ice cream	10	0	0	0	0	<10	<10	<0.01		<10 a	<10 a	<1.00	3	c
				100	0	0	0	0									
2005	985	Glace cassis	Blackcurrant ice cream	10	0	0	0	0	<10	<10	<0.01		<100 b	0 b	<2.00	3	c
				100	0	0	0	0									
2005	1173	Glace à la fraise*	Strawberry ice cream	10000	>150	>150	>150	>150	>15000000	>15000000	>0.07		>490000 b	>490000 b	>5.69	3	c
				100000	>150	>150	>150	>150									
2005	1174	Glace vanille*	Vanilla ice cream	10000	>150	>150	>150	>150	11300000	11000000	7.04		>490000 b	>490000 b	>5.69	3	c
				100000	113	116	140	128									
2005	1218	Glace vanille*	Vanilla ice cream	10	37	49	40	46	370	370	2.57		4700 a	3000 a	3.67	3	c
				100	15	16	14	17									
2005	1219	Glace à la fraise*	Strawberry ice cream	100	87	103	95	94	8818	8800	3.94		12000 a	11000 a	4.08	3	c
				1000	10	8	11	7									
2017	6420	Riz au lait	Dairy dessert	100	69				6636	6600	3.82		7300 a		3.86	3	c
				1000	4												
2017	**8072**	**Riz au lait**	**Dairy dessert**	10	4				36	36	1.56		33 a		1.52	3	c
				100	0						Ne						

DAIRY PRODUCTS																
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				Dilution	Rep 1		Rep 2		Rep 1 - 2025			Rep 1	Rep 2	Rep 1		
					CFU/ plate a	CFU/ plate b	CFU/ plate a	CFU/ plate b	CFU/g	CFU/g (rounded)	log CFU/g	Result	Result	log CFU/g		
2017	**8073**	**Panna cotta**	**Dairy dessert**	10	34				318	320	2.51	240 a		2.38	3	c
				100	1											
2017	**8074**	**Crème anglaise**	**Custard**	1000	37				36364	36000	4.56	49000 a		4.69	3	c
				10000	3											

SEAFOOD																
Year of analysis	N° Sample	Product (French name)	Product	Reference method: ISO 4832♦								Alternative method : TEMPO TC			Category	Type
				Dilution	Rep 1		Rep 2		Rep 1 - 2025			Rep 1	Rep 2	Rep 1		
					CFU/ plate a	CFU/ plate b	CFU/ plate a	CFU/ plate b	CFU/g	CFU/g (rounded)	log CFU/g	Result	Result	log CFU/g		
2005	585	Pulpe de saumon surgelée	Frozen salmon	10	58	87	22	30	545	550	2.74	57 a	73 a	1.76	4	a
				100	2	4	1	0								
2005	849	Filet de sabre	Fish fillet	100	76	100	74	81	7273	7300	3.86	5300 a	6000 a	3.72	4	a
				1000	4	14	7	4								
2005	850	Filet de Merlan	Fish fillet	10	4	12	9	11	45	45	1.65	86 a	71 a	1.93	4	a
				100	1	1	2	2			Ne					
2005	851	Filet Eglefin	Fish fillet	10	92	72	129	114	936	940	2.97	170 a	160 a	2.23	4	a
				100	11	14	6	9								
2017	**8267**	**Colin Alaska**	**Raw fish**	100	70				7000	7000	3.85	30000 a		4.48	4	a
				1000	7											
2017	8268	Saumon	Raw salmon	10	0				<10	<10	<0.01	21 a		1.32	4	a
				100	0											
2005	847	Saumon fumé	Smoked salmon	10	1	1	1	0	10	10	1.00*	<10 a	<10 a	<1	4	b
				100	0	0	0	0								
2005	848	Truite fumée	Smoked trout	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1	4	b
				100	0	0	0	0								
2005	914	Harengs fumés	Smoked herring	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1	4	b
				100	0	0	0	0								
2005	915	Maquereaux fumés	Smoked mackerel	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1	4	b
				100	0	0	0	0								
2005	996	Thon mariné	Marinated tuna	100	98	88	105	112	10273	10000	4.00	11000 a	7800 a	4.04	4	b
				1000	15	13	11	11								
2005	997	Lieu noir mariné	Marinated fish	100	80	114	95	84	7636	7600	3.88	7400 a	4800 a	3.87	4	b
				1000	4	11	4	10								
2005	998	Filet de Julienne mariné	Marinated fish	1000	21	39	35	43	20909	21000	4.32	13000 b	18000 b	4.11	4	b
				10000	2	3	1	2								
2017	7419	Truite fumée	Smoked trout	10	4				36	36	1.56	86 a		1.93	4	b
				100	0						Ne					
2017	**8075**	**Truite fumée**	**Smoked trout**	10	72				736	740	2.87	830 a		2.92	4	b
				100	9											
2017	**8076**	**Harengs fumés**	**Smoked herring**	10	18				180	180	2.26	150 a		2.18	4	b
				100	7											
2005	434	Brandade de morue	Cod brandade	10	3	2	3	6	30	30	1.48*	33 a	110 a	1.52	4	c
				100	0	0	0	0								
2005	497	Thon cuit	Cooked tuna	10	2	5	5	1	20	20	1.30*	21 a	32 a	1.32	4	c
				100	0	0	0	0								
2005	498	Thon cuit	Cooked tuna	10	0	1	0	0	<10	<10	<0.01	10 a	<10 a	1.00	4	c
				100	0	0	0	0								
2005	507	Beignets de poisson	Ready to reheat fish	10	30	29	25	41	309	310	2.49	86 a	160 a	1.93	4	c
				100	4	3	2	4								
2005	508	Beignets de poisson	Ready to reheat fish	10	22	21	18	18	227	230	2.36	86 a	45 a	1.93	4	c
				100	3	3	8	2								
2005	509	Plat préparé au poisson	Ready to reheat fish	100	47	46	30	45	4636	4600	3.66	100 b	100 b	2.00	4	c
				1000	4	5	1	2								
2005	510	Plat préparé au poisson	Ready to reheat fish	100	>150	>150	>150	>150	103000	100000	5.00	110000 b	100000 b	5.04	4	c
				1000	103	124	103	102								

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SEAFOOD																	
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				Dilution	Rep 1		Rep 2		Rep 1 - 2025				Rep 1	Rep 2	Rep 1		
					CFU/ plate a	CFU/ plate b	CFU/ plate a	CFU/ plate b	CFU/g	CFU/g (rounded)	log CFU/g		Result	Result	log CFU/g		
2005	511	Plat préparé au poisson	Ready to reheat fish	100	>150	>150	>150	>150	41000	41000	4.61		31000 b	40000 b	4.49	4	c
				1000	41	48	69	63									

VEGETABLES AND FRUITS															
Year of analysis	N° Sample	Product (French name)	Product	Reference method: ISO 4832♦								Alternative method: TEMPO TC			Category	Type
				Dilution	Rep 1		Rep 2		Rep 1 - 2025			Rep 1	Rep 2	Rep 1		
					CFU/plate a	CFU/plate b	CFU/plate a	CFU/plate b	CFU/g	CFU/g (rounded)	log CFU/g	Result	Result	log CFU/g		
2005	506	Carottes râpées	Grated carrots	10	14	20	20	18	127	130	2.11	640 a	2200 a	2.81	5	a
				100	0	0	0	0								
2005	716	Carottes râpées	Grated carrots	10000	>150	>150	>150	>150	4600000	4600000	6.66	>4900000 c	>4900000 c	>6.69	5	a
				100000	46	28	64	43								
2005	717	Salade bouquet	Salad	10000	55	80	46	30	563636	560000	5.75	120000 b	370000 b	5.08	5	a
				100000	7	1	1	1								
2005	718	Chou rouge	Red cabbage	100000	>150	>>150	>>150	>>150	>15000000	>15000000	>0.07	>4900000 c	>4900000 c	>6.69	5	a
2005	720	Chou blanc	White cabbage	100	136	141	71	132	13600	14000	4.15	4300 a	6000 a	3.63	5	a
				1000	/	/	24	26								
2005	854	Mélange crudités	Mixed vegetables	100000	92	131	112	124	9181818	9200000	6.96	>490000 c	>490000 c	>5.69	5	a
				1000000	9	7	13	10								
2005	1130	Betteraves rouges	Beet	10000	113	161	142	150	1136364	1100000	6.04	60000 a	68000 a	4.78	5	a
				100000	12	19	12	13								
2005	1550	Terrine aux épinards	Spinach terrine	100	66	88	63	55	6909	6900	3.84	7800 a	6000 a	3.89	5	a
				1000	10	6	7	8								
2005	1551	Terrine carottes oignons	Carrot onion terrine	100	114	65	68	71	11545	12000	4.08	7800 a	6800 a	3.89	5	a
				1000	13	17	20	19								
2005	1552	Terrine aux courgettes	Zucchini terrine	10000	25	26	22	40	245455	250000	5.40	340000 b	480000 b	5.53	5	a
				100000	2	2	4	3								
2005	1553	Terrine aux carottes	Carrot terrine	100	>150	>150	>150	>150	26000	26000	4.41	15000 a	17000 a	4.18	5	a
				1000	26	29	26	20								
2005	1658	Carottes et poivrons au gingembre	Carrot and onion with ginger	10000	>150	>150	>150	>150	2800000	2800000	6.45	210000 b	370000 b	5.32	5	a
				100000	28	28	30	31								
2005	1660	Terrine aux épinards	Spinach terrine	10000	70	78	83	66	718182	720000	5.86	370000 b	370000 b	5.57	5	a
				100000	9	8	10	9								
2005	1661	Terrine courgette carottes	Carrot zucchini terrine	10000	78	54	72	75	754545	750000	5.88	490000 b	370000 b	5.69	5	a
				100000	5	2	9	11								
2005	1662	Terrine aux carottes	Carrot terrine	10000	>150	>150	>150	>150	2800000	2800000	6.45	4900000 c	3000000 c	6.69	5	a
				100000	28	34	31	40								
2005	1663	Terrine aux carottes	Carrot terrine	100	>150	>150	>150	>150	31000	31000	4.49	9100 a	21000 a	3.96	5	a
				1000	31	40	35	32								
2005	1665	Terrine tomate carottes	Carrot tomato terrine	10	56	51	31	64	555	560	2.75	21 a	44 a	1.32	5	a
				100	5	6	4	8								
2005	422	Poivrons verts surgelés	Frozen green pepper	10	71	56	63	73	709	710	2.85	250 a	240 a	2.40	5	b
				100	7	7	6	4								
2005	423	Cubes de tomates surgelés	Frozen tomatoes	10000	72	73	74	64	781818	780000	5.89	2400 a	1900 a	3.38	5	b
				100000	14	6	6	9								
2005	748	Purée de carottes	Carrot purée	100000	>150	>>150	>>150	>>150	>15000000	>15000000	>0.07	>4900000 c	>4900000 c	>6.69	5	b
2005	1131	Navets	Turnip	10	0	0	0	0	<10	<10	<0.01	<100 b	<100 b	<2.00	5	b
				100	0	0	0	0								
2005	1132	Petits pois surgelés	Frozen peas	100	58	66	45	54	5909	5900	3.77	300 a	160 a	2.48	5	b
				1000	7	3	3	2								
2005	1133	Epinards hachés surgelés	Frozen spinach	10	149	188	165	172	1482	1500	3.18	440 a	71 a	2.64	5	b
				100	14	14	17	17								

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VEGETABLES AND FRUITS																
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				Dilution	Rep 1		Rep 2		Rep 1 - 2025			Rep 1	Rep 2	Rep 1		
					CFU/plate a	CFU/plate b	CFU/plate a	CFU/plate b	CFU/g	CFU/g (rounded)	log CFU/g	Result	Result	log CFU/g		
2011	**2058**	**Ratatouille**	**Ratatouille**	10	15				145	150	2.18	140 a		2.15	5	b
				100	1											
2011	**2060**	**Carottes en lamelles cuites**	**Cooked sliced carrots**	10	42				436	440	2.64	930 a		2.97	5	b
				100	6											
2011	**2120**	**Ratatouille surgelée**	**Frozen ratatouille**	10	42				418	420	2.62	400 a		2.60	5	b
				100	4											
2011	**2365**	**Macédoine de légumes**	**Mixed vegetables**	10	14				127	130	2.11	210 a		2.32	5	b
				100	0											
2011	**2366**	**Macédoine de légumes**	**Mixed vegetables**	100	>150				37000	37000	4.57	12000 a		4.08	5	b
				1000	37											
2005	1555	Ratatouille	Ratatouille	100	50	54	67	74	5364	5400	3.73	370000 b	250000 b	5.57	5	b
				1000	9	8	7	10								
2005	499	Cèpes déshydratés	Dried mushrooms	10	0	0	0	0	<10	<10	<0.01	<100 b	<100 b	<2.00	5	c
				100	0	0	0	0								
2005	500	Bolets déshydratés	Dried mushrooms	100	>150	>150	>150	>150	93000	93000	4.97	170000 b	170000 b	5.23	5	c
				1000	93	98	91	98								
2005	855	Oignons déshydratés	Dried onions	10	0	0	0	0	<10	<10	<0.01	<100 b	<100 b	<2.00	5	c
				100	0	0	0	0								
2005	856	Echalotte poudre	Shallot powder	10	11	17	32	30	127	130	2.11	580 a	330 a	2.76	5	c
				100	3	8	4	2								
2005	857	Ail poudre	Garlic powder	10	3	1	1	2	30	30	1.48*	210 b	<10 a	2.32	5	c
				100	0	0	0	0								
2005	999	Poivre 5 baies	Black pepper	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	5	c
				100	0	0	0	0								
2005	1000	Cannelle	Cinnamon	10	0	0	0	0	<10	<10	<0.01	>4900 a	15000 a	>3.69	5	c
				100	0	0	0	0								
2005	1001	Banane sèche	Dried banana	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	5	c
				100	0	0	0	0								
2005	1667	Champignons noirs	Black mushrooms	1000	>150	>150	>150	>150	>1500000	>1500000	>0.06	37000 a	30000 a	4.57	5	c
				10000	>150	>150	>150	>150								
2017	**8263**	**Carottes déshydratées**	**Dried carrots**	10	6				55	55	1.74	360 a		2.56	5	c
				100	0						Ne					
2017	**8264**	**Poireaux déshydratés**	**Dried leeks**	10	62				645	650	2.81	49000 a		4.69	5	c
				100	9											
2017	**8265**	**Carottes déshydratées**	**Dried carrots**	100	30				2909	2900	3.46	2100 a		3.32	5	c
				1000	2											

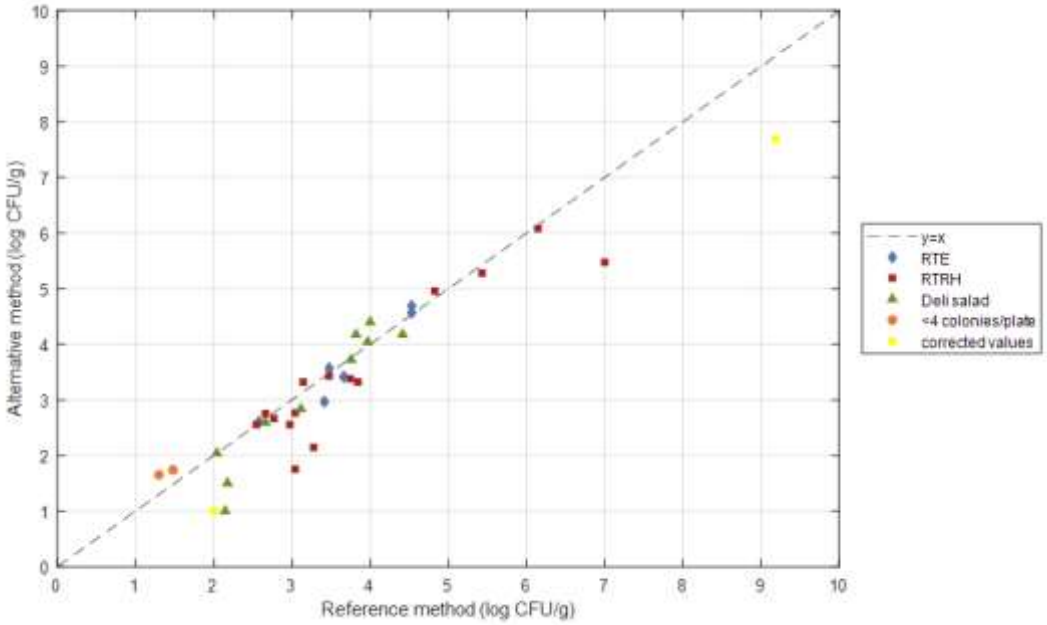
PET FOODS																
Year of analysis	N° Sample	Product (French name)	Product	Reference method: ISO 4832♦								Alternative method : TEMPO TC			Category	Type
				Dilution	Rep 1		Rep 2		Rep 1 - 2025			Rep 1	Rep 2	Rep 1		
					CFU/ plate a	CFU/ plate b	CFU/ plate a	CFU/ plate b	CFU/g	CFU/g (rounded)	log CFU/g	Result	Result	log CFU/g		
2005	723	Viande crue pour animaux	Raw meat for animal	10000	15	13	12	12	154545	150000	5.18	61000 b	210000 b	4.79	6	a
				100000	2	1	3	3								
2005	852	Viande crue pour animaux	Raw meat for animal	10000	24	25	24	32	227273	230000	5.36	71000 b	29000 b	4.85	6	a
				100000	1	6	2	1								
2005	913	Viande crue pour animaux	Raw meat for animal	10000	5	11	7	7	45455	45000	4.65	91000 b	37000 b	4.96	6	a
				100000	0	0	0	0			Ne					
2017	6421	Viande bovine pour animaux	Raw meat for animal	100	68				6909	6900	3.84	4400		3.64	6	a
				1000	8											
2017	6422	Viande bovine pour animaux	Raw meat for animal	100	26				2636	2600	3.41	1000		3.00	6	a
				1000	3											
2005	529	Saucisson pour chien	Sausage for dog	10	77	114	?	115	818	820	2.91	1100 a	1500 a	3.04	6	b
				100	13	18	10	9								
2005	721	Saucisson pour chien	Sausage for dog	10	5	0	4	4	45	45	1.65	10 a	21 a	1.00	6	b
				100	0	0	0	0			Ne					
2005	722	Saucisson pour chiots	Sausage for dog	10	43	52	50	49	436	440	2.64	330 a	480 a	2.52	6	b
				100	5	8	7	8								
2005	1122	Bouchées pour chien	Dog food	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	6	b
				100	0	0	0	0								
2005	1124	Saucisson volaille pour chat	Sausage for cat	1000	0	0	0	0	<1000	<1000	<0.03	<10 a	<10 a	<1.00	6	b
				10000	0	0	0	0								
2005	1137	Aliment pour chien	Dog food	10	225	217	213	205	1800	1800	3.26	3400 a	2900 a	3.53	6	b
				100	18	18	19	21								
2005	1138	Saucisson pour chien	Sausage for dog	10	37	31	29	35	345	350	2.54	220 a	300 a	2.34	6	b
				100	1	5	6	3								
2005	858	Croquettes chatons	Pellets for cat	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	6	c
				100	0	0	0	0								
2005	916	Croquettes pour chat	Pellets for cat	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	6	c
				100	0	0	0	0								
2005	917	Croquettes pour chat	Pellets for cat	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	6	c
				100	0	0	0	0								
2005	918	Croquettes chatons poisson	Pellets for cat	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	6	c
				100	0	0	0	0								
2005	986	Croquettes chatons	Pellets for cat	10	1	1	1	0	10	10	1.00*	10 a	<10 a	1.00	6	c
				100	0	0	0	0								
2005	987	Croquettes friskies	Pellets	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	6	c
				100	0	0	0	0								
2005	988	Croquettes poulet	Pellets	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	6	c
				100	0	0	0	0								
2005	1123	Aliment pour poissons rouges	Goldfish food	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	6	c
				100	0	0	0	0								
2005	1175	Croquettes au bœuf	Pellets	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	6	c
				100	0	0	0	0								
2005	1176	Croquettes chaton	Pellets for cat	10	0	0	0	0	<10	<10	<0.01	<10 a	<10 a	<1.00	6	c
				100	0	0	0	0								
2005	1222	Croquettes au poulet*	Pellets	10	4	5	12	6	45	45	1.65	32 a	160 a	1.51	6	c
				100	1	0	1	0			Ne					

♦ Analyses performed according to the COFRAC accreditation (Accreditation Testing n°1-0144, scope available on www.cofrac.fr)

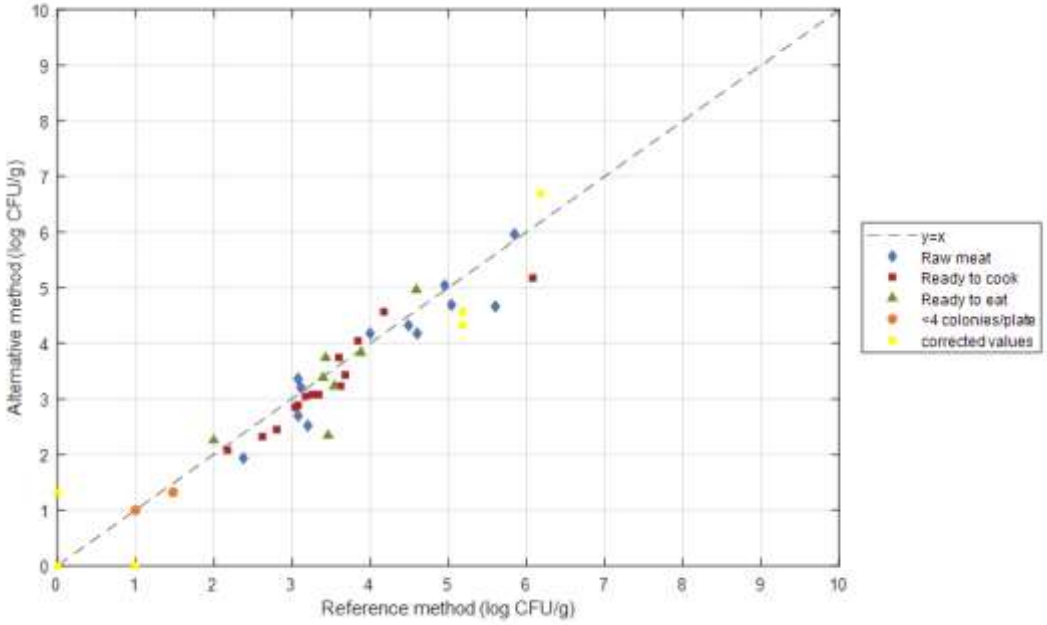
PET FOODS																
Year of analysis	N° Sample	Product (French name)	Product	Reference method: ISO 4832♦									Alternative method : TEMPO TC			Category	Type
				Dilution	Rep 1		Rep 2		Rep 1 - 2025				Rep 1	Rep 2	Rep 1		
					CFU/ plate a	CFU/ plate b	CFU/ plate a	CFU/ plate b	CFU/g	CFU/g (rounded)	log CFU/g		Result	Result	log CFU/g		
2005	1223	Croquettes*	Pellets	10000	16	24	17	25	145455	150000	5.18		250000 b	210000 b	5.40	6	c
				100000	0	1	3	1									
2017	**8077**	**Croquettes pour chat (bœuf, poulet, foie)**	**Pellets for dog (beef, chicken, liver)**	10	0				<10	<10	<0.01		<10		<1.00	6	c
				100	0												
2017	**8078**	**Croquettes pour chien (bœuf)**	**Pellets for dog (beef)**	10	3				30	30	1.48*		<10		<1.00	6	c
				100	0												
2017	**8249**	**Croquettes chien (bœuf/légumes)**	**Pellets for dog (beef/vegetables)**	10	17				164	160	2.20		120 a		2.08	6	c
				100	1												
2017	**8250**	**Croquettes chien (viandes/ céréales/légumes)**	**Pellets for dog (meats/vegetables/cereals)**	100	14				1364	1400	3.15		2400 a		3.38	6	c
				1000	1												
2017	**8251**	**Croquettes chat (foie / bœuf / poulet / fromage)**	**Pellets for cat (liver/beef/ chicken/cheese)**	10	0				<10	<10	<0.01		<10 a		<1.00	6	c
				100	0												
2017	**8252**	**Croquettes chien (poulet /légumes)**	**Pellets for dog (chicken/vegetables)**	1000	155				120000	120000	5.08		300000 b		5.48	6	c
				10000	12												

Appendix 5 - Relative trueness study: data plotted for each category

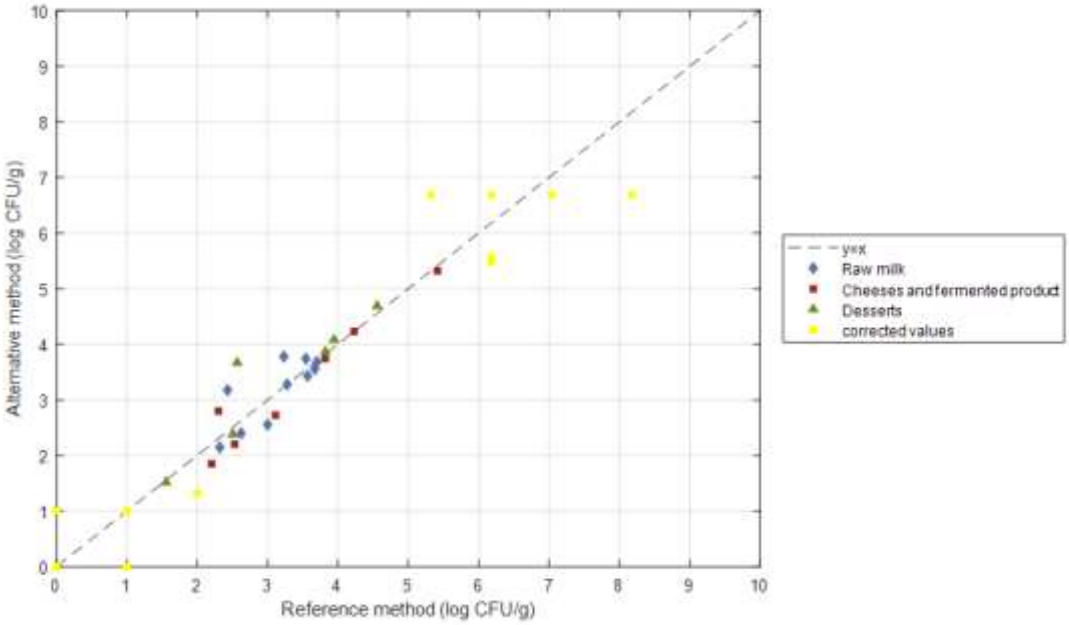
Composite food



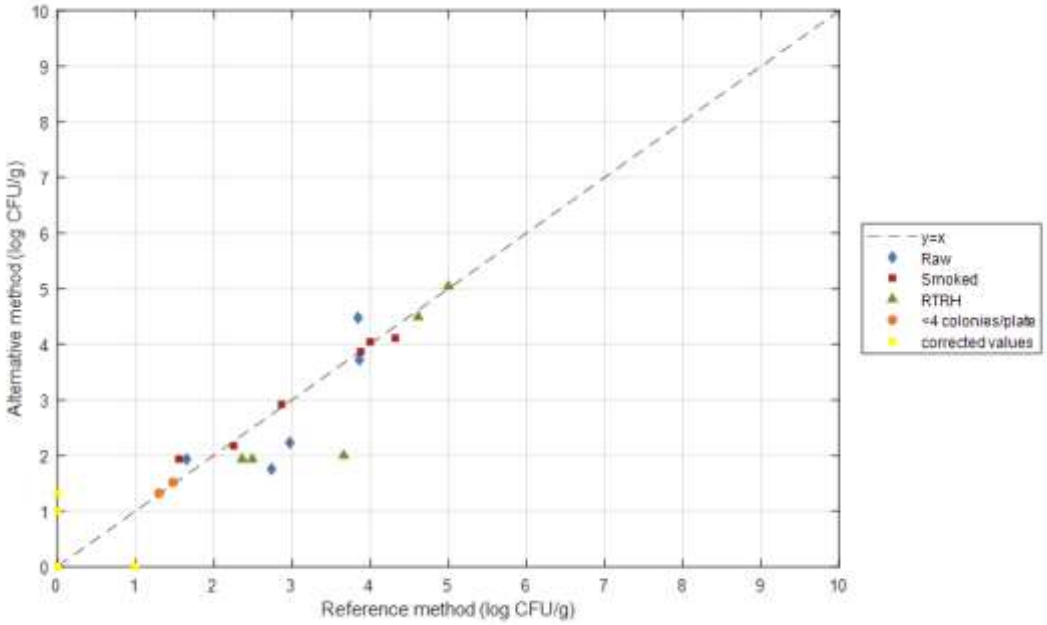
Meat products



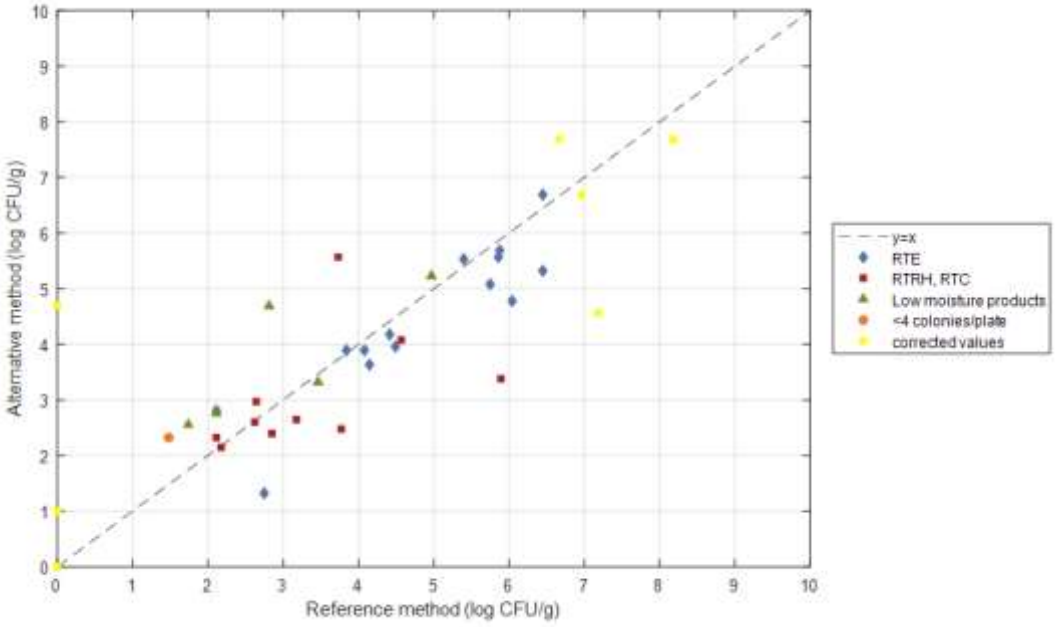
Dairy products



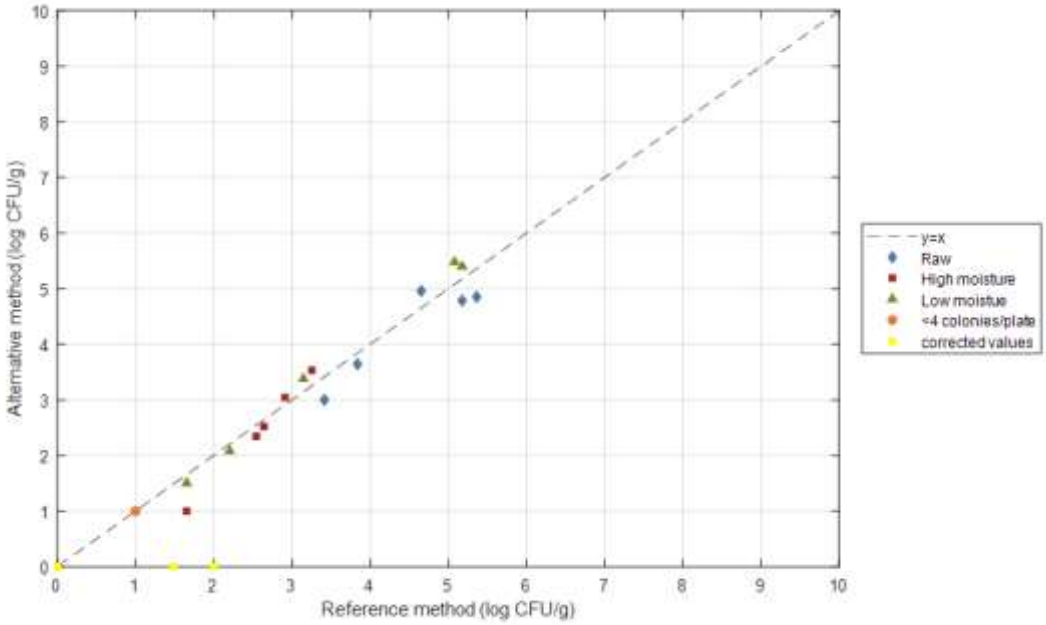
Seafood



Vegetables and fruits

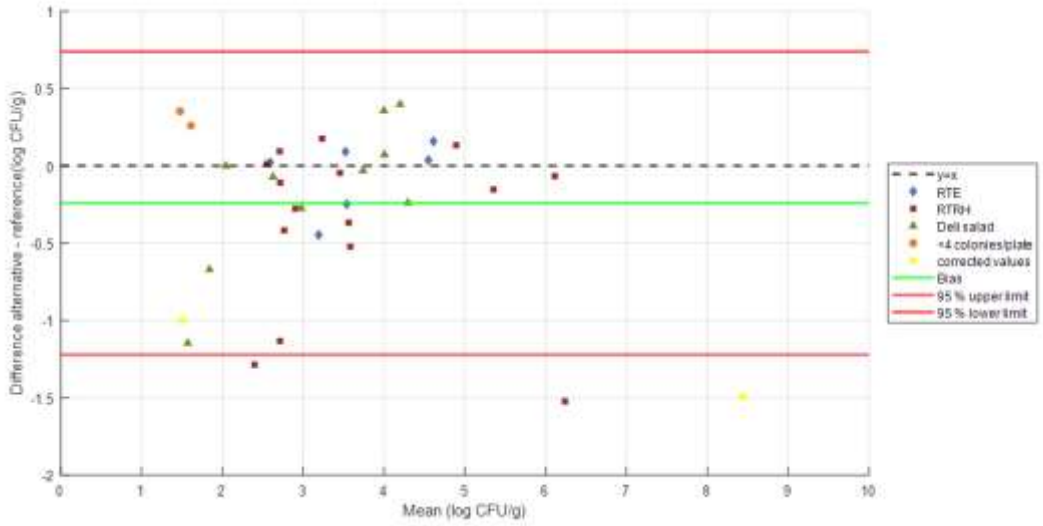


Pet food

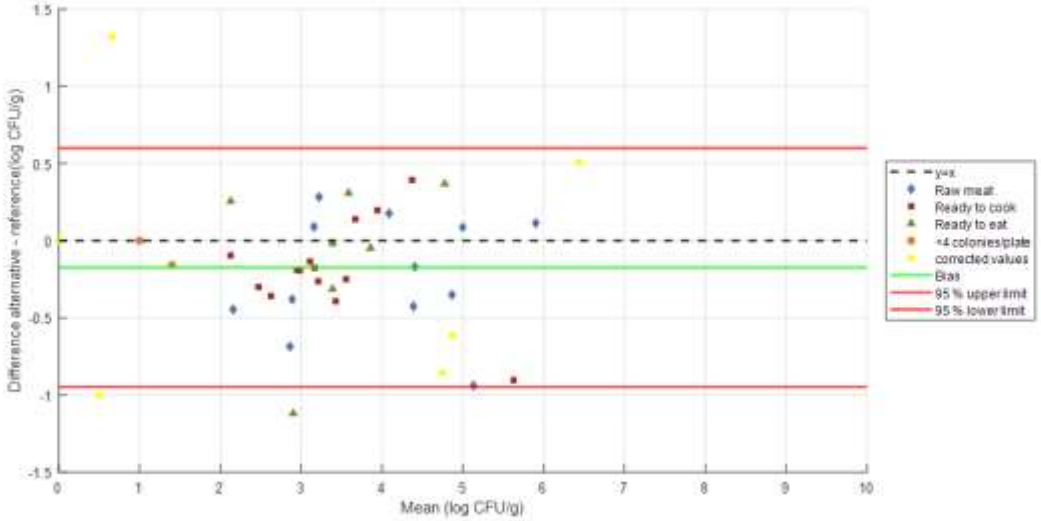


Appendix 6 - Relative trueness study: Bland-Altman difference plot for each category

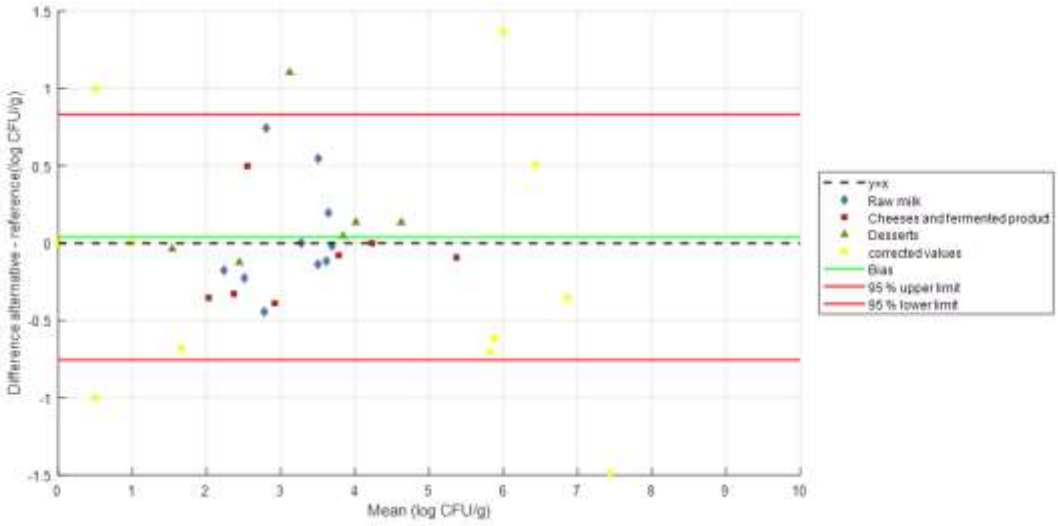
Composite food



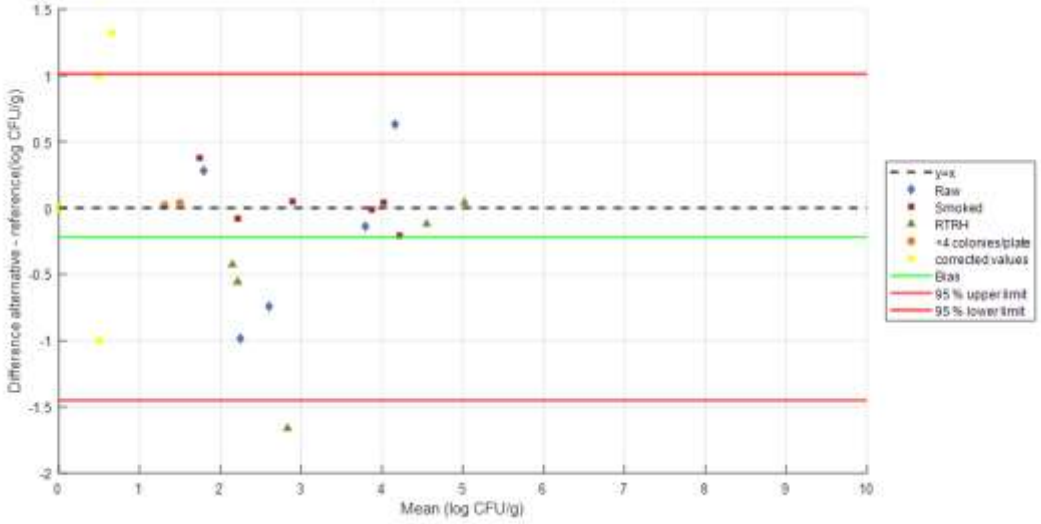
Meat products



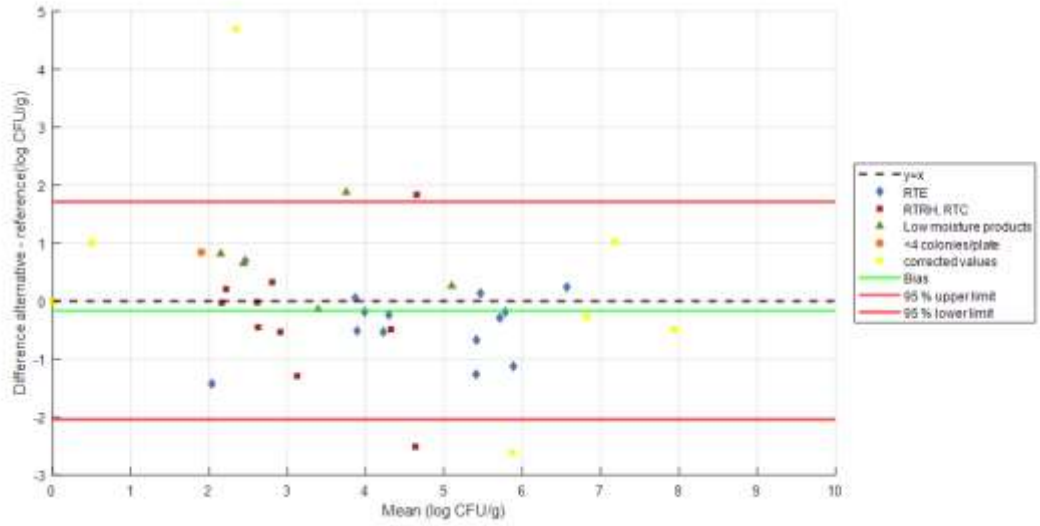
Dairy products



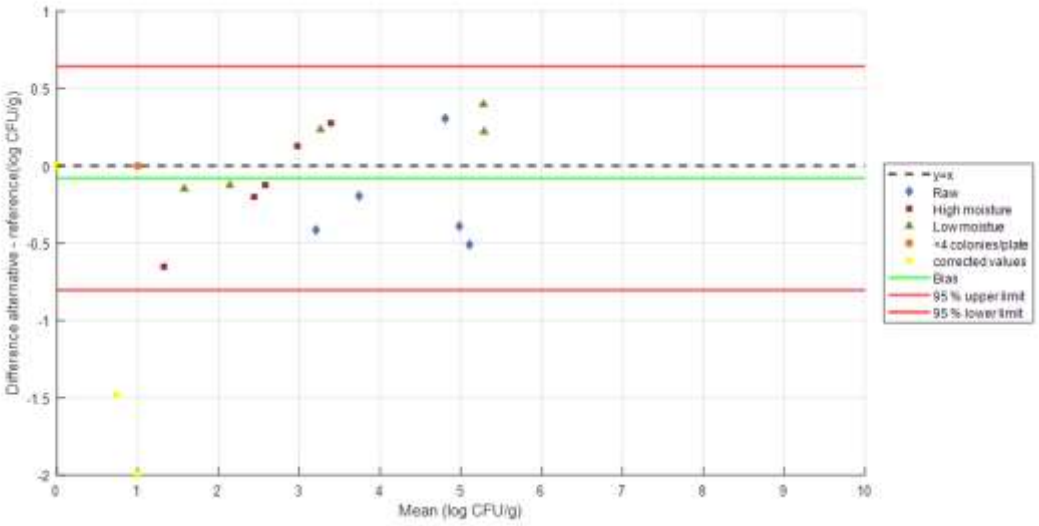
Seafood



Vegetables and fruits



Pet food



Appendix 7 - Accuracy profile study: raw data

Matrix	Strain	Level	Sample N°	Reference method: ISO 4832♦				Alternative method: TEMPO TC				
				Dilution	cfu/plate	cfu/g	log cfu/g	Dilution 1/40	Dilution 1/400	Dilution 1/4000	CFU/g	log cfu/g
Deli salad (piémontaise) Batch 1 Aerobic mesophilic flora: $2.1x10^4$ CFU/g	*Serratia liquefaciens* 26	1	6482	10	32	310	2.49	710	440		710	2.85
				100	2							
			6483	10	40	380	2.58	420	330		420	2.62
				100	2							
			6484	10	50	530	2.72	440	1400		440	2.64
				100	8							
			6485	10	42	400	2.60	710	210		710	2.85
				100	2							
			6486	10	44	440	2.64	440	100		440	2.64
				100	4							
		2	6487	100	57	5600	3.75	3700	6400		3700	3.57
				1000	5							
			6488	100	55	5400	3.73	11000	5600		11000	4.04
				1000	4							
			6489	100	60	6600	3.82	11000	9300		11000	4.04
				1000	13							
			6490	100	82	8100	3.91	17000	6300		17000	4.23
				1000	7							
			6491	100	40	4000	3.60	17000	5300		17000	4.23
				1000	4							
		3	6492	1000	114	110000	5.04		150000	120000	150000	5.18
				10000	12							
			6493	1000	130	130000	5.11		210000	100000	210000	5.32
				10000	11							
			6494	10000	17	170000	5.23		300000	170000	300000	5.48
				100000	2							
			6495	1000	120	110000	5.04		300000	190000	300000	5.48
				10000	6							
			6496	1000	109	120000	5.08		91000	120000	91000	4.96
				10000	20							
Deli salad (piémontaise) Batch 2 Aerobic mesophilic flora: $3.8x10^3$ CFU/g	*Serratia liquefaciens* 26	1	6497	10	51	480	2.68	570	860		570	2.76
				100	2							
			6498	10	38	370	2.57	300	570		300	2.48
				100	3							
			6499	10	42	420	2.62	280	330		280	2.45
				100	4							
			6500	10	44	420	2.62	480	690		480	2.68
				100	2							
			6501	10	39	360	2.56	480	210		480	2.68
				100	1							
		2	6502	100	81	8000	3.90	12000	12000		12000	4.08
				1000	7							
			6503	100	63	6500	3.81	6000	8100		6000	3.78
				1000	8							
			6504	100	48	4700	3.67	11000	8100		11000	4.04
				1000	4							
			6505	100	72	6700	3.83	8200	7100		8200	3.91
				1000	2							
			6506	100	50	5000	3.70	6800	8100		6800	3.83
				1000	5							
		3	6507	10000	10	120000	5.08		250000	170000	250000	5.40
				100000	3							
			6508	1000	123	120000	5.08		120000	120000	120000	5.08
				10000	12							
			6509	1000	137	140000	5.15		210000	290000	210000	5.32
				10000	17							
			6510	1000	137	140000	5.15		300000	250000	300000	5.48
				10000	15							
			6511	1000	111	120000	5.08		250000	200000	250000	5.40
				10000	21							

♦ Analyses performed according to the COFRAC accreditation (Accreditation Testing n°1-0144, scope available on www.cofrac.fr)

Matrix	Strain	Level	Sample N°	Reference method: ISO 4832♦				Alternative method: TEMPO TC				
				Dilution	cfu/plate	cfu/g	log cfu/g	Dilution 1/40	Dilution 1/400	Dilution 1/4000	CFU/g	log cfu/g
Ground beef Batch 1 Aerobic mesophilic flora: $1.6x10^3$ CFU/g	*Klebsiella oxytoca* 42	1	7468	10	19	190	2.28	160	210		160	2.20
				100	2							
			7469	10	28	280	2.45	280	330		280	2.45
				100	3							
			7470	10	27	270	2.43	260	330		260	2.41
				100	3							
			7471	10	21	210	2.32	160	730		160	2.20
				100	2							
			7472	10	30	290	2.46	260	100		260	2.41
				100	2							
		2	7473	100	34	3600	3.56	5000	5300		5000	3.70
				1000	6							
			7474	100	44	4400	3.64	3700	8300		3700	3.57
				1000	4							
			7475	100	42	4100	3.61	4000	4400		4000	3.60
				1000	3							
			7476	100	46	4500	3.65	5300	8300		5300	3.72
				1000	3							
			7477	100	48	4800	3.68	5300	8300		5300	3.72
				1000	5							
		3	7478	1000	77	75000	4.88		120000	110000	120000	5.08
				10000	6							
			7479	1000	73	73000	4.86		150000	110000	150000	5.18
				10000	7							
			7480	1000	64	70000	4.85		120000	73000	120000	5.08
				10000	13							
			7481	1000	77	78000	4.89		68000	110000	68000	4.83
				10000	9							
			7482	1000	78	79000	4.90		250000	130000	250000	5.40
				10000	9							
Ground beef Batch 2 Aerobic mesophilic flora: $7.1x10^4$ CFU/g	*Klebsiella oxytoca* 42	1	7483	10	21	200	2.30	300	450		300	2.48
				100	1							
			7484	10	12	130	2.11	220	320		220	2.34
				100	2							
			7485	10	29	290	2.46	160	590		160	2.20
				100	3							
			7486	10	11	120	2.08	260	830		260	2.41
				100	2							
			7487	10	21	210	2.32	310	330		310	2.49
				100	2							
		2	7488	100	20	2200	3.34	6700	10000		6700	3.83
				1000	4							
			7489	100	37	3500	3.54	4000	3600		4000	3.60
				1000	2							
			7490	100	43	4200	3.62	5000	4600		5000	3.70
				1000	3							
			7491	100	30	3100	3.49	6000	6200		6000	3.78
				1000	4							
			7492	100	38	3700	3.57	4100	3300		4100	3.61
				1000	3							
		3	7493	1000	66	66000	4.82		350000	130000	350000	5.54
				10000	7							
			7494	1000	73	70000	4.85		110000	120000	110000	5.04
				10000	4							
			7495	1000	61	61000	4.79		68000	160000	68000	4.83
				10000	6							
			7496	1000	80	78000	4.89		91000	140000	91000	4.96
				10000	6							
			7497	1000	71	74000	4.87		210000	110000	210000	5.32
				10000	10							

♦ Analyses performed according to the COFRAC accreditation (Accreditation Testing n°1-0144, scope available on www.cofrac.fr)

Matrix	Strain	Level	Sample N°	Reference method: ISO 4832♦				Alternative method: TEMPO TC				
				Dilution	cfu/plate	cfu/g	log cfu/g	Dilution 1/40	Dilution 1/400	Dilution 1/4000	CFU/g	log cfu/g
Dairy dessert Batch 1 Aerobic mesophilic flora: 10 CFU/g	*Enterobacter agglomerans 74*	1	6641	10	32	330	2.52	210	730		210	2.32
				100	4							
			6642	10	37	380	2.58	430	330		430	2.63
				100	5							
			6643	10	23	240	2.38	280	330		280	2.45
				100	3							
			6644	10	39	370	2.57	390	450		390	2.59
				100	2							
			6645	10	35	360	2.56	300	890		300	2.48
				100	4							
		2	6646	100	49	5400	3.73	5500	5100		5500	3.74
				1000	10							
			6647	100	47	5100	3.71	11000	9300		11000	4.04
				1000	9							
			6648	100	42	4500	3.65	7800	11000		7800	3.89
				1000	7							
			6649	100	48	5300	3.72	9100	7300		9100	3.96
				1000	10							
			6650	100	63	6800	3.83	6800	11000		6800	3.83
				1000	12							
		3	6651	1000	106	110000	5.04		110000	140000	110000	5.04
				10000	16							
			6652	1000	101	100000	5.00		120000	120000	120000	5.08
				10000	11							
			6653	1000	103	110000	5.04		170000	150000	170000	5.23
				10000	16							
			6654	1000	103	100000	5.00		150000	210000	150000	5.18
				10000	7							
			6655	1000	119	120000	5.08		250000	95000	250000	5.40
				10000	17							
Dairy dessert Batch 2 Aerobic mesophilic flora: 10 CFU/g	*Enterobacter agglomerans 74*	1	6656	10	14	150	2.18	390	590		390	2.59
				100	2							
			6657	10	35	350	2.54	330	590		330	2.52
				100	3							
			6658	10	45	460	2.66	360	210		360	2.56
				100	6							
			6659	10	29	310	2.49	390	450		390	2.59
				100	5							
			6660	10	44	470	2.67	390	210		390	2.59
				100	8							
		2	6661	100	61	6000	3.78	6000	8300		6000	3.78
				1000	5							
			6662	100	60	5900	3.77	7400	9300		7400	3.87
				1000	5							
			6663	100	65	6200	3.79	4100	6400		4100	3.61
				1000	3							
			6664	100	62	6100	3.79	4000	5000		4000	3.60
				1000	5							
			6665	100	65	6800	3.83	11000	4700		11000	4.04
				1000	10							
		3	6666	1000	126	130000	5.11		170000	95000	170000	5.23
				10000	12							
			6667	1000	108	110000	5.04		150000	140000	150000	5.18
				10000	9							
			6668	1000	103	110000	5.04		250000	130000	250000	5.40
				10000	19							
			6669	1000	118	120000	5.08		170000	110000	170000	5.23
				10000	17							
			6670	10000	10	100000	5.00		300000	130000	300000	5.48
				100000	1							

♦ Analyses performed according to the COFRAC accreditation (Accreditation Testing n°1-0144, scope available on www.cofrac.fr)

Matrix	Strain	Level	Sample N°	Reference method: ISO 4832♦				Alternative method: TEMPO TC				
				Dilution	cfu/plate	cfu/g	log cfu/g	Dilution 1/40	Dilution 1/400	Dilution 1/4000	CFU/g	log cfu/g
Raw fish Batch 1 Aerobic mesophilic flora: 1.4x10³ CFU/g	*Enterobacter cloacae* Ad230	1	6817	10	32	310	2.49	440	100		440	2.64
				100	2							
			6818	10	38	370	2.57	330	100		330	2.52
				100	3							
			6819	10	26	270	2.43	230	310		230	2.36
				100	4							
			6820	10	28	270	2.43	280	100		280	2.45
				100	2							
			6821	10	24	240	2.38	360	<100		360	2.56
				100	2							
		2	6822	100	29	3500	3.54	4000	4000		4000	3.60
				1000	9							
			6823	100	41	4100	3.61	3700	4800		3700	3.57
				1000	4							
			6824	100	59	5600	3.75	7800	3600		7800	3.89
				1000	3							
			6825	100	47	4700	3.67	3700	8100		3700	3.57
				1000	5							
			6826	100	37	3600	3.56	6000	5200		6000	3.78
				1000	3							
		3	6827	1000	73	78000	4.89		110000	83000	110000	5.04
				10000	13							
			6828	1000	112	120000	5.08		150000	83000	150000	5.18
				10000	21							
			6829	1000	61	61000	4.79		91000	93000	91000	4.96
				10000	6							
			6830	1000	104	100000	5.00		91000	64000	91000	4.96
				10000	10							
			6831	1000	74	75000	4.88		74000	120000	74000	4.87
				10000	9							
Raw fish Batch 2 Aerobic mesophilic flora: 2.4x10³ CFU/g	*Enterobacter cloacae* Ad230	1	6832	10	30	280	2.45	330	590		330	2.52
				100	1							
			6833	10	27	260	2.41	440	330		440	2.64
				100	1							
			6834	10	21	200	2.30	330	450		330	2.52
				100	1							
			6835	10	25	260	2.41	360	320		360	2.56
				100	3							
			6836	10	28	280	2.45	260	210		260	2.41
				100	3							
		2	6837	100	39	3700	3.57	6000	5800		6000	3.78
				1000	2							
			6838	100	43	4200	3.62	2400	6300		2400	3.38
				1000	3							
			6839	100	44	4500	3.65	6800	4600		6800	3.83
				1000	5							
			6840	100	44	4200	3.62	9100	3300		9100	3.96
				1000	2							
			6841	100	49	4700	3.67	6800	4000		6800	3.83
				1000	3							
		3	6842	1000	80	82000	4.91		60000	95000	60000	4.78
				10000	10							
			6843	1000	93	93000	4.97		250000	93000	250000	5.40
				10000	9							
			6844	1000	74	75000	4.88		91000	120000	91000	4.96
				10000	8							
			6845	1000	100	96000	4.98		91000	170000	91000	4.96
				10000	6							
			6846	1000	82	84000	4.92		210000	110000	210000	5.32
				10000	10							

♦ Analyses performed according to the COFRAC accreditation (Accreditation Testing n°1-0144. scope available on www.cofrac.fr)

Matrix	Strain	Level	Sample N°	Reference method: ISO 4832♦				Alternative method: TEMPO TC				
				Dilution	cfu/plate	cfu/g	log cfu/g	Dilution 1/40	Dilution 1/400	Dilution 1/4000	CFU/g	log cfu/g
Grated carrots Batch 1 Aerobic mesophilic flora: $8.0x10^4$ CFU/g	*Escherichia coli* 19	1	6536	10	38	360	2.56	350	320		350	2.54
				100	1							
			6537	10	21	220	2.34	300	330		300	2.48
				100	3							
			6538	10	33	300	2.48	280	210		280	2.45
				100	0							
			6539	10	45	440	2.64	540	210		540	2.73
				100	3							
			6540	10	29	290	2.46	260	450		260	2.41
				100	3							
		2	6541	100	46	4600	3.66	6700	7600		6700	3.83
				1000	5							
			6542	100	48	4600	3.66	1500	5600		1500	3.18
				1000	3							
			6543	100	41	4500	3.65	error 19 x3	2600		2600	3.41
				1000	9							
			6544	100	55	5500	3.74	1300	9000		1300	3.11
				1000	5							
			6545	100	53	5400	3.73	error 19 x3	13000		13000	4.11
				1000	6							
		3	6546	1000	71	72000	4.86		error 19 x3	130000	130000	5.11
				10000	8							
			6547	1000	54	60000	4.78		66000	57000	66000	4.82
				10000	12							
			6548	1000	67	70000	4.85		error 19 8600	67000	67000	4.83
				10000	10							
			6549	1000	87	86000	4.93		50000	85000	50000	4.70
				10000	8							
			6550	1000	84	82000	4.91		90000	180000	90000	4.95
				10000	6							
Grated carrots Batch 2 Aerobic mesophilic flora: 800 CFU/g	*Escherichia coli* 19	1	6551	10	41	430	2.63	730	860		730	2.86
				100	6							
			6552	10	34	360	2.56	270	450		270	2.43
				100	5							
			6553	10	29	270	2.43	360	210		360	2.56
				100	1							
			6554	10	25	260	2.41	280	330		280	2.45
				100	4							
			6555	10	44	470	2.67	220	450		220	2.34
				100	8							
		2	6556	100	39	4100	3.61	error 19 x3	5700		5700	3.76
				1000	6							
			6557	100	41	4300	3.63	11000	4600		11000	4.04
				1000	6							
			6558	100	47	4600	3.66	3900	3600		3900	3.59
				1000	4							
			6559	100	39	3700	3.57	5500	7000		5500	3.74
				1000	2							
			6560	100	57	5800	3.76	error 19 x3	6800		6800	3.83
				1000	7							
		3	6561	1000	86	86000	4.93		100000	65000	100000	5.00
				10000	9							
			6562	1000	75	74000	4.87		210000	71000	210000	5.32
				10000	6							
			6563	1000	80	81000	4.91		56000	95000	56000	4.75
				10000	9							
			6564	1000	51	50000	4.70		error 19 x3	140000	140000	5.15
				10000	4							
			6565	1000	91	91000	4.96		error 19 x3	190000	190000	5.28
				10000	9							

♦ Analyses performed according to the COFRAC accreditation (Accreditation Testing n°1-0144. scope available on www.cofrac.fr)

Matrix	Strain	Level	Sample N°	Reference method: ISO 4832♦				Alternative method: TEMPO TC				
				Dilution	cfu/plate	cfu/g	log cfu/g	Dilution 1/40	Dilution 1/400	Dilution 1/4000	CFU/g	log cfu/g
Pâté for dog Batch 1 Aerobic mesophilic flora: <10 CFU/g	*Citrobacter freundii* 35	1	7733	10	44	430	2.63	480	730		480	2.68
				100	3							
			7734	10	43	440	2.64	710	710		710	2.85
				100	5							
			7735	10	35	400	2.60	480	960		480	2.68
				100	9							
			7736	10	51	480	2.68	510	1000		510	2.71
				100	2							
			7737	10	42	420	2.62	420	210		420	2.62
				100	4							
		2	7738	100	53	5000	3.70	6000	11000		6000	3.78
				1000	2							
			7739	100	63	6300	3.80	9100	5800		9100	3.96
				1000	6							
			7740	100	60	6000	3.78	12000	8300		12000	4.08
				1000	6							
			7741	100	68	6700	3.83	6800	5700		6800	3.83
				1000	6							
			7742	100	66	6600	3.82	7800	9300		7800	3.89
				1000	7							
		3	7743	1000	111	120000	5.08		150000	230000	150000	5.18
				10000	21							
			7744	1000	106	110000	5.04		250000	170000	250000	5.40
				10000	10							
			7745	1000	115	120000	5.08		250000	150000	250000	5.40
				10000	15							
			7746	1000	119	120000	5.08		120000	200000	120000	5.08
				10000	11							
			7747	1000	123	120000	5.08		170000	180000	170000	5.23
				10000	11							
Pâté for dog Batch 2 Aerobic mesophilic flora: <10 CFU/g	*Citrobacter freundii* 35	1	7748	10	51	500	2.70	570	1000		570	2.76
				100	4							
			7749	10	39	420	2.62	460	710		460	2.66
				100	7							
			7750	10	45	460	2.66	460	330		460	2.66
				100	5							
			7751	10	44	410	2.61	450	210		450	2.65
				100	1							
			7752	10	50	500	2.70	630	330		630	2.80
				100	5							
		2	7753	100	48	4700	3.67	11000	11000		11000	4.04
				1000	4							
			7754	100	62	5800	3.76	7800	13000		7800	3.89
				1000	2							
			7755	100	48	4700	3.67	4500	3300		4500	3.65
				1000	4							
			7756	100	53	5400	3.73	7800	7300		7800	3.89
				1000	6							
			7757	100	64	6500	3.81	9100	7100		9100	3.96
				1000	7							
		3	7758	1000	124	120000	5.08		210000	120000	210000	5.32
				10000	12							
			7759	1000	119	120000	5.08		150000	210000	150000	5.18
				10000	9							
			7760	1000	128	120000	5.08		370000	120000	370000	5.57
				10000	6							
			7761	1000	110	110000	5.04		210000	170000	210000	5.32
				10000	14							
			7762	1000	128	130000	5.11		210000	170000	210000	5.32
				10000	16							

♦ Analyses performed according to the COFRAC accreditation (Accreditation Testing n°1-0144. scope available on www.cofrac.fr)

Appendix 8 - Accuracy profile study: summarized results

(Food) Category 1	RTE
(Food) Type 1	Piemontaise

			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
6482-6486	Piemontaise	1	310	380	530	400	440	710	420	440	710	440
6497-6501	Piemontaise	1	480	370	420	420	360	570	300	280	480	480
6487-6491	Piemontaise	2	5600	5400	6600	8100	4000	6400	5600	9300	6300	5300
6502-6506	Piemontaise	2	8000	6500	4700	6700	5000	12000	8100	8100	7100	8100
6492-6496	Piemontaise	3	110000	130000	170000	110000	120000	150000	210000	300000	300000	91000
6507-6511	Piemontaise	3	120000	120000	140000	140000	120000	250000	120000	210000	300000	250000

(Food) Category 2	Meat product
(Food) Type 2	Ground beef

			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
7468-7472	Ground beef	1	190	280	270	210	290	160	280	260	160	260
7483-7487	Ground beef	1	200	130	290	120	210	300	220	160	260	310
7473-7477	Ground beef	2	3600	4400	4100	4500	4800	5000	3700	4000	5300	5300
7488-7492	Ground beef	2	2200	3500	4200	3100	3700	6700	4000	5000	6000	4100
7478-7482	Ground beef	3	75000	73000	70000	78000	79000	120000	150000	120000	68000	250000
7493-7497	Ground beef	3	66000	70000	61000	78000	74000	350000	110000	68000	91000	210000

(Food) Category 3	Dairy
(Food) Type 3	Dairy dessert

			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
6641-6645	Dairy dessert	1	330	380	240	370	360	210	430	280	390	300
6656-6660	Dairy dessert	1	150	350	460	310	470	390	330	360	390	390
6646-6650	Dairy dessert	2	5400	5100	4500	5300	6800	5500	11000	7800	9100	6800
6661-6665	Dairy dessert	2	6000	5900	6200	6100	6800	6000	7400	4100	4000	11000
6651-6655	Dairy dessert	3	110000	100000	110000	100000	120000	110000	120000	170000	150000	250000
6666-6670	Dairy dessert	3	130000	110000	110000	120000	100000	170000	150000	250000	170000	300000

(Food) Category 4	Seafood
(Food) Type 4	Raw fish

			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
6817-6821	Raw fish	1	310	370	270	270	240	440	330	230	280	360
6832-6836	Raw fish	1	280	260	200	260	280	330	440	330	360	260
6822-6826	Raw fish	2	3500	4100	5600	4700	3600	4000	4800	3600	8100	5200
6837-6841	Raw fish	2	3700	4200	4500	4200	4700	5800	6300	4600	3300	4000
6827-6831	Raw fish	3	78000	120000	61000	100000	75000	110000	150000	91000	91000	74000
6842-6846	Raw fish	3	82000	93000	75000	96000	84000	60000	250000	91000	91000	210000

(Food) Category 5	Vegetables
(Food) Type 5	Grated carrots

			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
6536-6640	Grated carrots	1	360	220	300	440	290	350	300	280	540	260
6551-6555	Grated carrots	1	430	360	270	260	470	730	270	360	280	220
6541-6545	Grated carrots	2	4600	4600	4500	5500	5400	7600	5600	2600	9000	13000
6556-6560	Grated carrots	2	4100	4300	4600	3700	5800	5700	4600	3600	7000	6800
6546-6550	Grated carrots	3	72000	60000	70000	86000	82000	130000	57000	67000	85000	180000
6561-6565	Grated carrots	3	86000	74000	81000	50000	91000	65000	71000	95000	140000	190000

(Food) Category 6	Pet food
(Food) Type 6	Pâté for dog

			Reference method result					Alternative method result				
Sample Name	(Food) item	Level	rep 1	rep 2	rep 3	rep 4	rep 5	rep 1	rep 2	rep 3	rep 4	rep 5
7733-7737	Pâté for dog	1	430	440	400	480	420	480	710	480	510	420
7748-7752	Pâté for dog	1	500	420	460	410	500	570	460	460	450	630
7738-7742	Pâté for dog	2	5000	6300	6000	6700	6600	6000	9100	12000	6800	7800
7753-7757	Pâté for dog	2	4700	5800	4700	5400	6500	11000	7800	4500	7800	9100
7743-7747	Pâté for dog	3	120000	110000	120000	120000	120000	150000	250000	250000	120000	170000
7758-7762	Pâté for dog	3	120000	120000	120000	110000	130000	210000	150000	370000	210000	210000

Appendix 9 – Quantification limits (LOQ): raw data

Sample N°	Matrix	Alternative method: TEMPO TC					
		Observed value	Value for calculation	Yi	$\bar{y}$	So	LOQ
6526	Daily salad (Piemontaise)	<10	10	1	1	0	0
6527		<10	10	1			
6528		<10	10	1			
6529		<10	10	1			
6530		<10	10	1			
6531		<10	10	1			
6532		<10	10	1			
6533		<10	10	1			
6534		<10	10	1			
6535		<10	10	1			
7498	Ground beef	<10	10	1	1	0	0
7499		<10	10	1			
7500		<10	10	1			
7501		<10	10	1			
7502		<10	10	1			
7503		<10	10	1			
7504		<10	10	1			
7505		<10	10	1			
7506		<10	10	1			
7507		<10	10	1			
6671	Dairy dessert	<10	10	1	1	0	0
6672		<10	10	1			
6673		<10	10	1			
6674		<10	10	1			
6675		<10	10	1			
6676		<10	10	1			
6677		<10	10	1			
6678		<10	10	1			
6679		<10	10	1			
6680		<10	10	1			
6847	Raw fish	<10	10	1	1	0	0
6848		<10	10	1			
6849		<10	10	1			
6850		<10	10	1			
6851		<10	10	1			
6852		<10	10	1			
6853		<10	10	1			
6854		<10	10	1			
6855		<10	10	1			
6856		<10	10	1			
6566	Grated carrots	<10	10	1	1	0	0
6567		<10	10	1			
6568		<10	10	1			
6569		<10	10	1			
6570		<10	10	1			
6571		<10	10	1			
6572		<10	10	1			
6573		<10	10	1			
6574		<10	10	1			
6575		<10	10	1			
7763	Pâté for dog	<10	10	1	1	0	0
7764		<10	10	1			
7765		<10	10	1			
7766		<10	10	1			
7767		<10	10	1			
7768		<10	10	1			
7769		<10	10	1			
7770		<10	10	1			
7771		<10	10	1			
7772		<10	10	1			

Appendix 10 – Inclusivity / Exclusivity: raw data

	INCLUSIVITY								
	N°	Strain		Reference	Origin	PCA	ISO 4832	TEMPO TC	BLBVB
Initial validation study	1	*Citrobacter*	*freundii*	35	Pork meat	35/15	2/36	34/31	/
	2	*Citrobacter*	*diversus*	38	Food	41/32	45/53	43/17	/
	3	*Citrobacter*	*freundii*	59	Food	11/20	23/22	31/15	/
	4	*Citrobacter*	*freundii*	CIP 5732	/	36/19	38/38	48/44	/
	5	*Citrobacter*	*diversus*	CIP 8294	/	24/33	23/25	24/11	/
	6	*Enterobacter*	*sakazakii*	D7	Poultry meat	44/53	79/72	150/170	/
	7	*Enterobacter*	*cloacae*	10	Raw milk	22/14	16/25	17/95	/
	8	*Enterobacter*	*agglomerans*	11	Cheese	29/42	38/41	78/55	/
	9	*Enterobacter*	*sakazakii*	L22	Milk	26/35	30/32	45/91	/
	10	*Enterobacter*	*cloacae*	58	Food	63/58	79/65	10/20	/
	11	*Enterobacter*	*agglomerans*	74	Cheese	15/10	9/12	18/20	/
	12	*Enterobacter*	*sakazakii*	90	Pastry	49/65	66/62	<1	-
	13	*Enterobacter*	*cloacae*	Fb2	Food	20/9	15/17	19/27	/
	14	*Enterobacter*	*cloacae*	Fb3	Food	21/15	34/18	13/14	/
	15	*Enterobacter*	*aerogenes*	CIP 6086	/	23/16	19/23	5	/
	16	*Enterobacter*	*aerogenes*	CIP 103659	/	58/57	61/59	57/83	/
	17	*Escherichia*	*coli*	1	Sausage	21/33	38/41	74/37	/
	18	*Escherichia*	*coli*	12	Turkey meat	68/51	69/78	120/91	/
	19	*Escherichia*	*coli*	14	Raw milk	36/38	45/35	74/74	/
	20	*Escherichia*	*coli*	19	Grated carrots	12/15	14/7	10/10	/
	21	*Escherichia*	*vulneris*	151	Raw milk	24/30	28/25	37/29	/
	22	*Escherichia*	*hermanii*	395	Meat	41/41	36/47	<1	-
	23	*Escherichia*	*coli* O157:H7	ATCC 43888	/	67/53	47/64	47/53	/
	24	*Hafnia*	*alvei*	40	Water	3/7	4/8	<1	-
	25	*Hafnia*	*alvei*	167	Sausage	92/108	93/86	<1	-
	26	*Klebsiella*	*pneumoniae*	28	Food	27/14	46/29	45/68	/
	27	*Klebsiella*	*oxytoca*	42	Food	8/9	15/13	23/12	/
	28	*Klebsiella*	*pneumoniae*	92	Pastry	27/33	34/43	10/11	/
	29	*Klebsiella*	*oxytoca*	CIP 7932	/	24/15	14/14	24/27	/
	30	*Serratia*	*liquefaciens*	26	Egg product	26/15	30/18	24/37	/

	INCLUSIVITY								
	N°	Strain		Reference	Origin	PCA	ISO 4832	TEMPO TC	BLBVB
Renewal study	**31**	*Cronobacter*	*dublinensis*	DSM 18705	Milk powder	48	50	<1	-
	32	*Cronobacter*	*condimenti*	LMG 26250T	Meat	90	93	<1	-
	33	*Siccibacter*	*turicensis*	E681	Ready to reheat	39	22	11	/
	34	*Citrobacter*	*braakii*	Ad2701	Squids	14	10	25	/
	35	*Citrobacter*	*koseri*	Ad2731	Sprouts	82	78	72	/
	36	*Citrobacter*	*farmeri*	Ad1116	Environmental sample (egg industry)	98	103	136	/
	37	*Enterobacter*	*aerogenes*	Ad2569	Cheese	47	60	72	/
	38	*Enterobacter*	*hormaechei*	Ad1373	Water	133	120	168	/
	39	*Enterobacter*	*kobei*	Ad706	Milk powder	68	68	80	/
	40	*Enterobacter*	*helveticus*	DSM18396	Unknown	70	27	<1	doubtful
	41	*Escherichia*	*fergusonii*	Ad1381	Water	70	74	<1	-
	42	*Escherichia*	*hermanii*	Ad464	Raw milk	130	128	<1	-
	43	*Klebsiella*	*oxytoca*	Ad1453	Swimming pool water	22	20	23	/
	44	*Klebsiella*	*pneunomiae*	Ad1594	Swimming pool water	20	25	23	/
	45	*Klebsiella*	*pneumoniae*	Ad1374	Water	98	107	90	/
	46	*Klebsiella*	*oxytoca*	Ad1371	Water	14	11	16	/
	47	*Serratia*	*liquefaciens*	Ad2601	Dairy product	25	22	40	/
	48	*Serratia*	*proteomaculans*	Ad1698	Salmon	67	29	21	/
	49	*Serratia*	*marcescens*	Ad2604	Dairy product	52	66	39	/
	50	*Serratia*	*fonticola*	Ad1696	Salmon	25	23	23	/

	EXCLUSIVITY								
	Lab code	Strain		Reference	Origin	PCA	ISO 4832	TEMPO TC	BLBVB
Initial validation study	1	*Aeromonas*	*hydrophila*	CIP 5750	/	>300/>300	77/82	<1/<1	/
	2	*Aeromonas*	*sobria*	CIP 7433	/	>300/>300	<1/<1	<1/<1	/
	3	*Bacillus*	*circulans*	ATCC 4513	/	>300/>300	<1/<1	<1/<1	/
	4	*Bacillus*	*subtilis*	ATCC 6633	/	>300/>300	<1/<1	<1/<1	/
	5	*Edwarsiella*	*tarda*	CIP 7861	/	51/61	35(-7)	<1/<1	/
	6	*Erwinia*	*carotovora*	CIP 103762	/	86/82	<1/<1	290(-3)	/
	7	*Lactobacillus*	*paracasei*	ATCC 10746	/	99/104	99/97	57/51	-
	8	*Morganella*	*morganii*	CIP A236	/	51/46	26/48	<1/<1	-
	9	*Proteus*	*mirabilis*	54	Poultry meat	46/52	43/45	45/41	Doubtful
	10	*Proteus*	*vulgaris*	56	Food	132/131	141/142	<1/<1	-
	11	*Providencia*	*rettgeri*	12	Liquid egg white	30/26	32/32	<1/<1	-
	12	*Providencia*	*stuartii*	46	Turkey meat	115/102	110/118	<1/<1	-
	13	*Pseudomonas*	*aeruginosa*	ATCC27853	/	32/43	<1/<1	<1/<1	/
	14	*Pseudomonas*	*fluorescens*	CIP 5690	/	>300/>300	<1/<1	<1/<1	/
	15	*Pseudomonas*	*putida*	11	Egg product	>300/>300	<1/<1	<1(-3)	/
	16	*Salmonella*	*arizonae*	CIP 5523	/	124/95	85/91	120/91	-
	17	*Salmonella*	Enteritidis	2532	Ham	46/34	35/45	43/43	-
	18	*Salmonella*	Typhimurium	305	Paella	49/41	40/29	31/48	-
	19	*Shigella*	*flexneri*	CIP 8248	/	31/26	28/26	<1/<1	-
	20	*Xanthomonas*	*maltophilia*	CIP 6077	/	11/10	2/4	<1/<1	/
Renewal study	21	*Buttiauxella*	*agrestis*	Ad1328	Egg product	11	12 / 18	<1/<1	-
	22	*Kluyvera*	*ascorbata*	Ad229	Fish	28	37	26	+
	23	*Leclercia*	*adecarboxylata*	Ad707	Milk powder	26	26	17	+
	24	*Lelliottia*	*amnigena*	Ad1319	Water	76	40	<1	-
	25	*Pantoea*	*agglomerans*	A00L065	Cheese	95	99	93	+
	26	*Providencia*	*stuartii*	Ad1575	Water	77 / 84	70 / 84 NC(<0,5mm)	<1 / <1	-
	27	*Raoultella*	*terrigena*	Ad1370	Water	61	59	90	+
	28	*Proteus*	*vulgaris*	Ad984	Pork meat	54 / 72	74 / 64 NC(<0.5mm, pale)	<1 / <1	-
	29	*Proteus*	*mirabilis*	Ad639	Mayonnaise	108	89 NC(<0.5mm)	<1	-
	30	*Yersinia*	*enterocolitica*	Ad1028	Pork (speck)	54	49	30	-

Appendix 11 - Results obtained by the collaborative laboratories and the expert laboratory

Laboratory	N° Sample	Reference method: ISO 4832						Alternative method: TEMPO TC			
		Dilution	CFU/ plate a	CFU/ plate b	CFU/ml	CFU/ml (rounded)	Log CFU/ml	D 1/40	D1/400	log CFU/ml (1/40)	log CFU/ml (1/400)
A	A1	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
	A6	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
Aerobic mesophilic flora: $1{,}8.10^4$/ml	A2	10	8	11	73	73	1.86	100	<100	2.00	<2
		100	0	1			Ne				
	A7	10	9	8	82	82	1.91	71	100	1.85	2.00
		100	0	1			Ne				
	A3	10	81	72	827	830	2.92	930	440	2.97	2.64
		100	10	12							
	A8	10	82	98	845	850	2.93	1700	730	3.23	2.86
		100	11	11							
	A4	100	88	90	8727	8700	3.94	12000	8300	4.08	3.92
		1000	8	9							
	A5	100	81	97	8000	8000	3.90	5200	9300	3.72	3.97
		1000	7	12							
B	B1	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
	B6	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
Aerobic mesophilic flora: $4{,}1.10^4$/ml	B2	10	12	9	118	120	2.08	100	210	2.00	2.32
		100	1	1							
	B7	10	9	11	91	91	1.96	130	<100	2.11	<2.00
		100	1	0			Ne				
	B3	10	80	87	800	800	2.90	1100	570	3.04	2.76
		100	8	11							
	B8	10	94	93	964	960	2.98	1100	450	3.04	2.65
		100	12	9							
	B4	100	98	101	10000	10000	4.00	21000	10000	4.32	4.00
		1000	12	9							
	B5	100	82	86	8000	8000	3.90	11000	8100	4.04	3.91
		1000	6	8							
C	C1	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
	C6	10	1	1	10	10	1.00*	<10	<100	<1	<2
		100	0	0							
Aerobic mesophilic flora: $2{,}9.10^5$/ml	C2	10	10	7	100	100	2.00	73	<100	1.86	<2
		100	1	0							
	C7	10	13	7	118	120	2.08	130	100	2.11	<2
		100	0	0							
	C3	10	66	34	664	660	2.82	730	590	2.86	2.77
		100	7	4							
	C8	10	63	67	645	650	2.81	530	210	2.72	2.32
		100	8	11							
	C4	100	63	78	6455	6500	3.81	9100	11000	3.96	4.04
		1000	8	5							
	C5	100	73	69	7091	7100	3.85	12000	7100	4.08	3.85
		1000	5	10							

Laboratory	N° Sample	Reference method: ISO 4832						Alternative method: TEMPO TC			
		Dilution	CFU/ plate a	CFU/ plate b	CFU/ml	CFU/ml (rounded)	Log CFU/ml	D 1/40	D1/400	log CFU/ml (1/40)	log CFU/ml (1/400)
D	D1	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
	D6	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
Aerobic mesophilic flora: 4,1.10³/ml	D2	10	11	8	109	110	2.04	44	<100	1.64	<2
		100	1	0							
	D7	10	12	4	118	120	2.08	100	210	2.00	<2
		100	1	0							
	D3	10	71	90	727	730	2.86	1000	590	3.00	2.77
		100	9	9							
	D8	10	81	89	773	770	2.89	530	710	2.72	2.85
		100	4	5							
	D4	100	74	89	7182	7200	3.86	12000	12000	4.08	4.08
		1000	5	4							
	D5	100	93	88	8909	8900	3.95	11000	15000	4.04	4.18
		1000	5	9							
E	E1	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
	E6	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
Aerobic mesophilic flora: 2,0.10³/ml	E2	10	7	15	64	64	1.81 Ne	59	<100	1.77	<2
		100	0	1							
	E7	10	12	14	118	120	2.08	69	100	1.84	2.00
		100	1	1							
	E3	10	87	90	827	830	2.92	830	450	2.92	2.65
		100	4	7							
	E8	10	85	83	864	860	2.93	730	330	2.86	2.52
		100	10	10							
	E4	100	87	79	8818	8800	3.94	11000	5700	4.04	3.76
		1000	10	10							
	E5	100	99	96	9909	9900	4.00	7800	4600	3.89	3.66
		1000	10	9							
F	F1	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
	F6	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
Aerobic mesophilic flora: 4,0.10³/ml	F2	10	8	7	73	73	1.86 Ne	100	210	2.00	<2
		100	0	1							
	F7	10	14	4	155	160	2.20	71	100	1.85	2.00
		100	3	1							
	F3	10	80	60	755	760	2.88	630	1500	2.80	3.18
		100	3	6							
	F8	10	70	90	673	670	2.83	730	110	2.86	2.04
		100	4	11							
	F4	100	85	93	8182	8200	3.91	11000	6900	4.04	3.84
		1000	5	9							
	F5	100	80	90	7909	7900	3.90	12000	7300	4.08	3.86
		1000	7	9							

Laboratory	N° Sample	Reference method: ISO 4832						Alternative method: TEMPO TC			
		Dilution	CFU/ plate a	CFU/ plate b	CFU/ml	CFU/ml (rounded)	Log CFU/ml	D 1/40	D1/400	log CFU/ml (1/40)	log CFU/ml (1/400)
G	G1	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
	G6	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
Aerobic mesophilic flora: 1,9.10^3/ml	G2	10	9	10	91	91	1.96 Ne	110	330	2.04	2.52
		100	1	1							
	G7	10	13	12	136	140	2.15	110	100	2.04	2.00
		100	2	1							
	G3	10	65	59	655	660	2.82	1300	860	3.11	2.93
		100	7	7							
	G8	10	84	75	827	830	2.92	580	730	2.76	2.86
		100	7	8							
	G4	100	73	68	7182	7200	3.86	9100	11000	3.96	4.04
		1000	6	7							
	G5	100	61	56	6091	6100	3.79	21000	9500	4.32	3.98
		1000	6	7							
H	H1	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
	H6	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
Aerobic mesophilic flora: 1,6.10^3 /ml	H2	10	9	11	109	110	2.04 Ne	140	<100	2.15	<2
		100	3	0							
	H7	10	7	5	73	73	1.86 Ne	140	<100	2.15	<2
		100	1	1							
	H3	10	55	65	527	530	2.72	920	570	2.96	2.76
		100	3	6							
	H8	10	70	60	727	730	2.86	1000	450	3.00	2.65
		100	10	6							
	H4	100	80	80	7818	7800	3.89	21000	8300	4.32	3.92
		1000	6	6							
	H5	100	75	100	8000	8000	3.90	25000	7900	4.40	3.90
		1000	13	10							
I	I1	10	0	1	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
	I6	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
Aerobic mesophilic flora: 3,0.10^4 /ml	I2	10	12	12	136	140	2.15	120	210	2.08	2.32
		100	3	2							
	I7	10	8	9	73	73	1.86 Ne	71	<100	1.85	<2
		100	0								
	I3	10	73	76	718	720	2.86	1100	320	3.04	2.51
		100	6	5							
	I8	10	95	87	955	960	2.98	1100	890	3.04	2.95
		100	10	6							
	I4	100	81	93	8091	8100	3.91	12000	13000	4.08	4.11
		1000	8	8							
	I5	100	93	85	9182	9200	3.96	15000	6400	4.18	3.81
		1000	8	8							

Laboratory	N° Sample	Reference method: ISO 4832						Alternative method: TEMPO TC			
		Dilution	CFU/ plate a	CFU/ plate b	CFU/ml	CFU/ml (rounded)	Log CFU/ml	D 1/40	D1/400	log CFU/ml (1/40)	log CFU/ml (1/400)
J	J1	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
	J6	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
Aerobic mesophilic flora: $4,0.10^4$/ml	J2	10	8	5	82	82	1.91 Ne	10	<100	1.00	<2.00
		100	1	0							
	J7	10	7	7	64	64	1.81 Ne	73	210	1.86	2.32
		100	0	0							
	J3	10	107	107	1045	1000	3.00	730	1300	2.86	3.11
		100	8	12							
	J8	10	89	69	891	890	2.95	830	990	2.92	3.00
		100	9	7							
	J4	100	76	61	7727	7700	3.89	9100	10000	3.96	4.00
		1000	9	9							
	J5	100	71	77	7000	7000	3.85	7800	5700	3.89	3.76
		1000	6	8							
K	K1	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
	K6	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
Aerobic mesophilic flora: $7,5.10^3$/ml	K2	10	10	9	91	91	1.96	86	100	1.93	2.00
		100	0	0							
	K7	10	5	9	45	45	1.65 Ne	59	100	1.77	<2
		100	0	2							
	K3	10	89	75	864	860	2.93	830	590	2.92	2.77
		100	6	6							
	K8	10	87	75	855	860	2.93	1200	1100	3.08	3.04
		100	7	11							
	K4	100	75	82	7455	7500	3.88	12000	11000	4.08	4.04
		1000	7	8							
	K5	100	74	96	8182	8200	3.91	11000	7000	4.04	3.85
		1000	16	11							
L	L1	10	0	1	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
	L6	10	0	1	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
Aerobic mesophilic flora: $2,5.10^4$/ml	L2	10	10	12	100	100	2.00	45	<100	1.65	<2
		100	1	0							
	L7	10	9	8	100	100	2.00 Ne	130	<100	2.11	<2.00
		100	2	0							
	L3	10	84	87	827	830	2.92	900	590	2.95	2.77
		100	7	6							
	L8	10	89	94	918	920	2.96	1200	710	3.08	2.85
		100	12	10							
	L4	100	88	91	8818	8800	3.94	15000	18000	4.18	4.26
		1000	9	12							
	L5	100	93	106	9182	9200	3.96	30000	12000	4.48	4.08
		1000	8	12							

Laboratory	N° Sample	Reference method: ISO 4832♦						Alternative method: TEMPO TC			
		Dilution	CFU/ plate a	CFU/ plate b	CFU/ml	CFU/ml (rounded)	Log CFU/ml	D 1/40	D1/400	log CFU/ml (1/40)	log CFU/ml (1/400)
ADRIA	1588	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
	1589	10	0	0	<10	<10	<1.00	<10	<100	<1	<2
		100	0	0							
Aerobic mesophilic flora: $3,1.10^3$/ml	1590	10	8	8	73	73	1.86 Ne	71	100	1.85	2.00
		100	0	1							
	1591	10	6	6	55	55	1.74 Ne	120	<100	2.08	<2.00
		100	0	1							
	1592	10	82	83	818	820	2.91	830	860	2.92	2.93
		100	8	9							
	1593	10	101	94	973	970	2.99	730	730	2.86	2.86
		100	6	12							
	1594	100	73	65	7000	7000	3.85	6800	21000	3.83	4.32
		1000	4	8							
	1595	100	90	65	8909	8900	3.95	6800	12000	3.83	4.08
		1000	8	11							

♦ Analyses performed according to the COFRAC accreditation (Accreditation Testing n°1-0144, scope available on www.cofrac.fr)