Method Comparison Study Report for the ISO 16140-2:2016 validation of compact Dry YM, for the detection of Yeast and moulds in a broad range of food Aw>0.95

MicroVal study number: 2008LR10
Method/Kit name: Compact Dry YM
Report version:summary report
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Before comment

The technical protocol and the result interpretation were carried out according to the EN ISO 16140-2:2016 and the MicroVal technical rules.

✓ **Company**:	**Shimadzu Diagnostics Corporation**
✓ **Expert Laboratory**:	Campden BRI Station Road, Chipping Campden Gloucestershire, GL55 6LD (UK)
✓ **Studied method:**	Compact Dry YM for enumeration of total yeasts and moulds in foods
✓ **Validation standard**:	BS EN ISO 16140-2:2016 Microbiology of the food chain —Method validation —Part 2: Protocol for the validation of alternative (proprietary) methods against a reference method
✓ **Reference method**:	ISO 21527-1:2008 Microbiology of food and animal feeding stuffs. Horizontal method for the enumeration of yeasts and moulds. Colony count technique in products with water activity greater than 0.95.
✓ **Scope:**	A broad range of foods
✓ **Certification organization:**	MicroVal

1 INTRODUCTION

Please note that this study is for a renewal of the Compact YM to align it with the requirements of the ISO 16140-2:2016 standard. The original study was done according to ISO 16140:2003 and did not conform to the revised study design to test for relative trueness and accuracy profile. All relevant data has therefore been generated in this renewal study. The design of the Inter-laboratory study (ILS) is the same for the 2003 and 2016 versions of ISO16140 and therefore it is acceptable to re-analyse the existing ILS data using the new statistical approach outlined in ISO16140-2:2016. This was done successfully and the results of the ILS analysis are included in this report.

On renewal, it was proposed that an inclusivity and exclusivity study would be included to meet the requirements of the latest version of the MicroVal rules. The work was completed in December 2023 and the results are presented in this report.

It is the purpose of this renewal study to show that the analysis of the method according to ISO 16140-2:2016 give comparable results to the study done according to ISO 16140:2003 to enable the certificate to be renewed.

1.1 Alternative method

Compact Dry (supplied by Shimadzu Diagnostics Corporation) are ready-to-use dry media sheets comprising culture medium and a cold-soluble gelling agent, rehydrated by inoculating 1 ml diluted sample into the centre of the self-diffusible medium. The Compact Dry YM contains chromogenic medium and selective agents for the detection and enumeration of yeasts and moulds. Yeasts grow as blue colonies and moulds form cottony colonies with characteristic colours. The flow diagram of the alternative method and the kit insert are given in Appendix 1.

1.2Scope

A broad range of foods.

1.3Restriction of use

None.

1.4 Reference method

The reference method is *ISO 21527-1: Microbiology of food and animal feeding stuffs. Horizontal method for the enumeration of yeasts and moulds. Colony count technique in products with water activity greater than 0.95.* This method was used as a total count for all yeasts and mould present in food products with an aw of >0.95 and with the capability to grow within 5 days at 25°C. It is noted that this method is not intended for mould spores or for heat resistant mould species. The alternative method seeks comparable performance with the reference method and would therefore have the same restrictions. The flow diagram is given in Appendix 1.

1.5 Materials and equipment used

Test Kit Information

a) Test name – Compact Dry YM

Additional supplies, reagents and equipment

a) Stomacher bags
b) Maximum recovery diluents (Peptone saline diluents)
c) Stomacher
d) Balance
e) Pipettes
f) Incubator – 25 ±1ºC
g) Colony counter

Standard Reference Materials

a) Dichloran-rose bengal chloramphenicol agar (DRBCA)

1.6 Safety precautions

Follow Good Laboratory Practices for running food microbiology analyses.

1.7 Additional information

None.

2 METHOD COMPARISON STUDY

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

2.1 Relative trueness study

The trueness study is a comparative study between results obtained by the reference method and the results of the alternative method. This study was conducted using naturally contaminated samples only. Different categories, types and items were tested for this as shown below.

2.1.1 Number and nature of the samples

Five categories were tested. The number of samples per tested category and type is provided in Table 1:

Table 1 – Categories and types tested

Categories	Types	No of samples analysed	No of samples interpreted
Dairy products	Cheese e.g. grated cheese, soft cheese, blue	13	13
	Yogurts with fruit	5	5
	Fermented milk drinks	5	4
	Total	**23**	**22**
Confectionary, bakery and eggs	Bakery products with custard	5	5
	Egg products without additives e.g. chilled quiches	5	5
	Par baked egg products	5	5
	Total	**15**	**15**
Fruits and vegetables	Fresh fruit salad and fruit purees	6	6
	Chilled fruit juices	5	4
	Fermented vegetables e.g. sauerkraut, olives	5	4
	Total	**16**	**14**
Ready to eat foods	Ready to eat meat and poultry e.g. turkey	5	5
	Cooked and cured fish products e.g. roll herring, seafood terrine	5	5
	Cured meats e.g. salami, ham	5	5
	Total	**15**	**15**
Multi component foods	Composite foods with raw ingredients e.g. sandwiches, pasta salads.	6	6
	Mayonnaise based chilled salads	5	4
	Ambient stable acidified foods e.g. ketchup	5	4
	Total	**15**	**14**
TOTAL		**84**	**80**

84 samples were analysed, leading to 80 interpretable results

2.1.2 Artificial and natural contamination of the samples

All of the samples tested in the relative trueness study were naturally contaminated samples. The water activity of representative food types within each category were measured to ensure they were aw >0.95. This information is shown in Appendix 3.

2.1.3 Calculation and interpretation

The raw data are provided in Appendix 2. The summarized results and calculations are provided in Appendix 3. Analysis was carried out for the alternate method counted at day 3 and at day 7 as this covers the incubation period allowed in the kit insert and tested in the first methods comparison study.

The obtained data were analysed using the scatter plot for each sample per category and for each sample in all categories. The graphs are provided with the line of identity (y = x). The data for 3d is shown in Figure 1a for all categories and Figures 1b to 1f per individual category (Appendix 6). The data for 7d is shown in Figure 2a for all categories and Figures 2b to 2f per individual category (Appendix 6)

Figure 1a: All categories plot (3d)

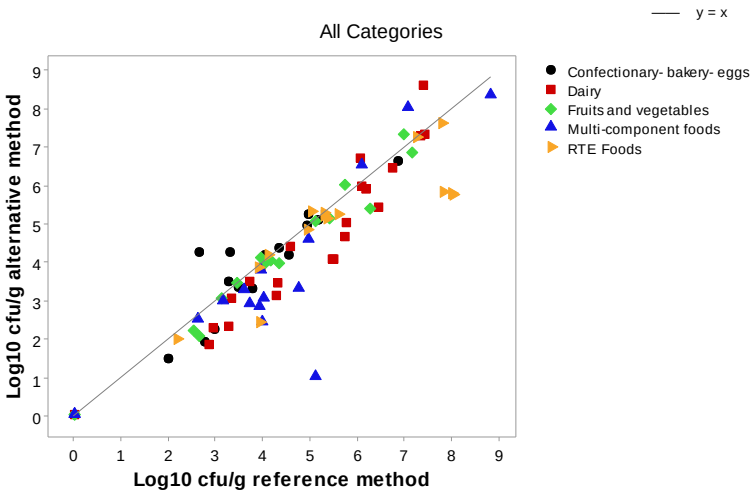
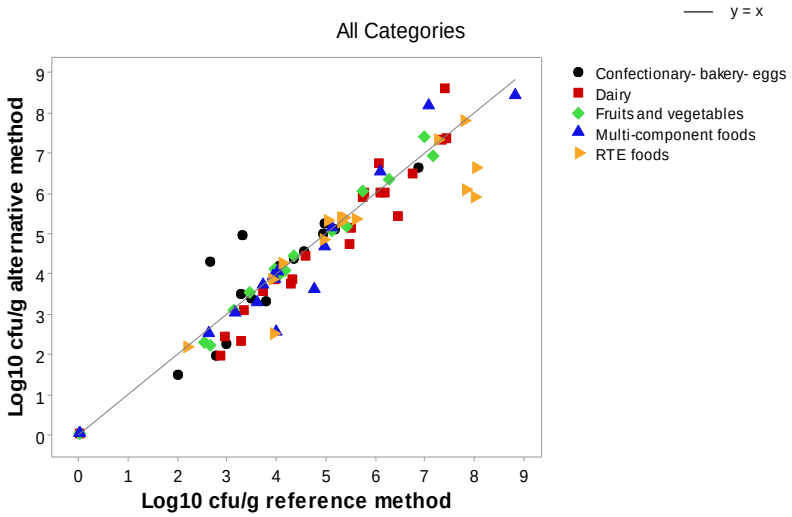


Figure 2a: All categories plot (7d)



According to ISO 16140-2:2016 6.1.2.3 the results of the scatter plot are interpreted based on a visual observation on the amount of bias and extreme results. The data appears acceptable with a few outlying points described below.

The data was analysed as described in ISO 16140-2:2016 section 6.1.2.3 in order to produce the Bland–Altman difference plot. The average difference $\overline{D}$, the standard deviation of difference s_D and the limits of agreement were calculated per category and for all categories (Table 2). For the 3d count there was a bias of -0.413 for the whole data set and for the 7d count there was an overall bias of -0.162

Table 2: Summary of calculated differences for 3 day incubation

Category	n	$\overline{D}$	s_D	95% Lower limit	95% Upper limit
Confectionary- bakery- eggs	15	-0.016	0.635	-1.422	1.390
Dairy	22	-0.470	0.643	-0.899	0.565
Fruits and vegetables	14	-0.239	0.450	-1.246	0.769
Multi-component foods	14	-0.738	1.184	-3.387	1.910
RTE Foods	15	-0.584	0.908	-2.595	1.426
All Categories	80	-0.413	0.808	-2.004	1.204

Table 3: Summary of calculated differences for 7 day incubation

Category	n	$\overline{D}$	s_D	95% Lower limit	95% Upper limit
Confectionary- bakery- eggs	15	0.064	0.714	-1.518	1.646
Dairy	22	-0.211	0.511	-1.297	0.876
Fruits and vegetables	14	-0.025	0.229	-0.536	0.487
Multi-component foods	14	-0.177	0.609	-1.540	1.185
RTE Foods	15	-0.428	0.799	-2.198	1.343
All Categories	80	-0.162	0.608	-1.379	1.056

The individual sample differences were plotted against the mean values on a graph that shows the line of identity (zero difference), the line of bias, and the upper and lower 95% confidence limits of agreement of the bias.

The data for 3d is shown in Figure 3a for all categories and Figures 3b to 3f per individual category (Appendix 7)

The data for 7d is shown in Figure 4a for all categories and Figures 4b to 4f per individual category (Appendix 7)

Analysis of the data in Tables 2 and 3 shows that after 3 days incubation there was an overall bias of -0.413 which means that on average the alternative method may under estimate the number of yeasts and moulds present at the 3 day point. By 7 days this bias has reduced significantly so that the overall bias is much lower at -0.162. The same can be seen for the individual food categories. In all cases there was a negative bias at 3 days which was particularly large for the Multi-component foods and the RTE foods. These biases had also reduced by 7 days. Therefore there was a closer agreement between the reference and alternative method after the 7 day incubation period for a broad range of foods. There were no particular food type which accounted for these biases. For example for the RTE food category at 7 days the 4 data points with a negative bias of greater than 1 log were for the RTE meat/poultry category (cooked sausages and cooked breaded chicken), the cured meat category (honey roast ham) and the cured fish category (smoked salmon). Within a single food categories it was possible to achieve either a positive or negative biases. For the Dairy Foods category, analyses of the cheese group shows positive bias of greater than 1 log for unpasteurised soft cheese (sample 20) and unpasteurised camembert (sample 53) but a negative bias of greater than 1 log for goats cheese (sample 49) and grated mozzarella (sample 87)
End-users of the alternative method should conduct in-house verification trials to demonstrate which incubation period is best suited to their individual product types as the agreement between reference and alternate method varies between food items in the same category. However once this is established, the agreement between replicate test portions of the same food type is very good as shown in the accuracy profile studies (see 2.2.2).

Although there is an underlying negative bias. the Bland Altman plots show a high dispersion of the data around the line of identity showing both positive and negative deviations. Most of the samples tested contained both yeast and mould colonies although there were generally more yeasts present. The reference method states that

'*enumeration methods for yeasts and especially moulds are imprecise because they consist of a mixture of mycelium and asexual and sexual spores. Numbers of colony-forming units depend on the degree of fragmentation of mycelium and the proportion of spores able to grow on the plating medium'* so it is perhaps not surprising to find a high level of variability based on the fact that the samples contained naturally present yeasts and moulds. In addition there are differences in the size of the plates used for the reference method and the alternate method and in the volumes analysed, 0.1ml for reference and 1ml for alternate. In addition the alternate method relies on a chromogenic medium for detection of yeasts and moulds. Considering all these aspects, the agreement between the alternate method and the reference method is acceptable.

Figure 3a: Bland-Altman plot for all categories (3d)

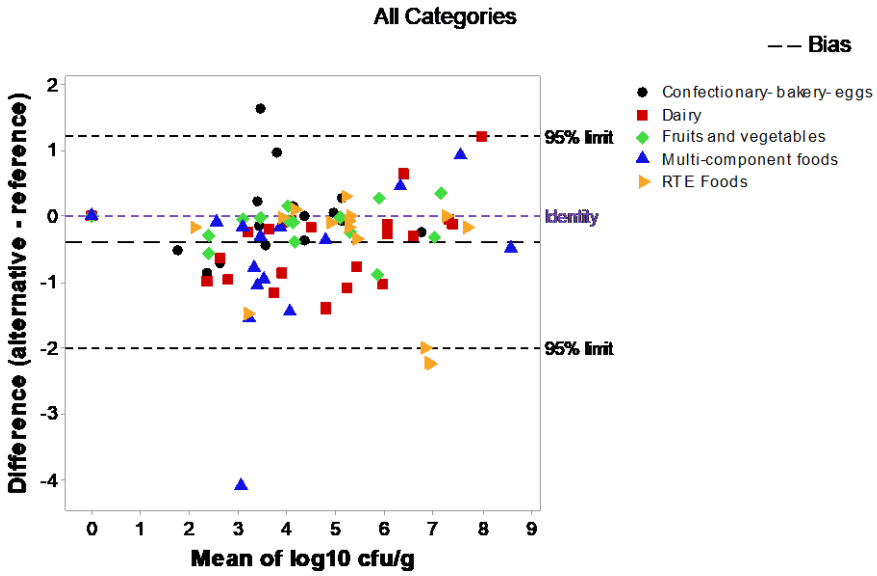
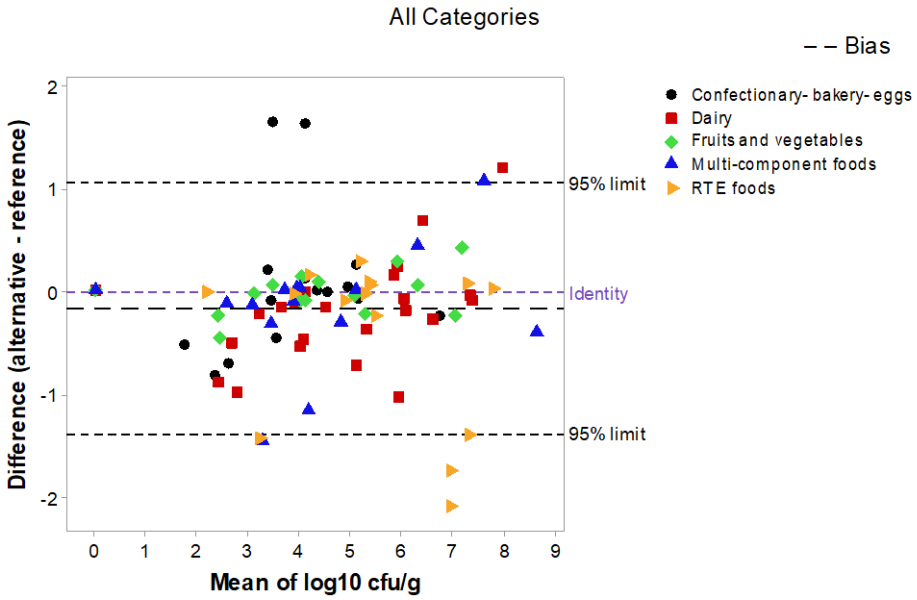


Figure 3a: Bland-Altman plot for all categories (7d)



The results of the difference and scatter plot were interpreted based on a visual observation on the amount of bias and extreme results. It is expected that not more than one in 20 data values will lie outside the CLs. Any disagreements with the expectation should be recorded and explained if possible.

For 'All Categories' for the 3d data there are four in 80 values which lie outside the CLs. This is in agreement with the expectation of less than one in 20, although it is noted that the CL's for this data are large with a negative CL of -2.004 and a positive CL of 1.204. For 'All Categories' the 7d data there are 7 in 80 values which lie outside the CLs. This is slightly more than the expectation of less than one in 20. The points which were outside of the CLs are shown below in Tables 4 and 5. There were no identifiable trends in these data and they covered 4 different food categories. For the 7d data, the data points have been examined and there are no obvious reasons

for the disagreement, all the colony count data are within the target counting range of the methods and appear accurate. Three of the data points (sample 61, 206 and 87) are very close to the lower confidence limit which leaves 4 points which are true outliers. Two of these are above the upper limit with an average difference of 1.635 and two are below the lower limit with an average difference of -1.61. It is concluded that these samples are just individual cases where there is disagreement between the agars with no identifiable explanation. These differences are not unexpected as this data is for a total count of naturally present yeast and moulds which may vary considerably between samples.

Table 4: Results falling outside the confidence limits for 3 days

Food Category	Food type	Sample code	Food item	Difference log cfu/g (alternative – reference)
Confectionary/eggs	Bakery with custard	156	Egg custard tarts	1.616
Multi component foods	Mayonnaise based salads	306	Jalopena coleslaw	-4.114
RTE Foods	Cooked or cured fish	107	Hot smoked salmon	-2.256
RTE Foods	Meat and poultry	75	Breaded chicken strips	-2.228

The one noteworthy outlier from the 3d data is for sample 306 where the count on the alternative method was much lower than the reference method. By 7d incubation, the organisms present in this sample had grown to similar levels on both methods

Table 5: Results falling outside the confidence limits for 7days

Food Category	Food type	Sample code	Food item	Difference log cfu/g (alternative – reference)
Confectionary/eggs	Bakery with custard	156	Egg custard tarts	1.637
Confectionary/eggs	Products with eggs	145	Egg Fried Rice	1.633
Multi component foods	Mayonnaise based salads	61	Potato Salad	-1.474
RTE Foods	Meat and poultry	29	Cooked cocktail sausage	-1.747
RTE Foods	Cooked or cured fish	75	Breaded chicken strips	-2.102
Dairy	Cheese	87	Grated mozarrella	1.191
RTE Foods	Meat and poultry	206	Honey roast ham	-1.473

2.1.4 Discordant results

It is commonly recognized that a bias higher than 0.5 Log cfu/g difference between the compared methods should be explained if possible. For bacterial counts, < 0.5 log difference is typical of the natural variation you might expect between samples. For yeast and mould counts the variability may often be higher than this so the discordant results have been grouped into samples with a difference of >0.5log and a difference of >1.0 log to highlight samples with higher than expected disagreement.

For the 3d data there were many discordant results at the 0.5 log level with fewer at the >1.0 log level. In total there were, 5 with a positive bias and 26 with negative bias (13 of these >1.0 log). The magnitude of the bias was similar with a mean positive bias of 1.061 and a mean negative bias of -1.22, although there were many more samples showing a negative bias than a positive bias.

For the 7d data there were 17 discordant results, 3 with positive bias and 14 with negative bias (7 of these >1.0 log). The magnitude of the bias was similar with a mean positive bias of 1.27 and a mean negative bias of -1.1.

For the 3d data, the majority of the negative discordant results were for dairy products or multi-component foods containing mayonnaises or dressings. For the 7d data the discordant results fell across 4 categories

It is likely that non-target organisms naturally present in these products are able to grow on the Reference media but not on the alternative media (Compact Dry). Previous studies in our laboratories

have shown that DRBCA allows enumeration of a number of bacterial groups as well as yeasts and moulds and the inclusivity data from the original study showed that 5 non target species (3 *Pseudomonas* and 2 *Enterobacter*) were detected on DRBCA compared to only 1 non target species (*Pseudomonas*) on Compact Dry YM.

✓ Positive bias higher than 0.5 Log CFU/g

The results showing a higher enumeration with the ALTERNATIVE method than with the REFERENCE method are shown below. (See Table 4 for 3d and Table 5 for 7d).

Table 4 – Discordant results with a positive bias for 3 days

Sample n°	Product category	Products	Bias log Alt - log Ref (log CFU/g)
156	Confectionary/eggs	Egg custard tarts	1.616
87	Dairy	Grated mozzarella	1.191
145	Confectionary/eggs	Egg Fried Rice	0.964
40	Multi component foods	Houmus	0.914
77	Dairy (Yogurt)	Cherry Yogurt	0.620

Table 5 – Discordant results with a positive bias for 7 days

Sample n°	Product category	Products	Bias log Alt - log Ref (log CFU/g)
156	Confectionary/eggs	Egg custard tarts	1.637
145	Confectionary/eggs	Egg Fried Rice	1.633
87	Dairy	Grated mozzarella	1.191
40	Multi component foods	Houmus	1.070
77	Dairy (Yogurt)	Cherry Yogurt	0.682

✓ Negative bias higher than 0.5 Log CFU/g

The results showing a higher enumeration with the REFERENCE method than with the ALTERNATIVE method are shown below (See Table 6 for 3d and Table 7 for 7d).

Table 6 – Discordant results with a negative bias for 3 day

Sample n°	Product category	Products	Bias log Alt - log Ref (log CFU/g)
Difference of >1.0 log			
306	Multi component foods	Jalopena coleslaw	-4.114
107	RTE Foods	Hot smoked salmon	-2.256
75	RTE Foods	Breaded chicken strips	-2.228
29	RTE Foods	Cooked cocktail sausage	-2.01
61	Multi component foods	Potato Salad	-1.564
206	RTE foods	Honey roast ham chunks	-1.491
39	Multi component foods	Salmon and King Prawn sandwich	-1.464
53	Dairy (Cheese)	Normandie Camembert unpasteurised	-1.417
24	Dairy (Cheese)	Dorset Vinney Blue unpasteurised blue cheese	-1.385
79	Dairy (Yogurt)	Cherry yogurt	-1.107
305	Multi component foods	prawn pasta salad	-1.077
20	Dairy (Cheese)	Reblochon de Savoie unpasteurised	-1.049
74	Dairy (Cheese)	Jarlsberg cheese	-1
Difference of >0.5log to <1.0 log			
2	Dairy (Yogurt)	Danio Strawberry Yogurt	-0.982

Sample n°	Product category	Products	Bias log Alt - log Ref (log CFU/g)
72	Multi component foods	Tomato Ketchup 50% Less Sugars	-0.97
307	Fruits and vegetables	mixed olives with chilli peppers	-0.891
143	Dairy (Cheese)	Ashmore unpasteurised cheddar	-0.87
4	Confectionary/eggs	frozen vanilla custard slices	-0.868
308	Multi component foods	Tuna pasta salad	-0.807
49	Dairy (Cheese)	Goats cheese	-0.766
201	Confectionary/eggs	par baked petit pains	-0.726
10	Dairy (fermented drinks)	Peach Probiotic Drink	-0.663
18	Fruits and vegetables	Mango juice	-0.584
115	Dairy (Cheese)	Stilton	-0.544
311	Confectionary/eggs	par baked garlic bread	-0.523
64	Multi component foods	Sweet Chilli Chicken Wrap	-0.51

Table 7 – Discordant results with a negative bias for 7days

Sample n°	Product category	Products	Bias log Alt - log Ref (log CFU/g)
Difference of >1.0 log			
75	RTE Foods	Breaded chicken strips	-2.102
29	RTE Foods	Cooked cocktail sausage	-1.747
61	Multi component foods	Potato Salad	-1.474
206	RTE foods	Honey roast ham chunks	-1.437
107	RTE foods	Hot smoked salmon	-1.400
39	Multi component foods	Salmon and King Prawn sandwich	-1.163
20	Dairy (Cheese)	Reblochon de Savoie unpasteurised	-1.028
Difference of >0.5log to <1.0 log			
2	Dairy (Yogurt)	Danio Strawberry Yogurt	-0.982
74	Dairy (Cheese)	Jarlsberg cheese	-0.891
4	Confectionary/eggs	Frozen vanilla custard slices	-0.817
24	Dairy (Cheese)	Dorset Vinney Blue unpasteurised blue cheese	-0.72
201	Confectionary/eggs	par baked petit pains	-0.703
115	Dairy (Cheese)	Stilton	-0.544
311	Confectionary/eggs	par baked garlic bread	-0.523

2.1.5 Conclusion

Although there were some discordant results between the alternative method and the reference method, these are potentially caused by over enumerating on the reference method as it is known be less selective than the alternate method. None the less it is noted that for some raw milk and fermented dairy products the alternative method may give a lower count than that obtained on the reference method after 3 days incubation.

Taking into account the overall Bland Altman analysis and the original study analysis it is concluded that the relative trueness study of the ALTERNATIVE method is satisfied. Whilst there are a number of discordant results, these do not form part of the ISO16140-2:2016 analysis and therefore are informative only

2.2 Accuracy profile study

The accuracy profile study is a comparative study between the results obtained by the reference and the results of the alternative method. This study is conducted using artificially contaminated samples. One type per category is tested for this.

2.2.1 Food matrices

For each of 5 food categories, one type of food was tested using 6 samples per type. Of the 6 samples, there were 2 at a low level, 2 at a medium level and 2 at a high level of contamination. For each of the 6 samples per category, 5 replicate test portions were tested.

The tested categories, types, items and inoculated strains are provided in the Table 8.

Table 8 - Categories, types and food items

Category	Types	Item	Strain	Level	Test portions
Dairy products	Pasteurised dairy products	Fermented yogurt drink and Cream cheese	*S.cerevisiae* CRA 15968	Low 300cf/g	5 per item
				Medium : 5000cfu/g	5 per item
				High : 10,0000cfu/g	5 per item
Fruits and vegetables	Blanched/pasteurised products	Vegetable juice and beetroot salad	*D.hansenii* CRA 15969	Low: 500cf/g	5 per item
				Medium : 5000cfu/g	5 per item
				High : 50,000cfu/g	5 per item
Confectionary, bakery and eggs	Chilled ready to eat foods	Quiche and Egg custard tarts	*A.niger* CRA 16667	Low: 100cf/g	5 per item
				Medium : 1000cfu/g	5 per item
				High : 50,000cfu/g	5 per item
Ready to eat foods	RTE fish products	Cooked prawns and Fish pate	*P. chrysogeum* DSM 848	Low: 100cf/g	5 per item
				Medium : 10000cfu/g	5 per item
				High : 100,000cfu/g	5 per item
Multi component foods	Composite foods with raw ingredients	Sandwiches and Pasta salad with protein	*G. candidum* CRA 14398	Low 500cf/g	5 per item
				Medium : 5000cfu/g	5 per item
				High : 10,000cfu/g	5 per item

2.2.2 Calculation and interpretation

The raw data are provided in Appendix 4. The summary tables (in log CFU/g) are provided in Appendix 5.
The statistical results and the accuracy profiles are provided Figure 3a to e.
If any of the upper or lower values exceeded the limits for any category and the standard deviation of the reference method was >0.125, additional evaluation procedure were followed, as described in ISO 16140-2:2016 and the new acceptability limits were calculated as a function of the standard deviation $AL_s = 4 \cdot s_{ref}$.

For two of the food categories the additional AL calculation was required. This was for the fresh produce where the medium level of beetroot salad just exceeded the lower limit on the 3d incubation data (Figure 3b) and RTE products where the low level for tuna pate just exceeded the upper limit on the 3 and 7d incubation data (Figure 3d). However, the re-calculated AL's were achieved for all food categories

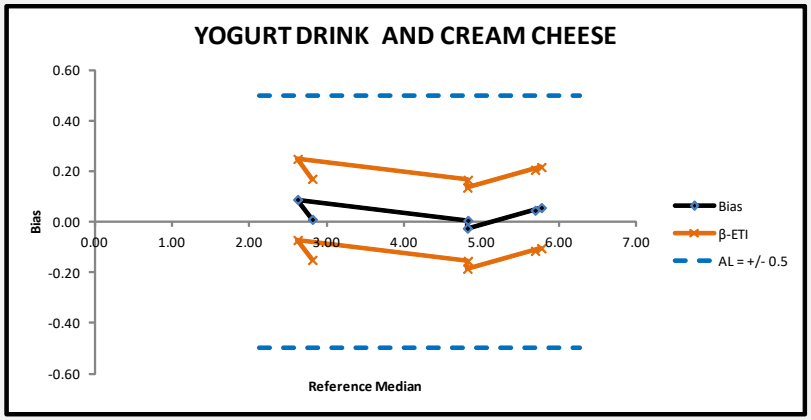
2.2.3 Conclusion

The observed profiles are within the 0.5log AL or the recalculated AL limit calculated according to ISO16140-2:2015 section 6.1.3.3.

All the accuracy profiles fulfil the performance criteria and the alternative method is accepted as being equivalent to the reference method.

Figure 3 a: Dairy products

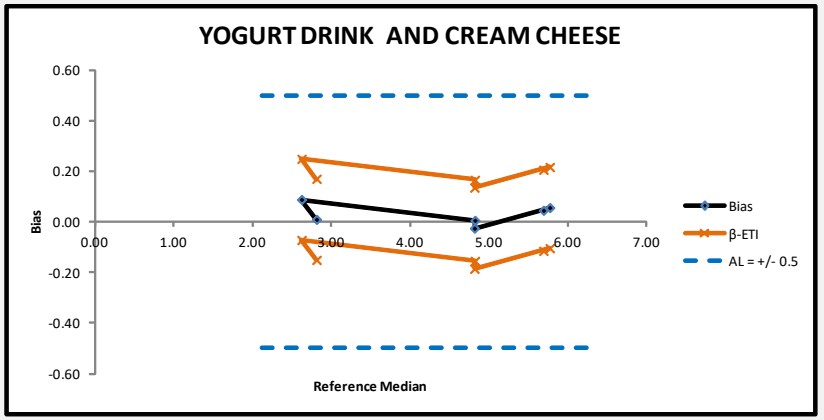
(Food) Category	DAIRY 3-day
(Food) Type	YOGURT DRINK AND CREAM



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
88 a-e	2.81	0.010	-0.150	0.170	YES	YES
147 a-e	2.62	0.089	-0.072	0.249	YES	YES
84 a-e	4.82	0.006	-0.154	0.166	YES	YES
160 a-e	4.82	-0.025	-0.185	0.135	YES	YES
10 a-e	5.77	0.056	-0.104	0.217	YES	YES
15 a-e	5.69	0.046	-0.114	0.206	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.069	0.111	YES	+/- 0.500

(Food) Category	DAIRY 7-day
(Food) Type	YOGURT DRINK AND CREAM

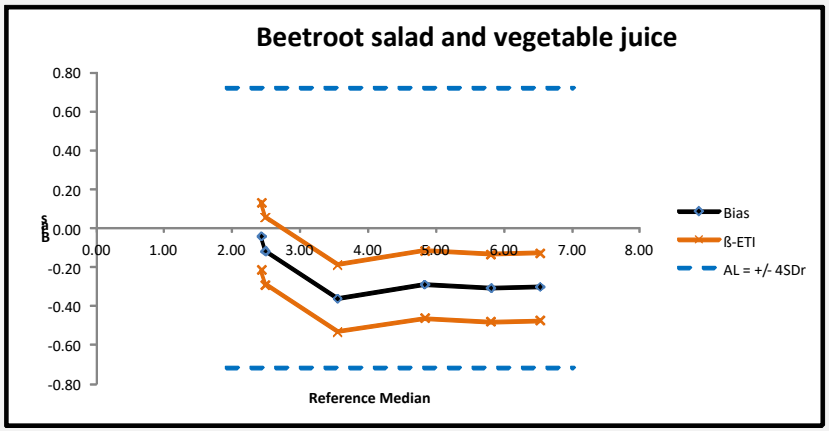


Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=±0.5 Acceptable	β-ETI compared to final AL Acceptable
88 a-e	2.81	0.010	-0.150	0.170	YES	YES
147 a-e	2.62	0.089	-0.072	0.249	YES	YES
84 a-e	4.82	0.006	-0.154	0.166	YES	YES
160 a-e	4.82	-0.025	-0.185	0.135	YES	YES
10 a-e	5.77	0.056	-0.104	0.217	YES	YES
15 a-e	5.69	0.046	-0.114	0.206	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.069	0.111	YES	+/- 0.500

Figure 3b: Fresh produce

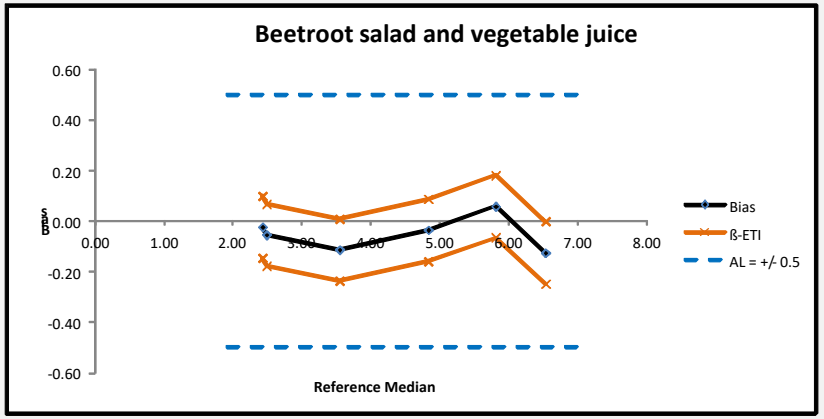
(Food) Category	PRODUCE -3d
(Food) Type	Beetroot salad and vegetable juice



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
31 a-e	2.43	-0.042	-0.215	0.131	YES	YES
25 a-e	2.49	-0.118	-0.292	0.055	YES	YES
133 a-e	3.55	-0.361	-0.534	-0.187	NO	YES
85 a-e	4.83	-0.290	-0.463	-0.116	YES	YES
190 a-e	5.81	-0.307	-0.480	-0.134	YES	YES
13 a-e	6.53	-0.301	-0.474	-0.128	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.180	0.120	NO	+/- 0.720

(Food) Category	PRODUCE -7d
(Food) Type	Beetroot salad and vegetable juice

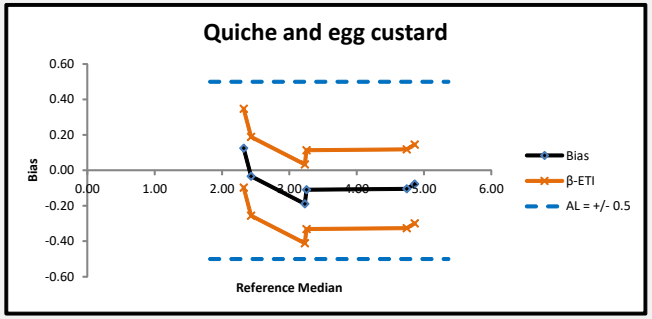


Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=±0.5 Acceptable	β-ETI compared to final AL Acceptable
31 a-e	2.43	-0.025	-0.148	0.098	YES	YES
25 a-e	2.49	-0.055	-0.178	0.068	YES	YES
133 a-e	3.55	-0.114	-0.237	0.009	YES	YES
85 a-e	4.83	-0.036	-0.159	0.086	YES	YES
190a-e	5.81	0.057	-0.065	0.180	YES	YES
13 a-e	6.53	-0.126	-0.248	-0.003	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.180	0.085	NO	+/- 0.500

Figure3 c: Confectionary, bakery and eggs

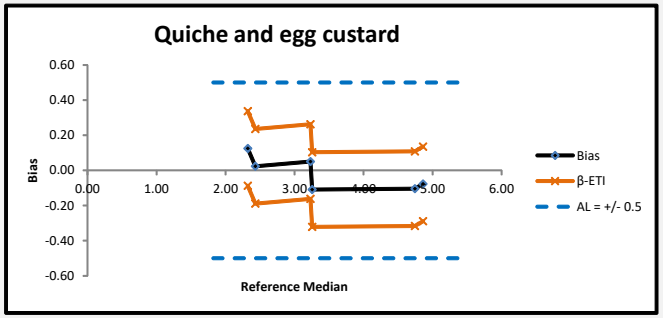
(Food) Category	Confectionary -3 day
(Food) Type	Quiche and egg custard



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
44 a-e	2.32	0.125	-0.097	0.347	YES	YES
134 a-e	2.43	-0.033	-0.256	0.189	YES	YES
2 a-e	3.23	-0.189	-0.411	0.033	YES	YES
124 a-e	3.26	-0.109	-0.331	0.113	YES	YES
15 a-e	4.74	-0.104	-0.326	0.118	YES	YES
165 a-e	4.86	-0.077	-0.299	0.145	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.123	0.154	YES	+/- 0.500

(Food) Category	Confectionary - 7day
(Food) Type	Quiche and egg custard

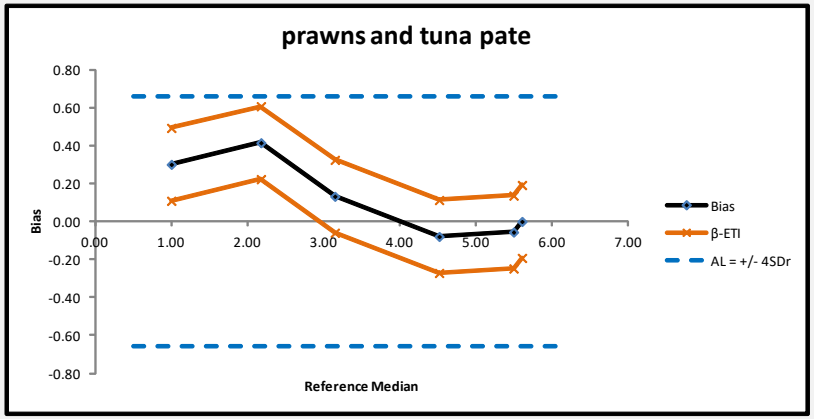


Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=±0.5 Acceptable	β-ETI compared to final AL Acceptable
44 a-e	2.32	0.125	-0.087	0.337	YES	YES
134 a-e	2.43	0.023	-0.189	0.236	YES	YES
2 a-e	3.23	0.050	-0.162	0.263	YES	YES
124 a-e	3.26	-0.109	-0.321	0.103	YES	YES
15 a-e	4.74	-0.104	-0.316	0.108	YES	YES
165 a-e	4.86	-0.077	-0.289	0.135	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.122	0.147	YES	+/- 0.500

Figure 3d: Ready to eat foods

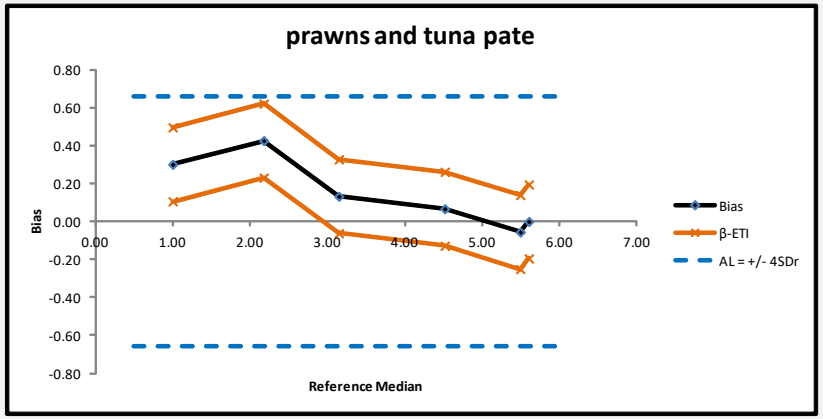
(Food) Category	RTE Foods-3d
(Food) Type	prawns and tuna pate



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
186 a-e	1.00	0.301	0.109	0.493	YES	YES
197 a-e	2.18	0.415	0.223	0.607	NO	YES
68 a-e	3.15	0.133	-0.059	0.325	YES	YES
64 a-e	4.51	-0.079	-0.271	0.113	YES	YES
23 a-e	5.49	-0.056	-0.248	0.136	YES	YES
36 a-e	5.60	0.000	-0.192	0.192	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.164	0.133	NO	+/- 0.656

(Food) Category	RTE Foods- 7d
(Food) Type	prawns and tuna pate

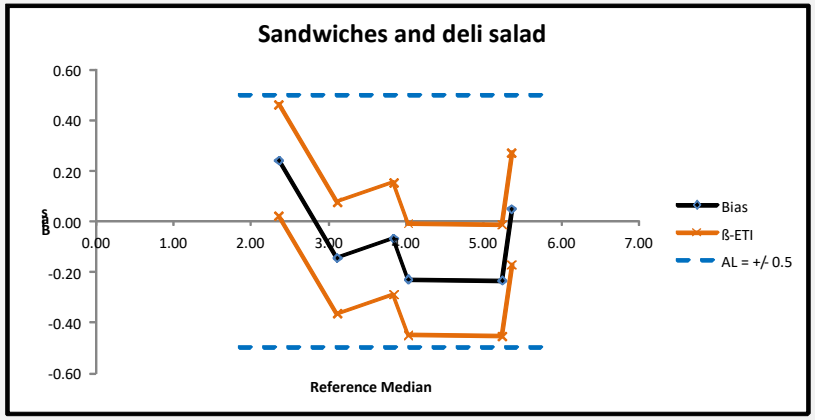


Sample Name	Reference Central value	Bias	Lower β-ETI	Upper β-ETI	β-ETI compared to AL=±0.5 Acceptable	β-ETI compared to final AL Acceptable
186 a-e	1.00	0.301	0.106	0.496	YES	YES
197 a-e	2.18	0.426	0.231	0.621	NO	YES
68 a-e	3.15	0.133	-0.062	0.328	YES	YES
64 a-e	4.51	0.067	-0.128	0.262	YES	YES
23 a-e	5.49	-0.056	-0.251	0.139	YES	YES
36 a-e	5.60	0.000	-0.195	0.195	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.164	0.135	NO	+/- 0.656

Figure 3e: Multicomponent foods

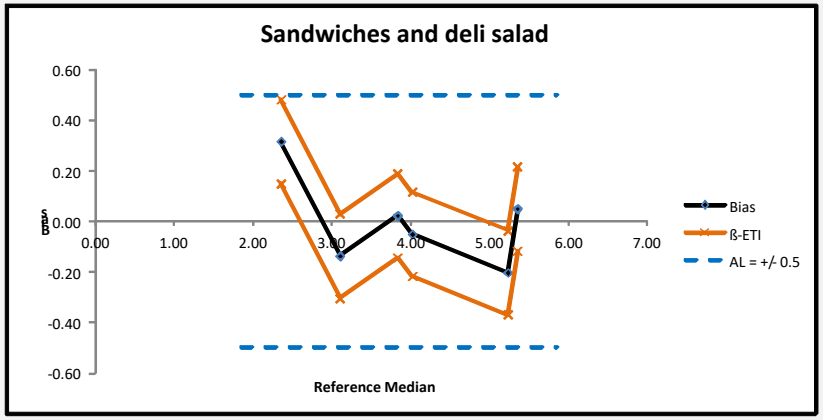
(Food) Category	Multi-component -3d
(Food) Type	Sandwiches and deli salad



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
174 a-e	2.36	0.240	0.019	0.461	YES	YES
6 a-e	3.11	-0.144	-0.365	0.076	YES	YES
155 a-e	3.84	-0.068	-0.289	0.153	YES	YES
200 a-e	4.03	-0.229	-0.450	-0.008	YES	YES
79 a-e	5.24	-0.233	-0.454	-0.013	YES	YES
180 a-e	5.36	0.049	-0.172	0.270	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.112	0.153	YES	+/- 0.500

(Food) Category	Multi-component 7d
(Food) Type	Sandwiches and deli salad



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
174 a-e	2.36	0.315	0.149	0.481	YES	YES
6 a-e	3.11	-0.137	-0.303	0.029	YES	YES
155 a-e	3.84	0.022	-0.144	0.188	YES	YES
200 a-e	4.03	-0.051	-0.217	0.115	YES	YES
79 a-e	5.24	-0.203	-0.369	-0.037	YES	YES
180 a-e	5.36	0.049	-0.117	0.215	YES	YES

	Reference method	Alternative method	SD repeatability of reference method <= 0.125	Final AL
SD Repeatability	0.112	0.115	YES	+/- 0.500

2.3 Quantification limits (LOQ)

As the alternative method is based on counting visible colonies target microorganism, the LOQ was not required to be determined according to ISO 16140-2:2016.

2.4 Inclusivity and exclusivity studies

The inclusivity study is a study involving pure target strains to be detected or enumerated by the alternative method. According to ISO/FDIS 16140-2:2015 6.1.5, this test is not required for general enumeration methods such as yeast and mould counts.

An inclusivity and exclusivity study was completed in the original study as it was a requirement at the time and for the sake of completeness the results are included in this report (Appendix 8). They help to explain the potential for DRBCA to enumerate non target organisms as 5 out of 20 non target strains were counted on DRBCA as opposed to only 1 non target strain on Compact Dry YM.

Inclusivity

In the original study, 31 isolates comprised of 15 mould and 16 yeasts were tested on an non selective media, the reference method and the alternative method at 3 and 7 days incubation. The results were noted as the presence or absence of growth, with no details on the levels achieved on either the reference or alternative methods included. Details of the results are included in the report for information and to assist in any trouble shooting of discrepant results. Briefly, 27 out of the 30 isolates gave colonies on the alternative method at 7d incubation and 22 out of the 30 isolates at 3 day incubation.

The two mould isolates that did not grow at 7 days were *Monascus bisporus* CBS 599.97and *Chrysosporium farinicola* CBS 154.67. These isolates also failed to produce colonies on the reference method, indicating an equivalent performance on both media. One yeast isolate *Dekkera bruxellensis* CRA16012 failed to grow on the alternative method however a positive result was observed on the reference method.

The 8 isolates that did not grow after 3d incubation were *Aspergillus echinulatus* CBS 112.26*, Aspergillus flavipus* MB 102277*, Cladosporium herbarum* IMI 395122*, Paecilomyces variotii* CBS 119378*, Monascus bisporus* CBS 599.97, *Chrysosporium farinicola* CBS 154.67, *Eurotium chevalieri* CBS 522.65 and *Dekkera bruxellensis*

Analysis of the results revealed that 27 out of the 30 isolates grew on the reference method. The three strains that failed to grow were *Aspergillus echinulatus, Monascus bisporus and Chrysosporium farinicola.* Two out of the three isolates gave no growth on either alternative or reference methods showing agreement between both methods. The remaining isolate *Aspergillus echinulatus* CBS 112.26 was positive on the alternative method at 7 days indicating that this may be a slow growing strain.

On renewal, a full inclusivity panel was tested to align with the MicroVal rules. A total of 50 strains comprising 28 yeast and 22 mould isolates were tested for inclusivity. The results are presented in a separate excel spread sheet for reference.

49 out of the 50 isolates tested gave the expected results with both the reference and alternative methods for a 3d incubation of CD YM. The strain that did not grow was *Byssochlamys fulva* an industrial isolate. This strain did produce colonies at 7d incubation, suggesting that this is a slow growing strain. The other *Byssochlamys* isolate (*B. spectabilis*) also was slower growing with few colonies on 3d, which also increased in number after 7d incubation. These results are supported by the data from the original study where 5 isolates gave growth on the reference method and were slower growing with positive results at 7d but not 3d incubation. Further investigation of the isolates revealed that they all belong to the Fungi division Ascomycota.

At 7 days incubation all 50 isolates gave growth with both the reference and alternative methods. The results for the alternative method were in agreement with the results obtained for the reference method, for both the 3d and 7d incubation times. Data analysis revealed that 4 mould isolates did not grow at 3d, but they also gave growth after 7d incubation. The *Aspergillus echinulatus* isolate in the initial study also did not grow at 3d on the alternative method after 3d incubation but grew after 7d incubation.

Exclusivity

A total of 30 isolates were tested for exclusivity in the renewal study. 26 of these strains showed a negative result on the reference and alternative methods incubated at both 3d and 7d. The 4 isolates that gave growth were *Pseudomonas syringae, Burkholderia cepacia Providencia rettgeri* CRA 8386 and *Sphingomonas aquatilis* CRA 16692. Further analysis of these isolates using MALDI ToF showed that these isolates were identified as *Pseudomonas syringae , Burkholderia cepacia* and *Providencia rettgeri* and *Sphingomonas sp.* respectively demonstrating that the isolates were not yeasts and moulds.

Conclusion

The alternative Compact Dry YM method is selective and specific at both incubation times tested. During the study it was noted that some mould isolates in the inclusivity panel require a longer incubation time within the 3-7 day incubation window. Based on the findings it is recommended that if slow growing moulds are anticipated in the sample that the plates are incubated for greater than 3 days.

3 CONCLUSION

The results from the methods comparison study have shown that

- Compact Dry YM for enumeration of total yeasts and moulds in foods shows satisfying trueness according to Bland-Altman analysis after 3 days and 7 days
- Compact Dry YM for enumeration of total yeasts and moulds in foods shows satisfactory and accuracy profile after 3 days and 7 days
- Compact Dry YM for enumeration of total yeasts and moulds in foods was shown to be specific and selective.
- Compact Dry YM for enumeration of total yeasts and moulds in foods was shown to give equivalent performance to the reference method in an Inter laboratory study after 3 days and 7 days

These findings are in agreement with those of the original study done according to ISO 16140:2003 and show comparative performance between the reference method and the alternative method

4 INTER-LABORATORY STUDY

The experimental design for the interlaboratory study is the same in ISO16140:2003 and ISO16140-2:2015. However, the statistical analysis of the data is different. It was proposed to use the existing ILS data to recalculate the new statistics using this data as shown below.

4.1 Organisation

There were 9 collaborative laboratories used in this study representing 6 different countries.

A single strain of the yeast *Debaromyces hansenii* (Campden code 15969) and a single strain of mould *Penicillium chrysogenum* (IMI 1394016) were grown in Malt extract broth and mixed together to inoculate 8 samples of orange juice.

Two samples of UHT orange juice remained uninoculated. For the remaining six samples, appropriate dilutions of the yeasts and moulds culture were used to individually inoculate 2 x 20ml juice samples at the lower (10^3 cfu/ml), middle (10^4 cfu/ml) and higher (10^5 cfu/ml) contamination levels. The samples were blind-coded and stored at 0-4°C prior to despatch.

The study was done in November 2010.

4.2 Calculations and interpretation of data

The data from the collaborative trial were calculated and interpreted according to section 6.2.3 of ISO 16140-2:2016 using the freely available Excel® spreadsheet (**http://standards.iso.org/iso/16140**).
The log transformed data from the existing trial is shown in Table 9 for 3 day data and 10 for 7 day data below and the Accuracy profile graphs are shown in Figures 4 and 5.

Table 9: Summary of the results of the interlaboratory study per analyte level (k)- 3 day data

		Reference method x_{ijk}		**Alternative method k_{ijk}**	
Collaborators (i)	**Level (k)**				
1	Blank	<10		<10	
2	Blank	<10		<10	
3	Blank	<10		<10	
4	Blank	<10		<10	
5	Blank	<10		<10	
6	Blank	<10		<10	
7	Blank	<10		<10	
8	Blank	<10		<10	
Collaborators (i)	**Level (k)**	**Duplicate 1**	**Duplicate 2**	**Duplicate 1**	**Duplicate 2**
1	Low	4.210	4.030	4.330	3.910
2	Low	3.980	4.060	3.960	3.990
3	Low	3.820	3.900	3.680	3.680
4	Low	4.090	3.980	4.210	4.020
5	Low	3.980	4.010	3.860	3.910
6	Low	4.180	4.110	4.160	3.840
7	Low	4.040	3.920	4.130	3.920
8	Low	3.960	3.900	3.920	3.910
Collaborators (i)	**Level (k)**	**Duplicate 1**	**Duplicate 2**	**Duplicate 1**	**Duplicate 2**
1	Medium	4.780	4.970	4.790	4.910
2	Medium	5.000	4.720	4.920	4.760
3	Medium	4.650	4.460	4.500	4.310
4	Medium	5.080	4.930	5.030	5.030
5	Medium	4.730	4.690	4.730	4.700
6	Medium	4.880	4.850	4.640	4.650
7	Medium	4.930	4.790	4.750	4.670
8	Medium	4.700	4.810	4.680	4.850
Collaborators (i)	**Level (k)**	**Duplicate 1**	**Duplicate 2**	**Duplicate 1**	**Duplicate 2**
1	High	5.850	5.850	5.860	5.790
2	High	5.840	5.860	5.760	5.740
3	High	5.660	5.390	5.430	5.300
4	High	5.960	6.100	6.130	6.270
5	High	5.680	5.520	5.630	5.480
6	High	5.700	5.720	5.560	5.540
7	High	5.730	5.650	5.580	5.530
8	High	5.710	5.670	5.660	5.580

Table 10: Summary of the results of the interlaboratory study per analyte level (k)- 7 day data

		Reference method x_{ijk}		Alternative method k_{ijk}	
Collaborators (i)	**Level (k)**				
1	Blank	<10		<10	
2	Blank	<10		<10	
3	Blank	<10		<10	
4	Blank	<10		<10	
5	Blank	<10		<10	
6	Blank	<10		<10	
7	Blank	<10		<10	
8	Blank	<10		<10	
0	Blank	<10		<10	
Collaborators (i)	**Level (k)**	**Duplicate 1**	**Duplicate 2**	**Duplicate 1**	**Duplicate 2**
1	Low	4.210	4.030	4.330	3.920
2	Low	3.980	4.060	3.960	3.990
3	Low	3.820	3.900	3.730	3.680
4	Low	4.090	3.980	4.210	4.020
5	Low	3.980	4.010	3.860	3.910
6	Low	4.180	4.110	4.160	3.840
7	Low	4.040	3.920	4.120	3.920
8	Low	3.960	3.900	3.920	3.910
9	Low	4.090	4.120	4.070	4.080
Collaborators (i)	**Level (k)**	**Duplicate 1**	**Duplicate 2**	**Duplicate 1**	**Duplicate 2**
1	Medium	4.780	4.970	4.800	4.910
2	Medium	5.000	4.720	4.760	4.920
3	Medium	4.650	4.460	4.370	4.530
4	Medium	5.080	4.930	5.030	5.030
5	Medium	4.730	4.690	4.700	4.730
6	Medium	4.880	4.850	4.650	4.640
7	Medium	4.930	4.790	4.690	4.760
8	Medium	4.700	4.810	4.680	4.850
9	Medium	4.830	5.160	4.850	5.100
Collaborators (i)	**Level (k)**	**Duplicate 1**	**Duplicate 2**	**Duplicate 1**	**Duplicate 2**
1	High	5.850	5.850	5.860	5.790
2	High	5.840	5.860	5.760	5.740
3	High	5.660	5.390	5.640	5.330
4	High	5.960	6.100	6.130	6.270
5	High	5.680	5.520	5.630	5.480
6	High	5.700	5.720	5.560	5.540
7	High	5.730	5.650	5.580	5.560
8	High	5.710	5.670	5.660	5.580
9	High	5.830	6.090	5.780	6.030

The statistical analysis of the existing ILS data is shown in Tables 11 and 12 below. It can be seen that the repeatability standard deviation (S_r), the between-labs standard deviation (S_L) and the reproducibility standard deviation (S_R) was similar for the alternate method and the reference method for both the 3d and 7d data. There was a very slight negative bias in the data for the alternate method of <0.1log value

None of the β-ETI values lie outside of the ±0.5log AL values and therefore the alternative method is accepted as being equivalent to the reference method from the Inter laboratory study analysis.

Figure 4: Accuracy profile of the alternative method (YM) in the Inter laboratory study – 3 day data

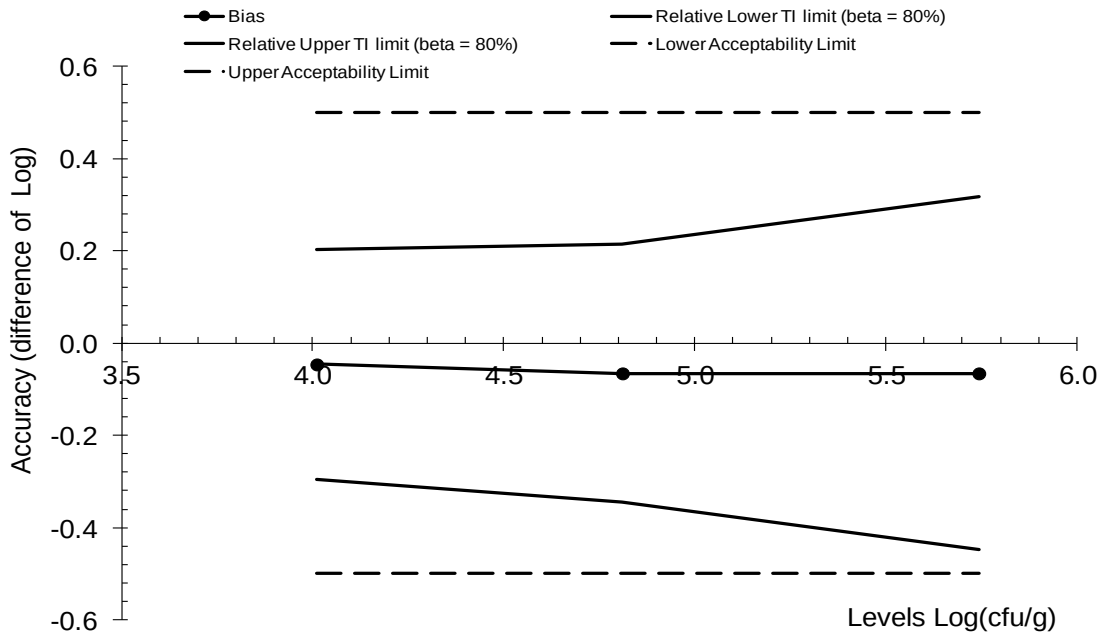


Figure 5: Accuracy profile of the alternative method (YM) in the Inter laboratory study – 7 day data

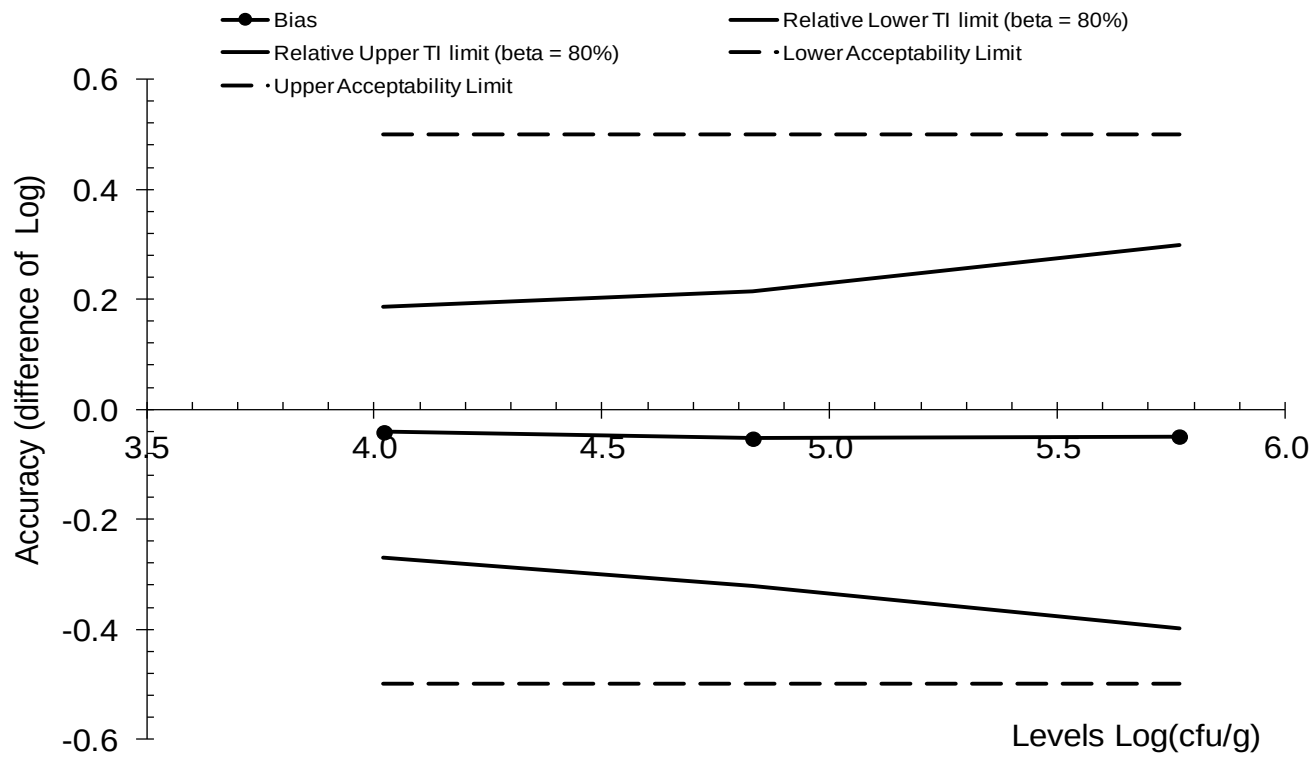


Table 11. Statistical analysis of the ILS data according to the ISO spreadsheet – 3 day data

Accuracy profile	0.5		
Study Name	YM ILS analysis		
Date	03/03/2017		
Coordinator	Campden BRI		
Tolerance probability (beta)	80%	80%	80%
Acceptability limit in log (lambda)	0.50	0.50	0.50

FALSE

Application of clause 6.2.3
Step 8: If any of the values for the β-ETI fall outside the acceptability limits, calculate the pooled average reproducibility standard deviation of the reference method.
Step 9: Calculate new acceptability limits as a function of this standard deviation.

	Alternative method			**Reference method**		
Levels	**Low**	**Medium**	**High**	**Low**	**Medium**	**High**
Target value	**4.011**	**4.811**	**5.743**			
Number of participants (K)	8	8	8	8	8	8
Average for alternative method	3.964	4.745	5.677	4.011	4.811	5.743
Repeatability standard deviation (sr)	0.151	0.084	0.068	0.071	0.114	0.089
Between-labs standard deviation (sL)	0.094	0.171	0.248	0.079	0.109	0.147
Reproducibility standard deviation (sR)	0.178	0.190	0.257	0.106	0.158	0.172
Corrected number of dof	13.368	8.496	7.505	10.856	11.558	9.136
Coverage factor	1.401	1.466	1.488			
Interpolated Student t	1.348	1.390	1.406			
Tolerance interval standard deviation	0.1846	0.2009	0.2724			
Lower TI limit	3.715	4.466	5.295			
Upper TI limit	4.213	5.024	6.060			
Bias	**-0.046**	**-0.066**	**-0.066**			
Relative Lower TI limit (beta = 80%)	**-0.295**	**-0.345**	**-0.449**			
Relative Upper TI limit (beta = 80%)	**0.203**	**0.214**	**0.317**			
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	0.148					

FALSE
FALSE

Select ALL blue lines to draw the accuracy profile as illustrated in the worksheet "Graph Profile"

Table 11. Statistical analysis of the ILS data according to the ISO spreadsheet – 7 day data

Accuracy profile	0.5		
Study Name	YM ILS Analysis		
Date	03/03/2017		
Coordinator	Campden BRI		
Tolerance probability (beta)	80%	80%	80%
Acceptability limit in log (lambda)	0.50	0.50	0.50

FALSE

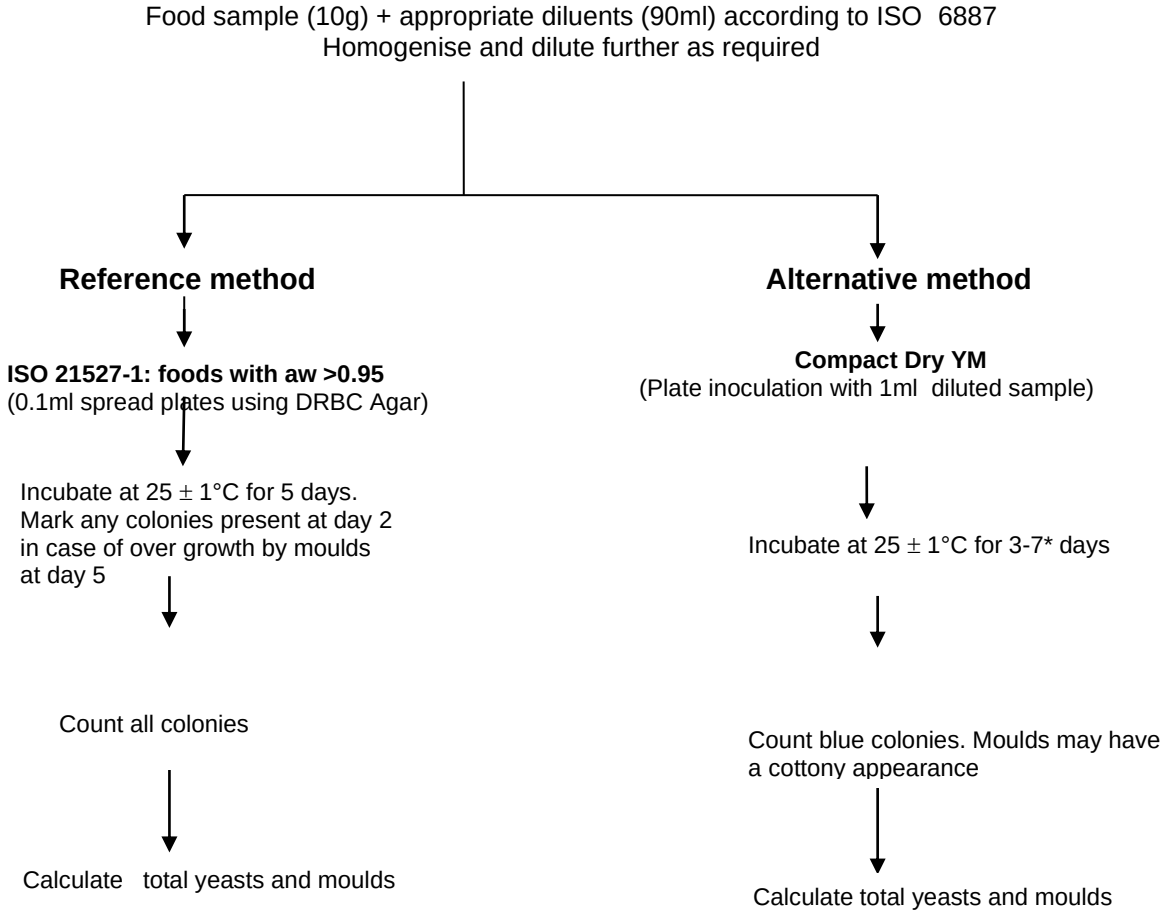
Application of clause 6.2.3
Step 8: If any of the values for the β-ETI fall outside the acceptability limits, calculate the pooled average reproducibility standard deviation of the reference method.
Step 9: Calculate new acceptability limits as a function of this standard deviation.

	Alternative method			**Reference method**		
Levels	**Low**	**Medium**	**High**	**Low**	**Medium**	**High**
Target value	**4.021**	**4.831**	**5.767**			
Number of participants (K)	9	9	9	9	9	9
Average for alternative method	3.979	4.778	5.718	4.021	4.831	5.767
Repeatability standard deviation (sr)	0.140	0.094	0.109	0.067	0.133	0.104
Between-labs standard deviation (sL)	0.087	0.161	0.216	0.080	0.105	0.149
Reproducibility standard deviation (sR)	0.165	0.187	0.242	0.104	0.169	0.182
Corrected number of dof	15.248	10.312	9.794	12.038	14.186	11.049
Coverage factor	1.386	1.434	1.441			
Interpolated Student t	1.340	1.369	1.374			
Tolerance interval standard deviation	0.1707	0.1959	0.2536			
Lower TI limit	3.751	4.509	5.369			
Upper TI limit	4.208	5.046	6.066			
Bias	**-0.042**	**-0.053**	**-0.049**			
Relative Lower TI limit (beta = 80%)	**-0.270**	**-0.322**	**-0.398**			
Relative Upper TI limit (beta = 80%)	**0.187**	**0.215**	**0.299**			
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						

FALSE
FALSE

Select ALL blue lines to draw the accuracy profile as illustrated in the worksheet "Graph Profile"

Appendix 1 – Comparison of Reference method (ISO21527-1) and Alternative method: Compact dry YM



*both sample times were evaluated

Appendix 2 – Relative trueness study: raw data

Item	Sample code	Dilution	YM 1ml 3d	Cfu/g	Log cfu/g	Dilution	YM 1ml 7 d	Cfu/g	Log cfu/g	Dilution	DRBCA 0.1ml	Cfu/g	Log cfu/g
Danio Strawberry Yogurt	2	-1	18	200	2.30	-1	18	200	2.30	-1 0.5ml	98	1920	3.28
		-2	4			-2	4			-1 0.5ml	94		
Frozen vanilla custard slices	4	-1	8	80	1.90	-1	9	90	1.95	-1 0.5ml	29	590	2.77
		-2	0			-2	0			-1 0.5ml	30		
Peach Probiotic Drink	10	-1	20	191	2.28	-1	24	273	2.44	-1 0.5ml	39	880	2.94
		-2	1			-2	6			-1 0.5ml	49		
Spinach & ricotta quiche	11	-3	15	14545	4.16	-3	36	33636	4.53	-2	35	34545	4.54
		-4	1			-4	1			-3	3		
Half fat mayonnaise	14	-1	29	318	2.50	-1	29	318	2.50	-1 0.5ml	30	420	2.62
		-2	6			-2	6			-1 0.5ml	12		
Mango Juice	18	-1	12	120	2.08	-1	16	160	2.20	-1 0.5ml	31	460	2.66
		-2	0			-2	0			-1 0.5ml	15		
Raspberry and Redcurrant Puree	19	-3	106	116000	5.06	-3	114	114545	5.06	-2	124	126364	5.10
		-4	10			-4	18			-3	12		
Reblochon de Savoie unpasteurised cheese	20	-4	26	260000	5.41	-4	28	272727	5.44	-3	28	2909091	6.46
		-5	2			-5	2			-4	4		
Raspberry Probiotic drink	21	-1	114	1155	3.06	-1	119	1227	3.09	-1	20	2091	3.32
		-2	3			-2	6			-2	3		
Dorset Vinney Blue unpasteurised blue cheese	24	-4	26	12000	4.08	-4	51	55455	4.74	-3	31	290909	5.46
		-5	2			-5	10			-4	1		
Grapes and strawberries	25	-2	112	11182	4.05	-2	114	11455	4.06	-1	140	14091	4.15
		-3	11			-3	2			-2	5		
Berkswell unpasteurised Ewes milk cheese	26	-4	94	927273	5.97	-4	102	1018182	6.01	-3	125	1227273	6.09
		-5	8			-5	10			-4	10		
Red Pepper hummus	28	-4	T	21300000	7.33	-4	T	25100000	7.40	-3	T	9600000	6.98
		-5	213			-5	251			-4	90		
Cooked cocktail sausages	29	-4	64	654545	5.82	-4	114	1200000	6.08	-4	T	67000000	7.83
		-5	8			-5	18			-5	67		
Pineapple and Apricot Puree	34	-2	125	12364	4.09	-2	127	12636	4.10	-1	84	9182	3.96
		-3	11			-3	12			-2	15		
Microwave frozen rice	35	-3	39	38182	4.58	-3	44	44545	4.65	-2	89	90000	4.95
		-4	3			-4	5			-3	10		
Ham sandwich	37	-1	91	955	2.98	-1	98	1036	3.02	-1 0.5ml	73	1420	3.15
		-2	14			-2	16			-1 0.5ml	69		

Item	Sample code	Dilution	YM 1ml 3d	Cfu/g	Log cfu/g	Dilution	YM 1ml 7 d	Cfu/g	Log cfu/g	Dilution	DRBCA 0.1ml	Cfu/g	Log cfu/g
Pastrami	38	-4	17	172727	5.24	-4	21	218182	5.34	-3	37	381818	5.58
		-5	2			-5	3			-4	5		
Salmon and King Prawn sandwich	39	-1	T	2000	3.30	-1	T	4000	3.60	-2	55	58182	4.76
		-2	20			-2	40			-3	9		
Reduced fat hummus	40	-6	98	100000000	8.00	-6	136	142727273	8.15	-4	155	12181818	7.09
		-7	12			-7	21			-5	19		
Shropshire blue cheese	41	-6	20	20000000	7.30	-6	22	21818182	7.34	-5	26	27272727	7.44
		-7	2			-7	2			-6	4		
Gevrik Goats cheese	49	-4	105	102727	6.01	-6	16	16363636	7.21	-3	61	600000	5.78
		-5	2			-7	2			-2	5		
Feta and dried tomato pasta	52	-2	32	3280000	6.52	-2	33	3290000	6.52	-2	T	1220000	6.09
		-3	4			-3	4			-3	122		
Normandie Camembert unpasteurised	53	-2	120	12181	4.09	-2	131	13273	4.12	-3	31	318182	5.50
		-3	14			-3	15			-4	4		
Cheese and bacon quiche	55	-2	32	3000	3.48	-2	32	3000	3.48	-1 0.5ml	105	1890	3.28
		-3	1			-3	1			-1 0.5ml	84		
Skyr Apple Lingonberry yogurt	57	-2	118	10909	4.04	-2	122	12455	4.10	-1	117	12882	4.11
		-3	14			-3	15			-2	24		
Brussels Pate	59	-5	T	18000000	7.26	-5	T	21000000	7.32	-4	T	18000000	7.26
		-6	18			-6	21			-5	18		
Potato salad	61	-1	27	273	2.44	-1	30	336	2.53	-1	101	10000	4.00
		-2	3			-2	7			-2	9		
Salami	62	-4	16	181818	5.26	-4	16	181818	5.26	-3	19	190909	5.28
		-5	4			-5	4			-4	2		
Cockles	63	-5	T	40000000	7.60	-5	T	63000000	7.80	-4	T	60000000	7.78
		-6	40			-6	63			-5	60		
Sweet Chilli Chicken Wrap	64	-6	T	210000000	8.32	-6	T	270000000	8.43	-5	T	680000000	8.83
		-7	21			-7	27			-6	68		
Chicken liver pate	68	-3	71	67273	4.83	-3	74	70000	4.85	-2	80	85455	4.93
		-4	3			-4	3			-3	144		
Pineapple Juice	71	-2	27	2700	3.43	-2	32	3273	3.51	-1 0.5ml	137	2910	3.46
		-3	0			-3	4			-1 0.5ml	154		
Tomato Ketchup 50% Less Sugars	72	-2	111	1091	3.04	-2	111	10909	4.04	-1	98	10182	4.01
		-3	9			-3	9			-2	14		
Jarlsberg cheese	74	-1	7	70	1.85	-1	9	90	1.95	-1 0.5ml	7	700	2.85

Item	Sample code	Dilution	YM 1ml 3d	Cfu/g	Log cfu/g	Dilution	YM 1ml 7 d	Cfu/g	Log cfu/g	Dilution	DRBCA 0.1ml	Cfu/g	Log cfu/g
		-2	0			-2	0			-1 0.5ml	0		
Breaded chicken strips	75	-4	47	590909	5.77	-4	69	790909	5.90	-4	T	100000000	8.00
		-5	0			-5	18			-5	100		
JogoBella Peach Yogurt	77	-5	47	4818182	6.68	-5	55	5545455	6.74	-3	114	1154545	6.06
		-6	6			-6	6			-4	13		
Orange Juice	78	-2	91	9273	3.97	-2	91	9273	3.97	-1	113	11364	4.06
		-3	11			-3	11			-2	12		
Cherry Yogurt	79	-2	T	44000	4.64	-2	T	800000	5.90	-3	53	563000	5.75
		-3	44			-3	80			-4	6		
Grated Mozzarella	87	-6	T	380000000	8.58	-6	T	380000000	8.58	-6	23	24500000	7.39
		-7	38			-7	38			-7	4		
Apple and grape snack	101	-1	115	1136	3.06	-1	126	1245	3.10	-1 0.5ml	60	1300	3.11
		-2	10			-2	11			-1 0.5ml	70		
Ardennes Pate	102	-2	70	7000	3.85	-1	70	7182	3.86	-1	77	7727	3.89
		-3	7			-2	9			-2	8		
Savoury eggs	104	-3	123	121818	5.09	-3	123	122727	5.09	-2	147	146364	5.17
		-4	11			-4	12			-3	14		
Grated Four Cheese	106	-4	T	19700000	7.29	-4	T	20200000	7.31	-5	22	22300000	7.35
		-5	197			-5	202			-6	3		
Hot smoked salmon	107	-4	51	581818	5.76	-5	33	4181818	6.62	-4	T	105000000	8.02
		-5	13			-6	13			-5	105		
Salmon pate	108	-1	10	100	2.00	-1	14	145	2.16	-1 0.5ml	6	150	2.18
		-2	0			-2	0			-1 0.5ml	9		
Green and Black Olives	114	-3	T	1020000	6.01	-3	T	1100000	6.04	-2	T	560000	5.75
		-4	102			-4	110			-3	56		
Stilton	115	-2	13	1300	3.11	-2	48	5455	3.74	-2	16	19091	4.28
		-3	0			-3	12			-3	5		
Passion Fruit Yogurt	117	-3	25	25455	4.41	-3	26	26364	4.42	-2	39	38182	4.58
		-4	3			-4	3			-3	3		
Chorizo	118	-3	133	139091	5.14	-4	22	245455	5.39	-3	23	218182	5.34
		-4	20			-5	5			-4	1		
Unpasteurised hard cheese	122	-4	82	800000	5.90	-4	100	972727	5.99	-3	148	1527273	6.18
		-5	6			-5	7			-4	20		
Frozen prawns	125	-4	17	163636	5.21	-4	17	245455	5.39	-2	T	200000	5.30
		-5	1			-5	10			-3	20		
Egg yolk	130	-2	22	2182	3.34	-2	24	2455	3.39	-1	20	3091	3.49

Item	Sample code	Dilution	YM 1ml 3d	Cfu/g	Log cfu/g	Dilution	YM 1ml 7 d	Cfu/g	Log cfu/g	Dilution	DRBCA 0.1ml	Cfu/g	Log cfu/g
		-3	2			-3	3			-2	4		
Frozen king prawns	139	-3	16	15455	4.19	-3	18	18182	4.26	-1	127	12909	4.11
		-4	1			-4	2			-2	15		
Egg fried rice	145	-2	T	18000	4.26	-2	T	86000	4.93	-1	19	2000	3.30
		-3	18			-3	86			-2	3		
Orange and Raspberry Juice	148	-1	16	164	2.21	-1	19	191	2.28	-1 0.5ml	12	330	2.52
		-2	2			-2	2			-1 0.5ml	21		
Egg custard tarts	156	-3	19	18182	4.26	-3	20	19091	4.28	-1 0.5ml	25	440	2.64
		-4	1			-4	1			-1 0.5ml	19		
Pizza Express light dressing	163	-2	58	5818	3.76	-2	66	6818	3.83	-1	86	8818	3.95
		-3	6			-3	9			-2	11		
Fresh iced custard slices	170	-5	41	4181818	6.62	-5	41	4181818	6.62	-4	74	7363636	6.87
		-6	5			-6	5			-5	7		
savers white par baked baguettes	200	-3	95	91818	4.96	-3	97	93636	4.97	-2	87	85455	4.93
		-4	6			-4	6			-3	7		
par baked petit pains	201	-1	17	173	2.24	-1	18	182	2.26	-1 0.5ml	45	920	2.96
		-2	2			-2	2			-1 0.5ml	47		
melon and grapes snack pack	202	-4	67	700000	5.85	-5	82	8545455	6.93	-4	151	14818182	7.17
		-5	10			-6	12			-5	12		
pre-packed apple slices	203	-2	92	8818	3.95	-3	27	27273	4.44	-2	20	21818	4.34
		-3	5			-4	3			-3	4		
par baked baguettes	204	-2	21	2000	3.30	-2	21	2000	3.30	-1	58	5818	3.76
		-3	1			-3	1			-2	6		
vanilla creme custard pastries	205	-3	23	22727	4.36	-3	23	22727	4.36	-2	21	22727	4.36
		-4	2			-4	2			-3	4		
honey roast ham chunks	206	-1	26	273	2.44	-1	26	309	2.49	-1	85	8455	3.93
		-2	4			-2	8			-2	8		
smietana cream drink	207	-2	68	7091	3.85	-2	69	7182	3.86	-1	94	9272	3.97
		-3	10			-3	10			-2	8		
portugese custard tarts	208	-4	18	172727	5.24	-4	18	172727	5.24	-2	90	95455	4.98
		-5	1			-5	1			-3	15		
kefir milk drink	209	-2	31	3182	3.50	-2	35	3545	3.55	-1	44	5182	3.71
		-3	4			-3	4			-2	13		
bake at home crusty rolls	210	-3	16	15455	4.19	-3	16	15455	4.19	-1	110	11455	4.06
		-4	1			-4	1			-2	16		
ham	211	-1	T	210000	5.32	-1	T	210000	5.32	-2	101	107273	5.03
		-2	21			-2	21			-3	17		

Item	Sample code	Dilution	YM 1ml 3d	Cfu/g	Log cfu/g	Dilution	YM 1ml 7 d	Cfu/g	Log cfu/g	Dilution	DRBCA 0.1ml	Cfu/g	Log cfu/g
Pimento stuffed olives with manchego	303	-3	141	136364	5.13	-3	154	148182	5.17	-2	T	250000	5.40
		-4	9			-4	9			-3	25		
prawn pasta salad	305	-1	T	700	2.85	-2	89	8727	3.94	-1	86	8363	3.92
		-2	7			-3	7			-2	12		
Jalopeno coleslaw	306	-1	1	10	1.00	-3	134	131818	5.12	-2	136	130000	5.11
		-1	1			-4	11			-3	7		
mixed olives with chilli peppers	307	-4	23	245455	5.39	-5	21	2181818	6.34	-4	17	1909091	6.28
		-5	4			-6	3			-5	4		
Tuna pasta salad	308	-2	88	809	2.91	-2	50	5273	3.72	-1	47	5182	3.71
		-3	1			-3	8			-2	10		
par baked garlic bread	311	-1	3	30	1.48	-1	3	30	1.48	-1	1	100	2.00
		-1	3			-1	3			-1	1		

Appendix 3

Relative trueness study: summarized results and calculations for all the categories -3days

Category	Type	Aw	Sample number	Log_{10}dcfu/g		Mean	Difference
				Alternative method	Reference method		
Confectionary-bakery- eggs	bakery with custard	0.960	4	2.77085	1.90309	2.33697	-0.86776
		0.988	156	2.64345	4.25964	3.45155	1.61619
		0.990	170	6.86709	6.62137	6.74423	-0.24573
		*	205	4.35654	4.35654	4.35654	0.00000
		*	208	4.97980	5.23736	5.10858	0.25756
	egg products	*	11	4.53839	4.16271	4.35055	-0.37567
		0.995	55	3.27646	3.47712	3.37679	0.20066
		*	104	5.16543	5.08571	5.12557	-0.07972
		*	130	3.49010	3.33885	3.41448	-0.15124
		*	145	3.30103	4.25527	3.77815	0.95424
	par baked bread	0.966	200	4.93174	4.96293	4.94733	0.03119
		0.960	201	2.96379	2.23805	2.60092	-0.72574
		*	204	3.76477	3.30103	3.53290	-0.46374
		0.962	210	4.05900	4.18907	4.12403	0.13007
		*	311	2.00000	1.47712	1.73856	-0.52288
Dairy	Cheese	*	20	6.46376	5.41497	5.93937	-1.04878
		0.966	24	5.46376	4.07918	4.77147	-1.38458
		*	26	6.08894	5.96721	6.02807	-0.12173
		*	41	7.43573	7.30103	7.36838	-0.13470
		0.972	49	5.77815	5.01168	5.39492	-0.76647
		*	53	5.50268	4.08568	4.79418	-1.41699
		*	74	2.84510	1.84510	2.34510	-1.00000
		0.976	87	7.38917	8.57978	7.98447	1.19062
		0.954	106	7.34830	7.29447	7.32139	-0.05384
		0.953	115	4.28083	3.11394	3.69739	-1.16689
		*	122	6.18392	5.90309	6.04350	-0.28083
		0.980	123	6.74394	6.43136	6.58765	-0.31257
		*	143	4.32033	3.44994	3.88514	-0.87039
	Fermented drinks	0.986	10	2.94448	2.28103	2.61276	-0.66345
		0.978	21	3.32035	3.06258	3.19147	-0.25777
		0.988	94	<1	<1	<1	NA
		*	207	3.96717	3.85071	3.90894	-0.11647
		*	209	3.71450	3.50270	3.60860	-0.21180
	yogurt	0.990	2	3.28330	2.30103	2.79217	-0.98227
		0.985	57	4.10998	4.03778	4.07388	-0.07220
		0.971	77	6.06241	6.68288	6.37265	0.62047
		*	79	5.75051	4.64345	5.19698	-1.10706
		*	117	4.58186	4.40577	4.49382	-0.17609
Fruits and vegetables	Chilled juices	0.984	18	2.66276	2.07918	2.37097	-0.58358
		0.987	71	3.46389	3.43136	3.44763	-0.03253
		0.989	78	4.05553	3.96722	4.01138	-0.08831
		0.998	148	2.51851	2.21484	2.36668	-0.30367
		0.998	301	<1	<1	<1	NA
	fermented vegetables	0.968	28	6.98227	7.32838	7.15533	0.34611
		0.987	114	5.74819	6.00860	5.87839	0.26041
		*	303	5.39794	5.13470	5.26632	-0.26324
		0.978	304	<10	<10	<10	<10
		*	307	6.28083	5.38997	5.83540	-0.89085
	Fresh fruit and fruit purees	0.978	19	5.10162	5.06446	5.08304	-0.03717
		0.988	25	4.14894	4.04852	4.09873	-0.10042
		0.978	34	3.96294	4.09216	4.02755	0.12922
		0.983	101	3.11394	3.05538	3.08466	-0.05857
		*	202	7.17079	6.84510	7.00800	-0.32570
		*	203	4.33881	3.94537	4.14209	-0.39344
Multi-component	ambient stable	0.985	14	2.62325	2.50243	2.56284	-0.12082

Category	**Type**	**Aw**	**Sample number**	**Log_{10}dcfu/g**		**Mean**	**Difference**
				Alternative method	Reference method		
foods	sauces	0.987	44	3.61183	3.28081	3.44632	-0.33102
		0.983	72	4.00783	3.03782	3.52283	-0.97001
		0.984	163	3.94537	3.76477	3.85507	-0.18060
		*	309	<1	<1	<1	NA
	Foods with raw ingredients	*	35	4.95424	4.58186	4.76805	-0.37238
		0.984	37	3.15229	2.98000	3.06615	-0.17228
		0.979	39	4.76479	3.30103	4.03291	-1.46376
		0.983	40	7.08571	8.00000	7.54286	0.91429
		0.981	52	6.08636	6.51587	6.30112	0.42951
		0.980	64	8.83251	8.32222	8.57736	-0.51029
	Mayonnaise based salads	*	31	<1	<1	<1	NA
		*	61	4.00000	2.43616	3.21808	-1.56384
		*	305	3.92236	2.84510	3.38373	-1.07726
		0.980	306	5.11394	1.00000	3.05697	-4.11394
		*	308	3.71450	2.90795	3.31122	-0.80655
RTE Foods	Cooked or cured fish	0.973	63	7.77815	7.60206	7.69011	-0.17609
		0.969	107	8.02119	5.76479	6.89299	-2.25640
		0.993	108	2.17609	2.00000	2.08805	-0.17609
		0.984	125	5.30103	5.21388	5.25745	-0.08715
		*	139	4.11089	4.18907	4.14998	0.07818
	Cured meats	*	38	5.58186	5.23736	5.40961	-0.34450
		0.987	62	5.28083	5.25964	5.27023	-0.02119
		0.964	118	5.33882	5.14330	5.24106	-0.19552
		*	206	3.92711	2.43616	3.18164	-1.49095
		*	211	5.03049	5.32222	5.17635	0.29173
	RTE Meat and Poultry	*	29	7.82607	5.81594	6.82101	-2.01014
		0.971	59	7.25527	7.25527	7.25527	0.00000
		0.977	68	4.93174	4.82784	4.87979	-0.10390
		0.966	75	8.00000	5.77152	6.88576	-2.22848
		0.957	102	3.88801	3.84510	3.86655	-0.04291

Relative trueness study: summarized results and calculations for all the categories -7days

Category	Type	Aw	Sample number	Log_{10}dcfu/g		Mean	Difference
				Alternative method	Reference method		
Confectionary-bakery- eggs	bakery with custard	0.960	4	2.77085	1.95424	2.36255	-0.81661
		0.988	156	2.64345	4.28083	3.46214	1.63738
		0.990	170	6.86709	6.62137	6.74423	-0.24573
		*	205	4.35654	4.35654	4.35654	0.00000
		*	208	4.97980	5.23736	5.10858	0.25756
	egg products	*	11	4.53839	4.52680	4.53259	-0.01158
		0.995	55	3.27646	3.47712	3.37679	0.20066
		*	104	5.16543	5.08894	5.12719	-0.07649
		*	130	3.49010	3.39005	3.44008	-0.10005
		*	145	3.30103	4.93450	4.11776	1.63347
	par baked bread	0.966	200	4.93174	4.97144	4.95159	0.03971
		0.960	201	2.96379	2.26007	2.61193	-0.70372
		*	204	3.76477	3.30103	3.53290	-0.46374
		0.962	210	4.05900	4.18907	4.12403	0.13007
		*	311	2.00000	1.47712	1.73856	-0.52288
Dairy	Cheese	*	20	6.46376	5.43573	5.94974	-1.02803
		0.966	24	5.46376	4.74394	5.10385	-0.71982
		*	26	6.08894	6.00783	6.04838	-0.08112
		*	41	7.43573	7.33882	7.38727	-0.09691
		0.972	49	5.77815	6.01169	5.89492	0.23353
		*	53	5.50268	5.12299	5.31283	-0.37968
		*	74	2.84510	1.95424	2.39967	-0.89086
		0.976	87	7.38917	8.57978	7.98447	1.19062
		0.954	106	7.34830	7.30535	7.32683	-0.04295
		0.953	115	4.28083	3.73679	4.00881	-0.54403
		*	122	6.18392	5.98799	6.08595	-0.19593
		0.980	123	6.74394	6.47712	6.61053	-0.26682
		*	143	4.32033	3.84510	4.08272	-0.47524
	Fermented drinks	0.986	10	2.94448	2.43616	2.69032	-0.50832
		0.978	21	3.32035	3.08884	3.20460	-0.23151
		0.988	94	<1	<1	<1	NA
		*	207	3.96717	3.85625	3.91171	-0.11093
		*	209	3.71450	3.54962	3.63206	-0.16488
	yogurt	0.990	2	3.28330	2.30103	2.79217	-0.98227
		0.985	57	4.10998	4.09534	4.10266	-0.01464
		0.971	77	6.06241	6.74394	6.40317	0.68153
		*	79	5.75051	5.90309	5.82680	0.15258
		*	117	4.58186	4.42101	4.50143	-0.16085
Fruits and vegetables	Chilled juices	0.984	18	2.66276	2.20412	2.43344	-0.45864
		0.987	71	3.46389	3.51495	3.48942	0.05105
		0.989	78	4.05553	3.96722	4.01138	-0.08831
		0.998	148	2.51851	2.28103	2.39977	-0.23748
		0.998	301	<1	<1	<1	NA
	fermented vegetables	0.968	28	6.98227	7.39967	7.19097	0.41740
		0.987	114	5.74819	6.04139	5.89479	0.29320
		*	303	5.39794	5.17080	5.28437	-0.22714
		0.978	304	<1	<1	<1	NA
		*	307	6.28083	6.33882	6.30982	0.05799
	Fresh fruit and fruit purees	0.978	19	5.10162	5.05898	5.08030	-0.04265
		0.988	25	4.14894	4.05900	4.10397	-0.08995
		0.978	34	3.96294	4.10161	4.03227	0.13867
		0.983	101	3.11394	3.09517	3.10456	-0.01877
		*	202	7.17079	6.93174	7.05127	-0.23906
		*	203	4.33881	4.43573	4.38727	0.09692
Multi-component foods	ambient stable sauces	0.985	14	2.62325	2.50243	2.56284	-0.12082
		0.987	44	3.61183	3.28081	3.44632	-0.33102
		0.983	72	4.00783	4.03778	4.02281	0.02995
		0.984	163	3.94537	3.83366	3.88951	-0.11171

Category	**Type**	**Aw**	**Sample number**	**Log_{10}dcfu/g**		**Mean**	**Difference**
				Alternative method	Reference method		
		*	309	<1	<1	<1	NA
	Foods with raw ingredients	*	35	4.95424	4.64880	4.80152	-0.30544
		0.984	37	3.15229	3.01536	3.08382	-0.13693
		0.979	39	4.76479	3.60206	4.18342	-1.16273
		0.983	40	7.08571	8.15534	7.62052	1.06962
		0.981	52	6.08636	6.51720	6.30178	0.43084
		0.980	64	8.83251	8.43136	8.63194	-0.40115
	Mayonnaise based salads	*	31	<1	<1	<1	NA
		*	61	4.00000	2.52634	3.26317	-1.47366
		*	305	3.92236	3.94086	3.93161	0.01850
		0.980	306	5.11394	5.11997	5.11696	0.00603
		*	308	3.71450	3.72206	3.71828	0.00756
RTE Foods	Cooked or cured fish	0.973	63	7.77815	7.79934	7.78875	0.02119
		0.969	107	8.02119	6.62137	7.32128	-1.39982
		0.993	108	2.17609	2.16137	2.16873	-0.01472
		0.984	125	5.30103	5.38997	5.34550	0.08894
		*	139	4.11089	4.25964	4.18527	0.14875
	Cured meats	*	38	5.58186	5.33882	5.46034	-0.24304
		0.987	62	5.28083	5.25964	5.27023	-0.02119
		0.964	118	5.33882	5.38997	5.36440	0.05115
		*	206	3.92711	2.48996	3.20854	-1.43716
		*	211	5.03049	5.32222	5.17635	0.29173
	RTE Meat and Poultry	*	29	7.82607	6.07918	6.95263	-1.74689
		0.971	59	7.25527	7.32222	7.28875	0.06695
		0.977	68	4.93174	4.84510	4.88842	-0.08664
		0.966	75	8.00000	5.89813	6.94906	-2.10187
		0.957	102	3.88801	3.85625	3.87213	-0.03177

*= not tested

Appendix 4 – Accuracy profile study: raw data

Item - Inoculum level	Alternative Compact Dry YM – 3 days				Alternative Compact Dry YM – 7 days			Reference method			
	Dilution (1ml)	No of colonies	Count (cfu/g)	log cfu/g	No of colonies	Count (cfu/g)	log cfu/g	Dilution (0.1ml)	No of colonies	Count (cfu/g)	log cfu/g
Quiche – low a	-1	18	**160**	**2.20**	23	**220**	**2.34**	-1 0.5ml	9	**270**	**2.43**
Quiche – low a	-1	14			1			-1 0.5ml	18		
Quiche – low b	-1	24	**240**	**2.38**	27	**275**	**2.44**	-1 0.5ml	14	**240**	**2.38**
Quiche – low b	-1	24			28			-1 0.5ml	10		
Quiche – low c	-1	25	**280**	**2.45**	25	**280**	**2.45**	-1 0.5ml	9	**190**	**2.28**
Quiche – low c	-1	31			31			-1 0.5ml	10		
Quiche – low d	-1	31	**340**	**2.53**	35	**375**	**2.57**	-1 0.5ml	8	**200**	**2.30**
Quiche – low d	-1	37			40			-1 0.5ml	12		
Quiche – low e	-1	40	**300**	**2.48**	40	**300**	**2.48**	-1 0.5ml	10	**210**	**2.32**
Quiche – low e	-1	20			20			-1 0.5ml	11		
Quiche –med a	-1	T	**1100**	**3.04**	T	**1909**	**3.28**	-1	10	**1500**	**3.18**
Quiche –med a	-2	11			18			-1	5		
Quiche –med a	-3	0			3			-2			
Quiche –med b	-1	T	**800**	**2.90**	T	**800**	**2.90**	-1	9	**1700**	**3.23**
Quiche –med b	-2	8			8			-1	8		
Quiche –med b	-3	0			0			-2			
Quiche –med c	-1	T	**1100**	**3.04**	T	**1100**	**3.04**	-1	13	**1300**	**3.11**
Quiche –med c	-2	11			11			-1	13		
Quiche –med c	-3	0			0			-2			
Quiche –med d	-1	T	**1818**	**3.26**	T	**1909**	**3.28**	-1	7	**1900**	**3.28**
Quiche –med d	-2	19			19			-1	12		
Quiche –med d	-3	1			2			-2			
Quiche –med e	-1	T	**2909**	**3.46**	T	**3182**	**3.50**	-1	28	**2727**	**3.44**
Quiche –med e	-2	30			31			-1	28		

Item - Inoculum level	Alternative Compact Dry YM – 3 days				Alternative Compact Dry YM – 7 days			Reference method			
	Dilution (1ml)	No of colonies	Count (cfu/g)	log cfu/g	No of colonies	Count (cfu/g)	log cfu/g	Dilution (0.1ml)	No of colonies	Count (cfu/g)	log cfu/g
Quiche –med e	-3	2			4			-2	2		
Quiche – high a	-3	43	**47273**	**4.67**	43	**47273**	**4.67**	-2	73	**77273**	**4.89**
Quiche – high a	-4	9			9			-3	12		
Quiche – high b	-3	35	**54545**	**4.74**	35	**54545**	**4.74**	-2	57	**55455**	**4.74**
Quiche – high b	-4	5			5			-3	4		
Quiche – high c	-3	23	**24545**	**4.39**	25	**26364**	**4.42**	-2	24	**22727**	**4.36**
Quiche – high c	-4	4			4			-3	1		
Quiche – high d	-3	42	**43636**	**4.64**	55	**56364**	**4.75**	-2	55	**56364**	**4.75**
Quiche – high d	-4	6			7			-3	7		
Quiche – high e	-3	32	**35455**	**4.55**	34	**37273**	**4.57**	-2	39	**40000**	**4.60**
Quiche – high e	-4	7			7			-3	5		
Egg custard –low a	-1	27	**250**	**2.40**	28	**280**	**2.45**	-1 0.5ml	15	**300**	**2.48**
Egg custard –low a	-1	23			28			-1 0.5ml	15		
Egg custard –low b	-1	25	**245**	**2.39**	29	**285**	**2.45**	-1 0.5ml	5	**130**	**2.11**
Egg custard –low b	-1	24			28			-1 0.5ml	8		
Egg custard –low c	-1	24	**215**	**2.33**	28	**290**	**2.46**	-1 0.5ml	14	**240**	**2.38**
Egg custard –low c	-1	19			30			-1 0.5ml	10		
Egg custard –low d	-1	24	**285**	**2.45**	25	**295**	**2.47**	-1 0.5ml	10	**270**	**2.43**
Egg custard –low d	-1	33			34			-1 0.5ml	17		
Egg custard –low e	-1	25	**260**	**2.41**	25	**265**	**2.42**	-1 0.5ml	14	**290**	**2.46**
Egg custard –low e	-1	27			28			-1 0.5ml	15		
Egg custard –med a	-1	T	**1818**	**3.26**	T	**1818**	**3.26**	-1	16	**1727**	**3.24**
Egg custard –med a	-2	18			18			-2	2		
Egg custard –med a	-3	2			2			-3	0		
Egg custard –med b	-1	T	**1500**	**3.18**	T	**1500**	**3.18**	-1	16	**1727**	**3.24**

Item - Inoculum level	Alternative Compact Dry YM – 3 days				Alternative Compact Dry YM – 7 days			Reference method			
	Dilution (1ml)	No of colonies	Count (cfu/g)	log cfu/g	No of colonies	Count (cfu/g)	log cfu/g	Dilution (0.1ml)	No of colonies	Count (cfu/g)	log cfu/g
Egg custard –med b	-2	15			5			-2	3		
Egg custard –med b	-3	0			0			-3	0		
Egg custard –med c	-1	T	**600**	**2.78**	T	**600**	**2.78**	-1	19	**1818**	**3.26**
Egg custard –med c	-2	6			6			-2	1		
Egg custard –med c	-3	0			0			-3	0		
Egg custard –med d	-1	T	**800**	**2.90**	T	**800**	**2.90**	-1	18	**1800**	**3.26**
Egg custard –med d	-2	8			8			-2	1		
Egg custard –med d	-3	0			0			-3	0		
Egg custard –med e	-1	T	**1400**	**3.15**	T	**1400**	**3.15**	-1	22	**2273**	**3.36**
Egg custard –med e	-2	14			14			-2	3		
Egg custard –med e	-3	0			0			-3	0		
Egg custard –high a	-3	64	**66364**	**4.82**	64	**66364**	**4.82**	-2	74	**76364**	**4.88**
Egg custard –high a	-4	9			9			-3	10		
Egg custard –high b	-3	35	**33636**	**4.53**	36	**34545**	**4.54**	-2	57	**56364**	**4.75**
Egg custard –high b	-4	2			2			-3	4		
Egg custard –high c	-3	60	**60909**	**4.78**	60	**60909**	**4.78**	-2	76	**79091**	**4.90**
Egg custard –high c	-4	7			7			-3	11		
Egg custard –high d	-3	72	**69091**	**4.84**	72	**69091**	**4.84**	-2	73	**72727**	**4.86**
Egg custard –high d	-4	4			4			-3	7		
Egg custard –high e	-3	54	**51818**	**4.71**	54	**51818**	**4.71**	-2	60	**61818**	**4.79**
Egg custard –high e	-4	3			3			-3	8		
Prawns – low a	-1	3	**20**	**1.30**	3	**20**	**1.30**	-1 0.5ml	1	**10**	**1.00**
Prawns – low a	-1	1			1			-1 0.5ml	0		
Prawns – low b	-1	2	**20**	**1.30**	2	**20**	**1.30**	-1 0.5ml	2	**30**	**1.48**
Prawns – low b	-1	2			2			-1 0.5ml	1		
Prawns – low c	-1	2	**10**	**1.00**	2	**10**	**1.00**	-1 0.5ml	1	**10**	**1.00**

Item - Inoculum level	Alternative Compact Dry YM – 3 days				Alternative Compact Dry YM – 7 days			Reference method			
	Dilution (1ml)	No of colonies	Count (cfu/g)	log cfu/g	No of colonies	Count (cfu/g)	log cfu/g	Dilution (0.1ml)	No of colonies	Count (cfu/g)	log cfu/g
Prawns – low c	-1	0			0			-1 0.5ml	0		
Prawns – low d	-1	3	**25**	**1.40**	4	**30**	**1.48**	-1 0.5ml	1	**30**	**1.48**
Prawns – low d	-1	2			2			-1 0.5ml	1		
Prawns – low e	-1	3	**25**	**1.40**	3	**25**	**1.40**	-1 0.5ml	1	**10**	**1.00**
Prawns – low e	-1	2			2			-1 0.5ml	0		
Prawns – med a	-3	17	**17273**	**4.24**	21	**20909**	**4.32**	-2	30	**30000**	**4.48**
Prawns – med a	-4	2			2			-3	0		
Prawns – med b	-3	35	**34545**	**4.54**	37	**41818**	**4.62**	-2	40	**39091**	**4.59**
Prawns – med b	-4	3			9			-3	3		
Prawns – med c	-3	28	**27273**	**4.44**	36	**38182**	**4.58**	-2	43	**41818**	**4.62**
Prawns – med c	-4	2			6			-3	3		
Prawns – med d	-3	31	**31000**	**4.49**	44	**412727**	**5.62**	-2	35	**32727**	**4.51**
Prawns – med d	-4	0			3			-3	1		
Prawns – med e	-3	17	**17273**	**4.24**	27	**26364**	**4.42**	-2	23	**24545**	**4.39**
Prawns – med e	-4	2			2			-3	4		
Prawns – high a	-4	37	**381818**	**5.58**	37	**381818**	**5.58**	-3	41	**400000**	**5.60**
Prawns – high a	-5	5			5			-4	3		
Prawns – high b	-4	41	**400000**	**5.60**	41	**400000**	**5.60**	-3	35	**327273**	**5.51**
Prawns – high b	-5	3			3			-4	1		
Prawns – high c	-4	61	**618182**	**5.79**	61	**618182**	**5.79**	-3	63	**600000**	**5.78**
Prawns – high c	-5	7			7			-4	6		
Prawns – high d	-4	37	**400000**	**5.60**	37	**400000**	**5.60**	-3	40	**427273**	**5.63**
Prawns – high d	-5	7			7			-4	7		
Prawns – high e	-4	27	**290909**	**5.46**	27	**290909**	**5.46**	-3	32	**309091**	**5.49**
Prawns – high e	-5	5			5			-4	2		

Item - Inoculum level	Alternative Compact Dry YM – 3 days				Alternative Compact Dry YM – 7 days			Reference method			
	Dilution (1ml)	No of colonies	Count (cfu/g)	log cfu/g	No of colonies	Count (cfu/g)	log cfu/g	Dilution (0.1ml)	No of colonies	Count (cfu/g)	log cfu/g
Tuna pate– low a	-1	39	**395**	**2.60**	39	**400**	**2.60**	-1 0.5ml	3	**150**	**2.18**
Tuna pate– low a	-1	40			41			-1 0.5ml	12		
Tuna pate– low b	-1	38	**410**	**2.61**	39	**435**	**2.64**	-1 0.5ml	10	**200**	**2.30**
Tuna pate– low b	-1	44			48			-1 0.5ml	10		
Tuna pate– low c	-1	42	**370**	**2.57**	45	**425**	**2.63**	-1 0.5ml	4	**140**	**2.15**
Tuna pate– low c	-1	32			50			-1 0.5ml	10		
Tuna pate– low d	-1	28	**275**	**2.44**	30	**290**	**2.46**	-1 0.5ml	11	**140**	**2.15**
Tuna pate– low d	-1	27			28			-1 0.5ml	3		
Tuna pate– low e	-1	44	**390**	**2.59**	44	**400**	**2.60**	-1 0.5ml	20	**400**	**2.60**
Tuna pate– low e	-1	34			36			-1 0.5ml	20		
Tuna pate – med a	-1	T	**1100**	**3.04**	T	**1200**	**3.08**	-1	22	**2091**	**3.32**
Tuna pate – med a	-2	11			12			-2	1		
Tuna pate – med a	-3	0			0			-3	0		
Tuna pate – med b	-1	T	**1900**	**3.28**	T	**1900**	**3.28**	-1	14	**1400**	**3.15**
Tuna pate – med b	-2	19			22			-2	0		
Tuna pate – med b	-3	0			0			-3			
Tuna pate – med c	-1	T	**2000**	**3.30**	T	**2000**	**3.30**	-1	14	**1400**	**3.15**
Tuna pate – med c	-2	20			20			-2	0		
Tuna pate – med c	-3	0			0			-3	0		
Tuna pate – med d	-1	T	**1900**	**3.28**	T	**1909**	**3.28**	-1	27	**3182**	**3.50**
Tuna pate – med d	-2	19			20			-2	8		
Tuna pate – med d	-3	0			1			-3	0		
Tuna pate – med e	-1	100	**1000**	**3.00**	107	**1055**	**3.02**	-1	10	**1000**	**3.00**
Tuna pate – med e	-2	10			9			-2	1		
Tuna pate – high a	-4	23	**218182**	**5.34**	23	**218182**	**5.34**	-3	40	**372727**	**5.57**
Tuna pate – high a	-5	1			1			-4	1		

Item - Inoculum level	Alternative Compact Dry YM – 3 days				Alternative Compact Dry YM – 7 days			Reference method			
	Dilution (1ml)	No of colonies	Count (cfu/g)	log cfu/g	No of colonies	Count (cfu/g)	log cfu/g	Dilution (0.1ml)	No of colonies	Count (cfu/g)	log cfu/g
Tuna pate – high b	-4	28	**272727**	**5.44**	28	**272727**	**5.44**	-3	24	**236363**	**5.37**
Tuna pate – high b	-5	2			2			-4	2		
Tuna pate – high c	-4	24	**227273**	**5.36**	24	**227273**	**5.36**	-3	26	**254545**	**5.41**
Tuna pate – high c	-5	1			1			-4	2		
Tuna pate – high d	-4	46	**427273**	**5.63**	46	**427273**	**5.63**	-3	37	**381818**	**5.58**
Tuna pate – high d	-5	1			1			-4	5		
Tuna pate – high e	-4	42	**400000**	**5.60**	42	**400000**	**5.60**	-3	31	**310000**	**5.49**
Tuna pate – high e	-5	2			2			-4	0		
Pasta salad –low a	-1	89	**845**	**2.93**	89	850	**2.93**	-1 0.5ml	59	**1160**	**3.06**
Pasta salad –low a	-1	80			81			-1 0.5ml	57		
Pasta salad –low b	-1	89	**925**	**2.97**	92	**940**	**2.97**	-1 0.5ml	72	**1290**	**3.11**
Pasta salad –low b	-1	96			96			-1 0.5ml	57		
Pasta salad –low c	-1	110	**1090**	**3.04**	110	**1110**	**3.05**	-1 0.5ml	64	**1310**	**3.12**
Pasta salad –low c	-1	108			112			-1 0.5ml	68		
Pasta salad –low d	-1	117	**1120**	**3.05**	119	**1145**	**3.06**	-1 0.5ml	79	**1690**	**3.23**
Pasta salad –low d	-1	107			110			-1 0.5ml	90		
Pasta salad –low e	-1	89	**925**	**2.97**	90	930	**2.97**	-1 0.5ml	92	**1870**	**3.27**
Pasta salad –low e	-1	96			96			-1 0.5ml	95		
Pasta salad –med a	-2	65	**7000**	**3.85**	68	**7273**	**3.86**	-1	75	**7454**	**3.87**
Pasta salad –med a	-3	12			12			-2	7		
Pasta salad –med b	-2	41	**4727**	**3.67**	45	**5091**	**3.71**	-1	71	**6909**	**3.84**
Pasta salad –med b	-3	11			11			-2	5		
Pasta salad –med c	-2	59	**5909**	**3.77**	81	**8000**	**3.90**	-1	46	**4727**	**3.67**
Pasta salad –med c	-3	6			7			-2	6		

Item - Inoculum level	Alternative Compact Dry YM – 3 days				Alternative Compact Dry YM – 7 days			Reference method			
	Dilution (1ml)	No of colonies	Count (cfu/g)	log cfu/g	No of colonies	Count (cfu/g)	log cfu/g	Dilution (0.1ml)	No of colonies	Count (cfu/g)	log cfu/g
Pasta salad –med d	-2	78	**8364**	**3.92**	81	**8636**	**3.94**	-1	97	**9182**	**3.96**
Pasta salad –med d	-3	14			14			-2	9		
Pasta salad –med e	-2	43	**4636**	**3.67**	51	**5346**	**3.73**	-1	50	**5000**	**3.70**
Pasta salad –med e	-3	8			8			-2	5		
Pasta salad –high a	-3	90	**89091**	**4.95**	100	**98182**	**4.99**	-3	18	**181818**	**5.26**
Pasta salad –high a	-4	8			8			-4	2		
Pasta salad –high b	-3	101	**108182**	**5.03**	104	**110909**	**5.04**	-3	15	**145455**	**5.16**
Pasta salad –high b	-4	18			18			-4	1		
Pasta salad –high c	-3	101	**100909**	**5.00**	109	**108182**	**5.03**	-3	17	**172727**	**5.24**
Pasta salad –high c	-4	10			10			-4	2		
Pasta salad –high d	-3	T	**160000**	**5.20**	T	**154545**	**5.19**	-3	18	**200000**	**5.30**
Pasta salad –high d	-4	16			16			-4	4		
Pasta salad –high d	-5	0			1			-7			
Pasta salad –high e	-3	96	**100000**	**5.00**	101	**104545**	**5.02**	-3	16	**160000**	**5.20**
Pasta salad –high e	-4	14			14			-4	0		
Sandwich low a	-1	29	**355**	**2.55**	54	**475**	**2.68**	-1 0.5ml	7	**200**	**2.30**
Sandwich low a	-1	42			41			-1 0.5ml	13		
Sandwich low b	-1	46	**450**	**2.65**	51	**505**	**2.70**	-1 0.5ml	6	**230**	**2.36**
Sandwich low b	-1	42			52			-1 0.5ml	10		
Sandwich low c	-1	29	**355**	**2.55**	42	445	**2.65**	-1 0.5ml	11	**350**	**2.54**
Sandwich low c	-1	42			47			-1 0.5ml	9		
Sandwich low d	-1	36	**480**	**2.68**	42	**455**	**2.66**	-1 0.5ml	14	**230**	**2.36**
Sandwich low d	-1	44			49			-1 0.5ml	9		
Sandwich low e	-1	49	**480**	**2.68**	63	**610**	**2.79**	-1 0.5ml	19	**410**	**2.61**
Sandwich low e	-1	47			59			-1 0.5ml	22		

Item - Inoculum level	Alternative Compact Dry YM – 3 days				Alternative Compact Dry YM – 7 days			Reference method			
	Dilution (1ml)	No of colonies	Count (cfu/g)	log cfu/g	No of colonies	Count (cfu/g)	log cfu/g	Dilution (0.1ml)	No of colonies	Count (cfu/g)	log cfu/g
Sandwich med a	-2	59	**6272**	**3.80**	63	**6727**	**3.83**	-1	45	**5128**	**3.71**
Sandwich med a	-3	10			11			-2	12		
Sandwich med b	-2	18	**1818**	**3.26**	T	**19000**	**4.28**	-1	T	**11000**	**4.04**
Sandwich med b	-3	2			19			-2	11		
Sandwich med c	-2	82	**8818**	**3.95**	89	**9455**	**3.98**	-1	108	**11000**	**4.04**
Sandwich med c	-3	15			15			-2	13		
Sandwich med d	-2	56	**6182**	**3.79**	60	6636	**3.82**	-1	73	**7000**	**3.85**
Sandwich med d	-3	12			3			-2	4		
Sandwich med e	-2	93	**9727**	**3.99**	104	**10818**	**4.03**	-1	110	**10636**	**4.03**
Sandwich med e	-3	14			15			-2	7		
Sandwich high a	-3	113	**116363**	**5.07**	131	**132727**	**5.12**	-2	T	**272727**	**5.44**
Sandwich high a	-4	15			15			-3	28		
Sandwich high a	-5	0			0			-4	2		
Sandwich high b	-3	T	**309091**	**5.49**	T	**318182**	**5.50**	-2	T	**227273**	**5.36**
Sandwich high b	-4	32			33			-3	21		
Sandwich high b	-5	2			2			-4	1		
Sandwich high c	-3	T	**254545**	**5.41**	T	**254545**	**5.41**	-2	T	**330000**	**5.52**
Sandwich high c	-4	25			25			-3	33		
Sandwich high c	-5	3			3			-4	0		
Sandwich high d	-3	T	**272727**	**5.44**	T	**272727**	**5.44**	-2	T	**210000**	**5.32**
Sandwich high d	-4	27			27			-3	21		
Sandwich high d	-5	3			3			-4	0		
Sandwich high e	-3	T	**254545**	**5.41**	T	**254545**	**5.41**	-2	T	**190909**	**5.28**
Sandwich high e	-4	27			27			-3	20		
Sandwich high e	-5	1			1			-4	1		
Beetroot salad – low a	-1	18	**218**	**2.34**	20	**236**	**2.37**	-1 0.5ml	17	**310**	**2.49**
Beetroot salad – low a	-2	6			6			-1 0.5ml	14		

Item - Inoculum level	Alternative Compact Dry YM – 3 days				Alternative Compact Dry YM – 7 days			Reference method			
	Dilution (1ml)	No of colonies	Count (cfu/g)	log cfu/g	No of colonies	Count (cfu/g)	log cfu/g	Dilution (0.1ml)	No of colonies	Count (cfu/g)	log cfu/g
Beetroot salad – low b	-1	28	**264**	**2.42**	30	**282**	**2.45**	-1 0.5ml	6	**200**	**2.30**
Beetroot salad – low b	-2	1			1			-1 0.5ml	14		
Beetroot salad – low c	-1	28	**273**	**2.44**	28	**273**	**2.44**	-1 0.5ml	26	**490**	**2.69**
Beetroot salad – low c	-2	2			2			-1 0.5ml	23		
Beetroot salad – low d	-1	26	**245**	**2.39**	32	**309**	**2.49**	-1 0.5ml	20	**290**	**2.46**
Beetroot salad – low d	-2	1			2			-1 0.5ml	9		
Beetroot salad – low e	-1	23	**227**	**2.36**	27	**264**	**2.42**	-1 0.5ml	16	**310**	**2.49**
Beetroot salad – low e	-2	2			2			-1 0.5ml	15		
Beetroot salad – med a	-2	16	**1636**	**3.21**	37	**3727**	**3.57**	-1	41	**3818**	**3.58**
Beetroot salad – med a	-3	2			4			-2	1		
Beetroot salad – med b	-2	15	**1545**	**3.19**	33	**3182**	**3.50**	-1	37	**3545**	**3.55**
Beetroot salad – med b	-3	2			2			-2	2		
Beetroot salad – med c	-2	12	**1200**	**3.08**	26	**2636**	**3.42**	-1	33	**3545**	**3.55**
Beetroot salad – med c	-3	0			4			-2	4		
Beetroot salad – med d	-2	16	**1818**	**3.26**	25	**2727**	**3.44**	-1	47	**4455**	**3.65**
Beetroot salad – med d	-3	4			5			-2	2		
Beetroot salad – med e	-1	160	**1513**	**3.18**	T	**2455**	**3.39**	-1	27	**2273**	**3.36**
Beetroot salad – med e	-1	147			T			-2	3		
Beetroot salad – med e	-2	13			26						
Beetroot salad – high a	-5	18	**1727273**	**6.24**	31	**2909091**	**6.46**	-4	51	**4818182**	**6.68**
Beetroot salad – high a	-6	1			1			-5	2		
Beetroot salad – high b	-5	25	**2363636**	**6.37**	31	**3000000**	**6.48**	-4	38	**3800000**	**6.58**
Beetroot salad – high b	-6	1			2			-5	0		
Beetroot salad y – high c	-5	13	**1300000**	**6.11**	26	**2454545**	**6.39**	-4	24	**2545455**	**6.41**
Beetroot salad – high c	-6	0			1			-5	2		

Item - Inoculum level	Alternative Compact Dry YM – 3 days				Alternative Compact Dry YM – 7 days			Reference method			
	Dilution (1ml)	No of colonies	Count (cfu/g)	log cfu/g	No of colonies	Count (cfu/g)	log cfu/g	Dilution (0.1ml)	No of colonies	Count (cfu/g)	log cfu/g
Beetroot salad – high d	-5	17	**1909091**	**6.28**	25	**2545455**	**6.41**	-4	26	**2636364**	**6.42**
Beetroot salad y – high d	-6	4			3			-5	3		
Beetroot salad – high e	-5	16	**1727273**	**6.24**	23	**2300000**	**6.36**	-4	34	**3400000**	**6.53**
Beetroot salad – high e	-6	3			0			-5	0		
Veg juice –low a	-1	34	**355**	**2.55**	36	**373**	**2.57**	-1 0.5ml	12	**250**	**2.40**
Veg juice –low a	-1	5			5			-1 0.5ml	13		
Veg juice –low b	-1	19	**191**	**2.28**	20	**209**	**2.32**	-1 0.5ml	17	**350**	**2.54**
Veg juice –low b	-2	2			3			-1 0.5ml	18		
Veg juice –low c	-1	41	**391**	**2.59**	46	**445**	**2.65**	-1 0.5ml	14	**190**	**2.28**
Veg juice –low c	-2	2			3			-1 0.5ml	5		
Veg juice –low d	-1	24	**236**	**2.37**	26	**255**	**2.41**	-1 0.5ml	20	**370**	**2.57**
Veg juice –low d	-2	2			2			-1 0.5ml	17		
Veg juice –low e	-1	17	**163**	**2.21**	22	**209**	**2.32**	-1 0.5ml	12	**270**	**2.43**
Veg juice –low e	-2	1			1			-1 0.5ml	15		
Veg juice –med a	-3	52	**51818**	**4.71**	78	**78182**	**4.89**	-2	87	**85455**	**4.93**
Veg juice –med a	-4	5			8			-3	7		
Veg juice –med b	-3	45	**46364**	**4.67**	85	**84545**	**4.93**	-2	91	**93636**	**4.97**
Veg juice –med b	-4	6			5			-3	2		
Veg juice –med c	-3	34	**32727**	**4.51**	61	**62727**	**4.80**	-2	67	**67273**	**4.83**
Veg juice –med c	-4	2			8			-3	7		
Veg juice –med d	-3	35	**35000**	**4.54**	60	**57273**	**4.76**	-2	50	**46364**	**4.67**
Veg juice –med d	-4	0			3			-3	1		
Veg juice –med e	-3	16	**16000**	**4.20**	49	**51818**	**4.71**	-2	72	**68182**	**4.83**
Veg juice –med e	-4	2			5			-3	3		

Item - Inoculum level	Alternative Compact Dry YM – 3 days				Alternative Compact Dry YM – 7 days			Reference method			
	Dilution (1ml)	No of colonies	Count (cfu/g)	log cfu/g	No of colonies	Count (cfu/g)	log cfu/g	Dilution (0.1ml)	No of colonies	Count (cfu/g)	log cfu/g
Veg juice -high a	-4	40	**409092**	**5.61**	75	**772727**	**5.89**	-3	81	**854545**	**5.93**
Veg juice -high a	-5	5			10			-4	13		
Veg juice -high b	-4	29	**309092**	**5.49**	60	**600000**	**5.78**	-3	52	**527273**	**5.72**
Veg juice -high b	-5	5			6			-4	6		
Veg juice -high c	-4	31	**309090**	**5.49**	69	**709091**	**5.85**	-3	72	**736364**	**5.87**
Veg juice -high c	-5	3			9			-4	4		
Veg juice -high d	-4	36	**63636**	**4.80**	76	**736364**	**5.87**	-3	67	**645455**	**5.81**
Veg juice -high d	-5	4			5			-4	4		
Veg juice -high e	-4	30	**318182**	**5.50**	89	**872727**	**5.94**	-3	115	**1172727**	**6.07**
Veg juice -high e	-5	5			7			-4	14		
Yogurt drink – low a	-1	86	**760**	**2.88**	86	**760**	**2.88**	-1 0.5ml	34	**670**	**2.83**
Yogurt drink – low a	-1	66			66			-1 0.5ml	33		
Yogurt drink – low b	-2	67	**705**	**2.85**	67	**705**	**2.85**	-1 0.5ml	29	**650**	**2.81**
Yogurt drink – low b	-3	74			74			-1 0.5ml	36		
Yogurt drink – low c	-2	59	**665**	**2.82**	59	**665**	**2.82**	-1 0.5ml	40	**620**	**2.79**
Yogurt drink – low c	-3	71			71			-1 0.5ml	22		
Yogurt drink – low d	-2	59	**650**	**2.81**	59	**650**	**2.81**	-1 0.5ml	38	**780**	**2.89**
Yogurt drink – low d	-3	71			71			-1 0.5ml	40		
Yogurt drink – low e	-2	73	**650**	**2.81**	73	**650**	**2.81**	-1 0.5ml	30	**590**	**2.77**
Yogurt drink – low e	-3	57			57			-1 0.5ml	29		
Yogurt drink – med a	-4	67	**71818**	**4.86**	67	**71818**	**4.86**	-4	70	**66364**	**4.82**
Yogurt drink – med a	-5	12			12			-5	3		
Yogurt drink – med b	-3	75	**74545**	**4.87**	75	**74545**	**4.87**	-2	65	**62727**	**4.80**
Yogurt drink – med b	-4	7			7			-3	4		
Yogurt drink – med c	-3	62	**62727**	**4.80**	62	**62727**	**4.80**	-2	68	**66364**	**4.82**

Item - Inoculum level	Alternative Compact Dry YM – 3 days				Alternative Compact Dry YM – 7 days			Reference method			
	Dilution (1ml)	No of colonies	Count (cfu/g)	log cfu/g	No of colonies	Count (cfu/g)	log cfu/g	Dilution (0.1ml)	No of colonies	Count (cfu/g)	log cfu/g
Yogurt drink – med c	-4	7			7			-3	5		
Yogurt drink – med d	-3	66	**67273**	**4.83**	66	**67273**	**4.83**	-2	65	**62727**	**4.80**
Yogurt drink – med d	-4	8			8			-3	4		
Yogurt drink – med e	-3	66	**65455**	**4.82**	66	**65455**	**4.82**	-2	71	**70709**	**4.85**
Yogurt drink – med e	-4	6			6			-3	7		
Yogurt drink – high a	-4	55	**527273**	**5.72**	55	**527273**	**5.72**	-3	72	**754545**	**5.88**
Yogurt drink – high a	-5	3			3			-4	11		
Yogurt drink – high b	-4	67	**672727**	**5.83**	68	**681818**	**5.83**	-3	60	**590909**	**5.77**
Yogurt drink – high b	-5	7			7			-4	5		
Yogurt drink – high c	-4	68	**672727**	**5.83**	68	**672727**	**5.83**	-3	47	**481818**	**5.68**
Yogurt drink – high c	-5	6			6			-4	6		
Yogurt drink – high d	-4	78	**736363**	**5.87**	78	**736363**	**5.87**	-3	75	**736364**	**5.87**
Yogurt drink – high d	-5	3			3			-4	6		
Yogurt drink – high e	-4	35	**345455**	**5.54**	35	**345455**	**5.54**	-3	50	**481818**	**5.68**
Yogurt drink – high e	-5	3			3			-4	3		
Cream cheese – low a	-1	66	**570**	**2.76**	66	**570**	**2.76**	-1 0.5ml	23	**510**	**2.71**
Cream cheese – low a	-1	48			48			-1 0.5ml	28		
Cream cheese – low b	-1	54	**475**	**2.68**	54	**475**	**2.68**	-1 0.5ml	19	**420**	**2.62**
Cream cheese – low b	-1	41			41			-1 0.5ml	23		
Cream cheese – low c	-1	31	**260**	**2.41**	31	**260**	**2.41**	-1 0.5ml	12	**360**	**2.56**
Cream cheese – low c	-1	21			21			-1 0.5ml	24		
Cream cheese – low d	-1	49	**525**	**2.72**	49	**525**	**2.72**	-1 0.5ml	21	**450**	**2.65**
Cream cheese – low d	-1	56			56			-1 0.5ml	24		
Cream cheese – low e	-1	51	**515**	**2.71**	51	**515**	**2.71**	-1 0.5ml	21	**400**	**2.60**
Cream cheese – low e	-1	52			52			-1 0.5ml	19		

Item - Inoculum level	Alternative Compact Dry YM – 3 days				Alternative Compact Dry YM – 7 days			Reference method			
	Dilution (1ml)	No of colonies	Count (cfu/g)	log cfu/g	No of colonies	Count (cfu/g)	log cfu/g	Dilution (0.1ml)	No of colonies	Count (cfu/g)	log cfu/g
Cream cheese – med a	-3	55	**55455**	**4.74**	55	**55455**	**4.74**	-2	58	**59091**	**4.77**
Cream cheese – med a	-4	6			6			-3	7		
Cream cheese – med b	-3	79	**80909**	**4.91**	79	**80909**	**4.91**	-2	66	**65455**	**4.82**
Cream cheese – med b	-4	10			10			-3	6		
Cream cheese – med c	-3	65	**61818**	**4.79**	65	**61818**	**4.79**	-2	72	**72727**	**4.86**
Cream cheese – med c	-4	3			3			-3	8		
Cream cheese – med d	-3	58	**58182**	**4.76**	59	**59091**	**4.77**	-2	67	**65455**	**4.82**
Cream cheese – med d	-4	6			6			-3	5		
Cream cheese – med e	-3	112	**107273**	**5.03**	112	**107273**	**5.03**	-2	85	**87277**	**4.94**
Cream cheese – med e	-4	6			6			-3	11		
Cream cheese - high a	-4	80	**845455**	**5.93**	80	**845455**	**5.93**	-3	68	**681818**	**5.83**
Cream cheese - high a	-5	13			13			-4	7		
Cream cheese - high b	-4	33	**354545**	**5.55**	33	**354545**	**5.55**	-3	51	**490909**	**5.69**
Cream cheese - high b	-5	6			6			-4	3		
Cream cheese - high c	-4	54	**545455**	**5.74**	54	**545455**	**5.74**	-3	45	**472727**	**5.67**
Cream cheese - high c	-5	6			6			-4	7		
Cream cheese - high d	-4	58	**609091**	**5.78**	58	**609091**	**5.78**	-3	63	**618182**	**5.79**
Cream cheese - high d	-5	9			9			-4	5		
Cream cheese - high e	-4	43	**427273**	**5.63**	43	**427273**	**5.63**	-3	37	**390909**	**5.59**
Cream cheese - high e	-5	4			4			-4	6		

T= Too many to count

Appendix 5 – Accuracy profile study: summarized results

(Food) Category 1	Confectionary -3 day
(Food) Type 1	Quiche and Egg custard

			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
44 a-e	Quiche	Low	270	240	190	200	210	160	240	280	340	300
134 a-e	Egg custard	Low	300	130	240	270	290	250	245	215	285	260
2 a-e	Quiche	Med	1500	1700	1300	1900	2727	1100	800	1100	1818	2909
124 a-e	Egg custard	Med	1636	1727	1818	1800	2273	1818	1500	600	800	1400
15 a-e	Quiche	High	77273	55455	22727	56364	40000	47273	54545	24545	43636	35455
165 a-e	Egg custard	High	76364	56364	79091	72727	61818	66364	33636	60909	69091	51818

(Food) Category 2	Confectionary - 7day
(Food) Type 2	Quiche and Egg custard

			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
44 a-e	Quiche	Low	270	240	190	200	210	220	275	280	375	300
134 a-e	Egg custard	Low	300	130	240	270	290	280	285	290	295	265
2 a-e	Quiche	Med	1500	1700	1300	1900	2727	1909	800	1100	1909	3182
124 a-e	Egg custard	Med	1636	1727	1818	1800	2273	1818	1500	600	900	1400
15 a-e	Quiche	High	77273	55455	22727	56364	40000	47273	54545	26364	43636	37273
165 a-e	Egg custard	High	76364	56364	79091	72727	61818	66364	34545	60909	69091	51818

(Food) Category 1	RTE Foods-3d
(Food) Type 1	prawns and tuna pate

			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
186 a-e	prawns	Low	10	30	10	20	10	20	20	10	25	25
197 a-e	pate	Low	150	200	140	140	400	395	410	370	275	390
68 a-e	pate	Med	1100	2091	1400	3182	1000	1100	1900	2000	1900	1000
64 a-e	prawns	Med	30000	39091	41818	32727	24545	17273	34545	27273	31000	17273
23 a-e	pate	High	372727	236363	254545	381818	310000	218182	272727	227273	427273	400000
36 a-e	prawns	High	400000	327273	600000	427273	309091	381818	400000	618182	400000	290909

(Food) Category 2	RTE Foods- 7d

(Food) Type 2	prawns and tuna pate										
			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
186 a-e	prawns	Low	10	30	10	20	10	20	20	10	30	25
197 a-e	pate	Low	150	200	140	140	400	400	435	425	290	400
68 a-e	pate	Med	1100	2091	1400	3182	1000	1200	1900	2200	1909	1055
64 a-e	prawns	Med	30000	39091	41818	32727	24545	20909	41818	38182	42727	26364
23 a-e	pate	High	372727	236363	254545	381818	310000	218182	272727	227273	427273	400000
36 a-e	prawns	High	400000	327273	600000	427273	309091	381818	400000	618182	400000	290909

(Food) Category 1	Miscellaneous -3d										
(Food) Type 1	Sandwiches and deli salad										
			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
174 a-e	Sandwiches	Low	200	230	350	230	410	355	450	355	400	480
6 a-e	Salad	Low	1160	1290	1310	1090	1870	845	925	1090	1120	925
155 a-e	Salad	Med	7454	6909	4727	9182	5000	7000	4727	5909	8364	4636
200 a-e	Sandwiches	Med	5128	11000	11000	7000	10636	6272	1818	8818	6182	9727
79 a-e	Salad	High	181818	145455	172727	200000	160000	89091	108182	100909	160000	100000
180 a-e	Sandwiches	High	272727	227273	330000	210000	190909	116363	309091	254545	272727	254545

(Food) Category 2	Miscellaneous-7d										
(Food) Type 2	Sandwiches and deli salad										
			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
174 a-e	Sandwiches	Low	200	230	350	230	410	475	505	445	455	610
6 a-e	Salad	Low	1160	1290	1310	1090	1870	850	940	1110	1145	930
155 a-e	Salad	Med	7454	6909	4727	9182	5000	7273	5091	8000	8636	5346
200 a-e	Sandwiches	Med	5128	11000	11000	7000	10636	6727	19000	9455	6636	10818
79 a-e	Salad	High	181818	145455	172727	200000	160000	98182	110909	108182	154545	104545
180 a-e	Sandwiches	High	272727	227273	330000	210000	190909	132727	318182	254545	272727	254545

(Food) Category 1	PRODUCE -3d		
(Food) Type 1	Beetroot salad and vegetable juice		
	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
31 a-e	veg juice	Low	250	350	190	370	270	355	191	391	236	163
25 a-e	Beetroot	Low	310	200	490	290	310	218	264	273	245	227
133 a-e	Beetroot	Med	3818	3545	3545	4455	2273	1636	1545	1200	1818	1535
85 a-e	veg juice	Med	85455	93636	67273	46364	68182	51818	46364	32727	35000	16000
190 a-e	veg juice	High	854545	527273	736364	645455	117272	409092	309092	309090	363636	318182
13 a-e	Beetroot	High	4818182	3800000	2545455	2636364	3400000	1727273	2363636	1300000	1909091	1727273

(Food) Category 2	PRODUCE -7d
----------(Food) Type 2	Beetroot salad and vegetable juice

			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
31 a-e	vegetable juice	Low	250	350	190	370	270	373	209	445	255	209
25 a-e	Beetroot	Low	310	200	490	290	310	236	282	273	309	264
133 a-e	Beetroot	Med	3818	3545	3545	4455	2273	3727	3182	2636	2727	2455
85 a-e	vegetable juice	Med	85455	93636	67273	46364	68182	78182	84545	62727	57273	51818
190a-e	vegetable juice	High	854545	527273	736364	645455	117272	772727	600000	709091	736364	872727
13 a-e	Beetroot	High	4818182	3800000	2545455	2636364	3400000	2909090	3000000	2454545	2545455	2300000

(Food) Category 1	DAIRY 3-day
(Food) Type 1	YOGURT DRINK AND CREAM CHEESE

			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
88 a-e	Yogurt drink	Low	670	650	620	780	590	760	705	665	650	650
147 a-e	Cream cheese	Low	510	420	360	450	400	570	475	260	525	515
84 a-e	Yogurt drink	Med	66364	62727	66364	62727	70709	71818	74545	62727	67273	65455
160 a-e	Cream cheese	Med	59091	65455	72727	65455	87277	55455	80909	61818	58182	107273
10 a-e	Yogurt drink	High	754545	590909	481818	736364	481818	527273	672727	672727	736363	345455
15 a-e	Cream cheese	High	681818	490909	472727	618182	390909	845455	354545	545455	609091	427273

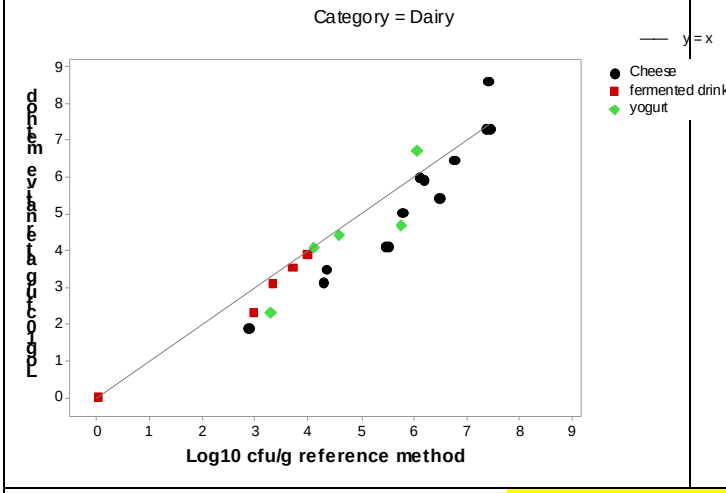
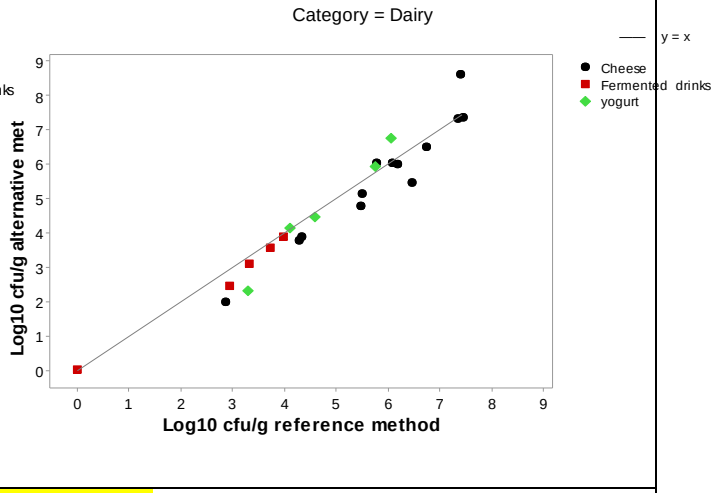
(Food) Category 2	DAIRY 7-day
(Food) Type 2	YOGURT DRINK AND CREAM CHEESE

	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
88 a-e	Yogurt drink	Low	670	650	620	780	590	760	705	665	650	650
147 a-e	Cream cheese	Low	510	420	360	450	400	570	475	260	525	515
84 a-e	Yogurt drink	Med	66364	62727	66364	62727	70709	71818	74545	62727	67273	65455
160 a-e	Cream cheese	Med	59091	65455	72727	65455	87277	55455	80909	61818	59091	107273
10 a-e	Yogurt drink	High	754545	590909	481818	736364	481818	527273	681818	672727	736363	345455
15 a-e	Cream cheese	High	681818	490909	472727	618182	390909	845455	354545	545455	609091	427273

APPENDIX 6 Relative trueness plots

Figure 1b and 2 b: Dairy products

1b: After 3 day incubation	2b: After 7 day incubation
	

Line displayed = line of identity

Figure 1c and 2c: Confectionary/Eggs containing products

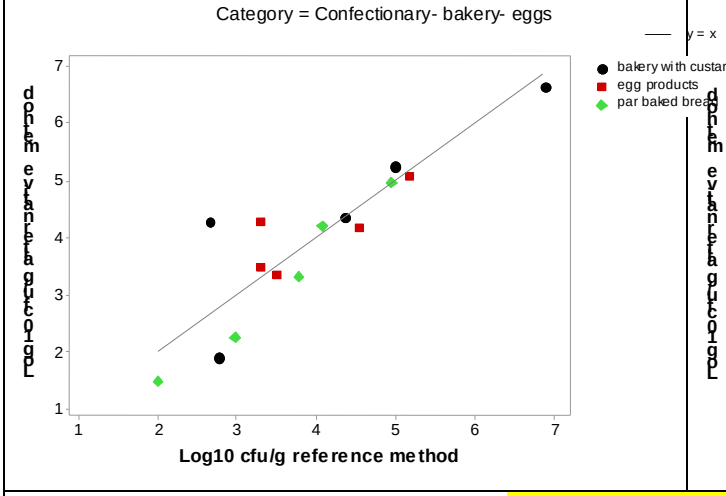
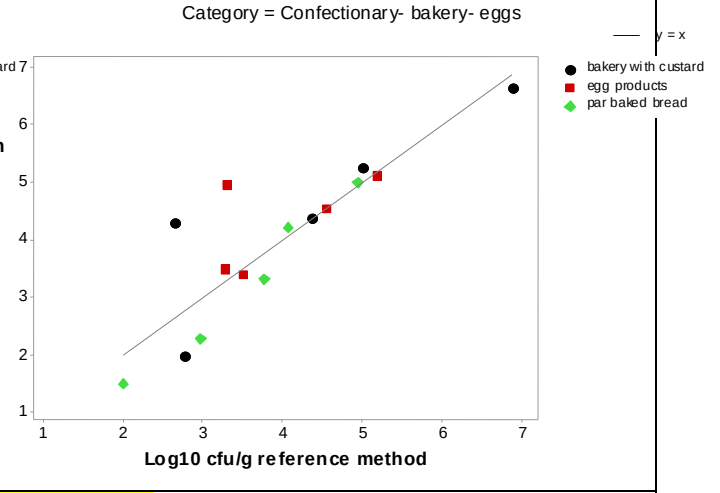
1c: After 3 day incubation	2c: After 7 day incubation
	

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Figure 1d and 2d: Fruits and vegetables

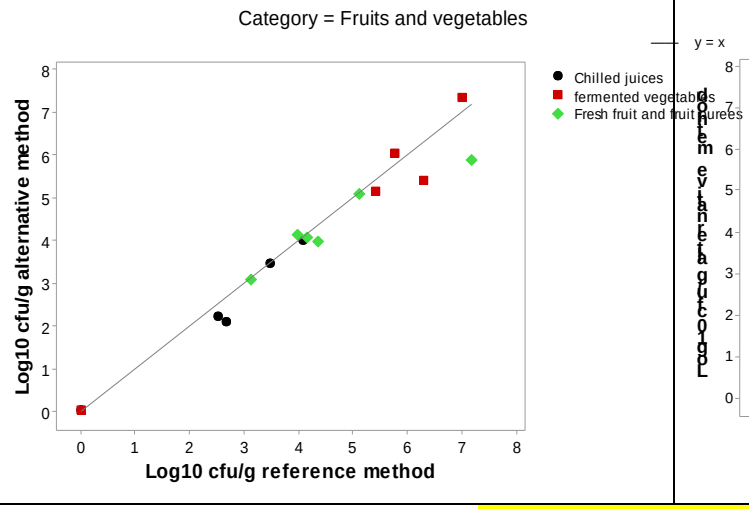
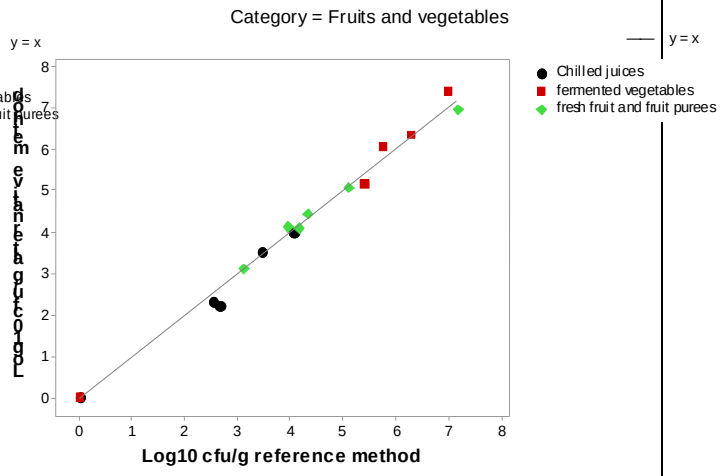
1d: After 3 day incubation	2d: After 7 day incubation
	

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Figure 1e and 2e: Ready to eat Foods

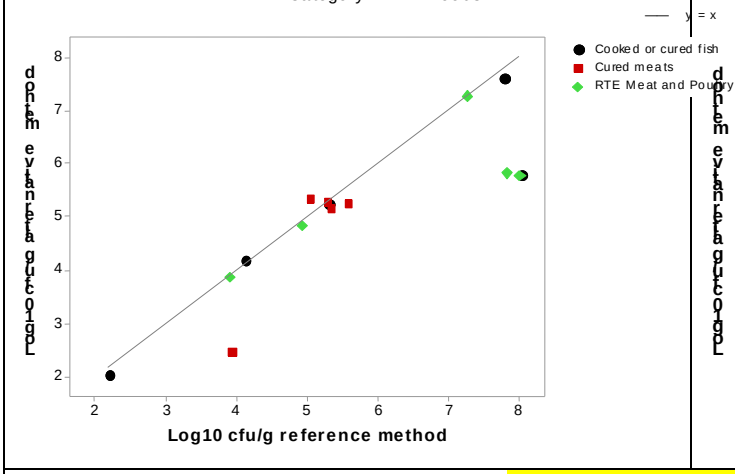
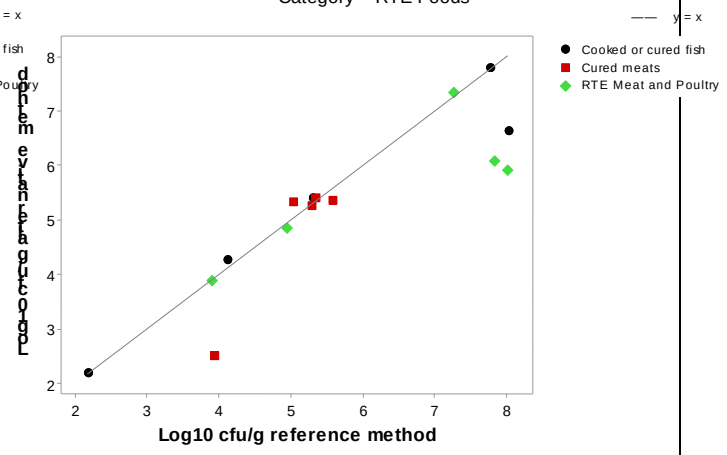
1e: After 3 day incubation	2e: After 7 day incubation
	

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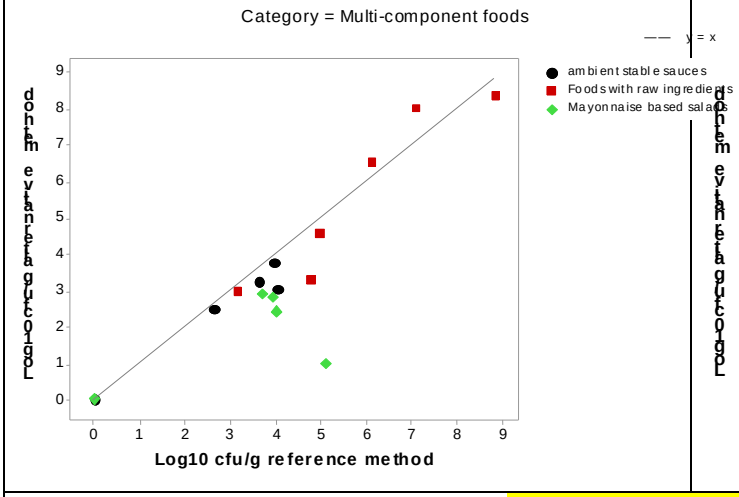
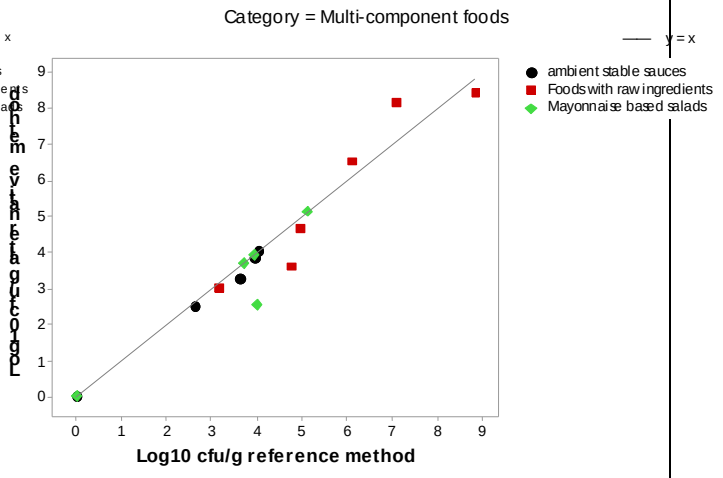
Figure 1f and 2f: Multi-component Foods

1f: After 3 day incubation	2f: After 7 day incubation
	

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APPENDIX 7 Bland Altman plots

Figure 3b and 4b: Dairy products

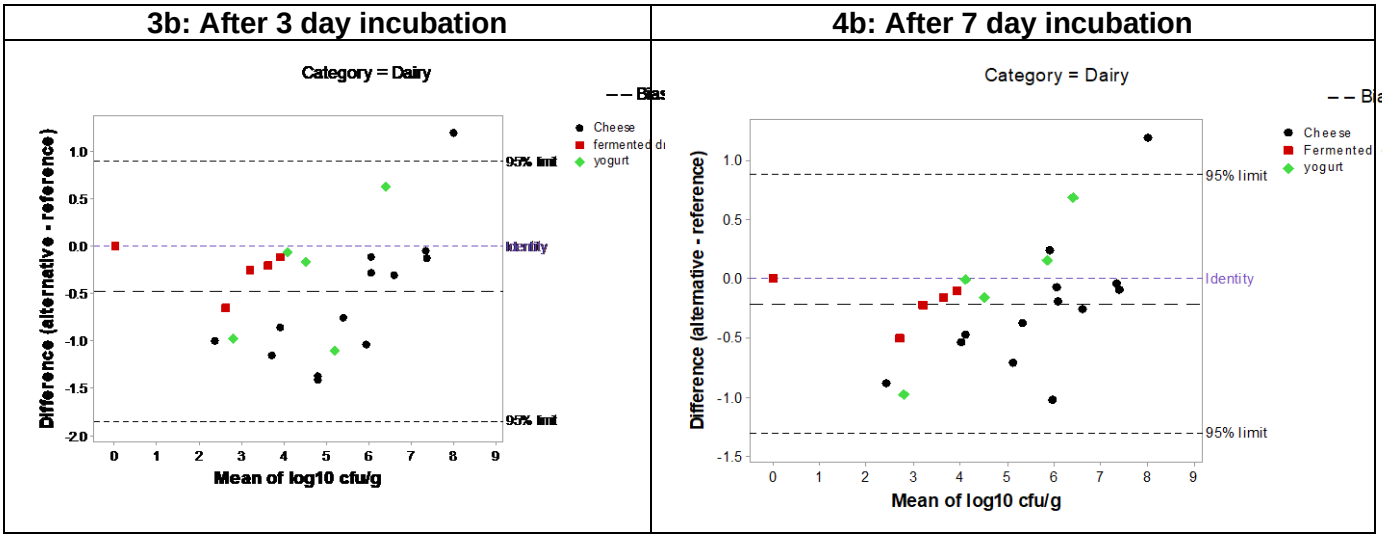


Figure 3c and 4c: Confectionary/Eggs containing products

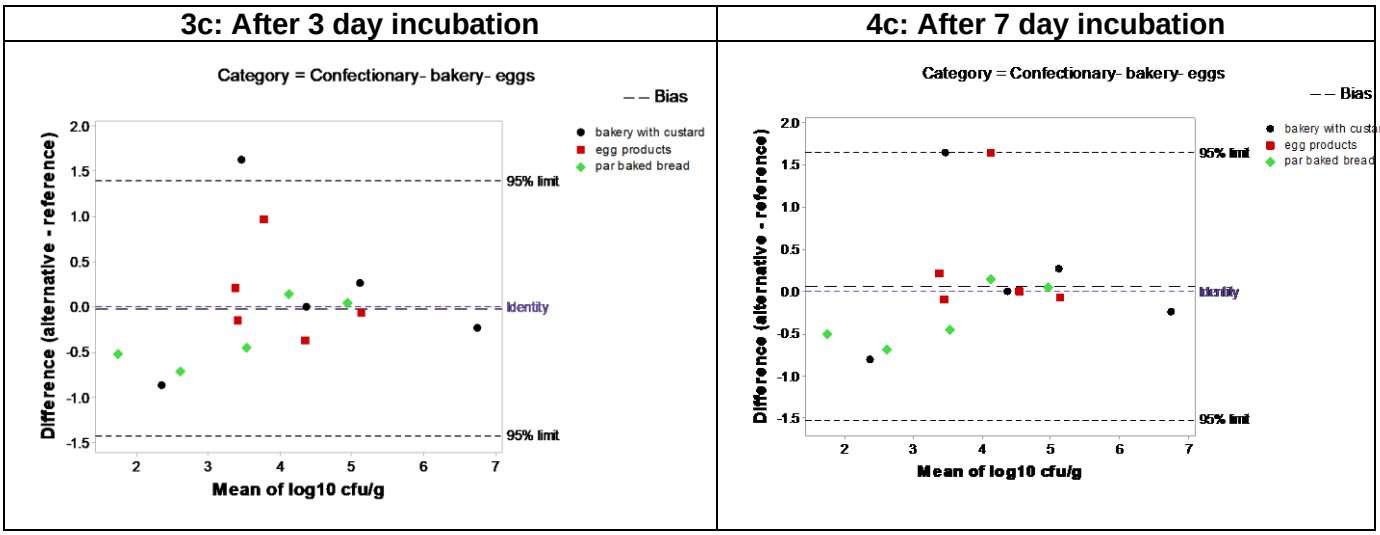


Figure 3d and 4d: Fruits and vegetables

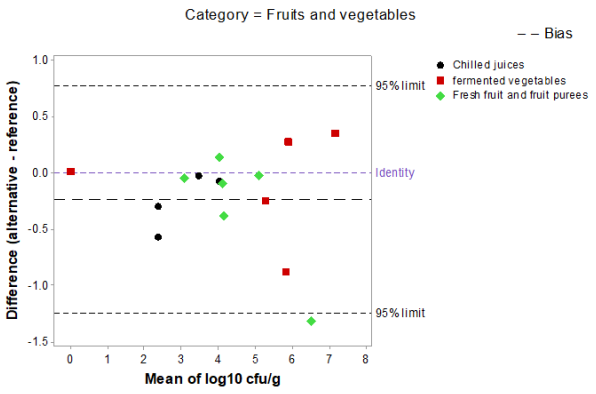
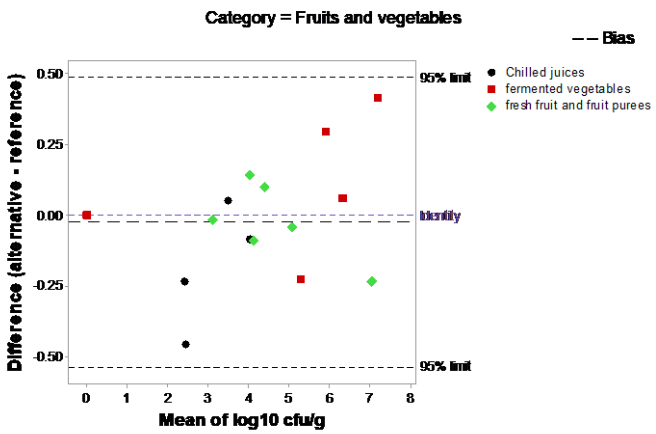
3d: After 3 day incubation	4d: After 7 day incubation
	

Figure 3e and 4e: Ready to eat Foods

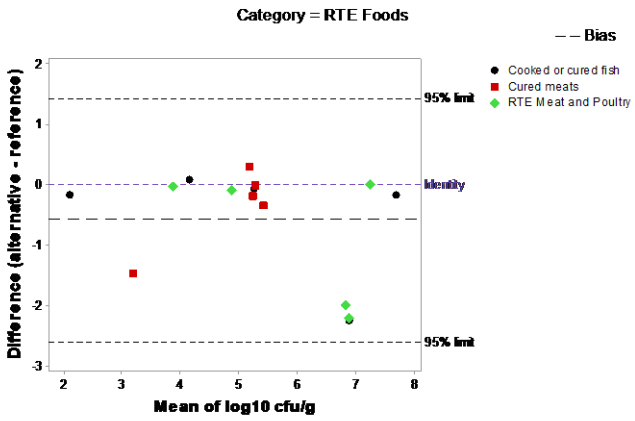
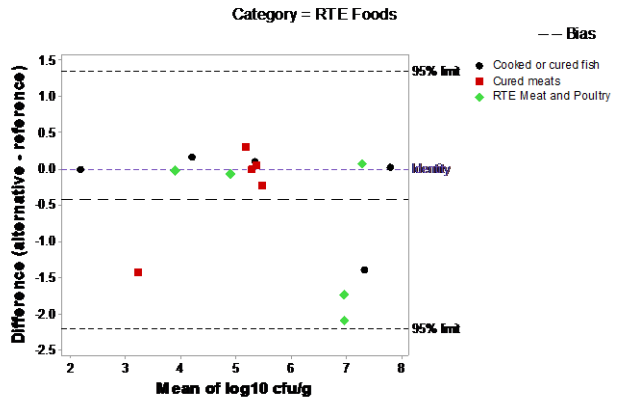
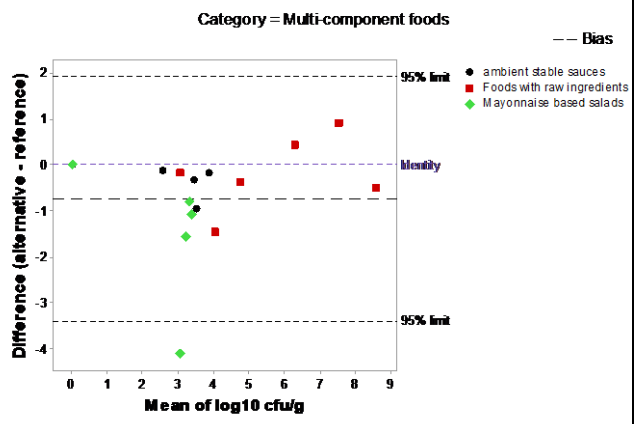
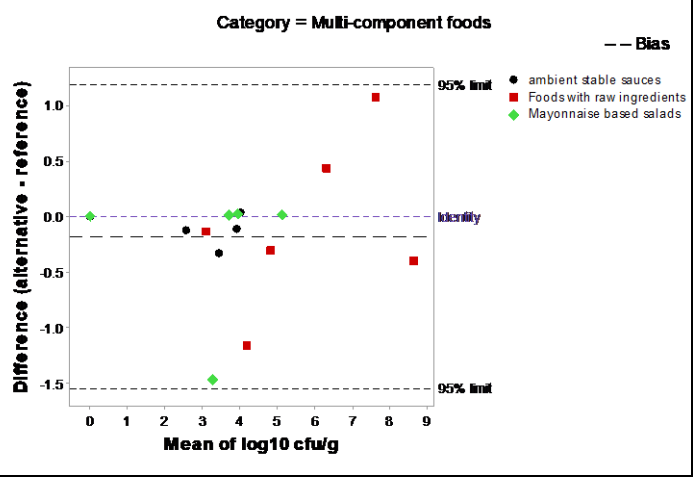
3e: After 3 day incubation	4e: After 7 day incubation
	

Figure 3f and 4f f: Multi-component Foods

3f: After 3 day incubation	4f: After 7 day incubation
	

APPENDIX 8 Inclusivity **results for yeasts and moulds on Shimadzu Diagnostics Corporation Compact Dry YM method compared to ISO 21527-1 (2008) – data for original MC study**

Organism		Campden Code	Alternative Method COMPACT DRY YM		STANDARD PLATE COUNT (DRBC)
			3 Day	7 Day	
Penicillium chrysogenum	1	IMI 394016	Typical: blue colonies, white head	Typical: 'fluffy' green powdery colonies	Green typical colonies, white outer ring
Aspergillus echinulatus	2	CBS 112.26	No Growth	Typical: 'fluffy' blue/green colonies	No Growth
Geotrichum candidum	3	CBS 109.12	Typical: blue colonies, diffuse, translucent	diffuse, flat blue colonies translucent, (yeast-like)	White, typical colonies
Eurotium amstelodami	4	CBS 518.65	Typical: blue colonies, diffuse, translucent	Typical: 'fluffy' colonies with 2 types of sporulation*	White, typical colonies
Aspergillus flavipus	5	MB 102277	No Growth	Typical: 'fluffy' white/blue colonies	White, round, typical colonies
Eurotium repens	6	IMI 345807	Typical: pale blue colonies, faint	Typical: 'fluffy' green colonies	White, typical colonies, green heads
Mucor hiemalis	7	CBS 118522	Typical: blue mould cover, individual colonies not visible	Typical: 'fluffy' blue mould cover, confluent growth	White, typical, round colonies
Penicillium expansum	8	CBS 119372	Typical: diffuse blue colonies	Typical: powdery/fluffy blue/brown colonies	Blue/green colonies, white edges, round
Cladosporium herbarum	9	MB 99476, IMI 395122	No Growth	Typical: 'fluffy' green/grey colonies, white heads	Typical, white, irregular shape
Paecilomyces variotii	10	CBS 119378	No Growth	Typical: 'fluffy' blue/green colonies with brown heads	Green/yellow typical colonies, white edges
Aspergillus niger	11	MB 96353, IMI 394715	Typical: diffuse blue colonies	Typical: 'fluffy' black colonies,	Typical white colonies with black heads
Eurotium chevalieri	12	CBS 522.65	No Growth	Typical: green blue colonies, yellow 'fluffy'/furry centre	Typical white, round colonies
Aspergillus flavus	13	MB 110025	Typical: diffuse blue colonies	Typical: 'fluffy' blue colonies, brown/green centre	Typical green powdery colonies
Monascus bisporus	14	CBS 599.97	No Growth	No Growth	No Growth
Chrysosporium farinicola	15	CBS 154.67	No Growth	No Growth	No Growth
Debaromyces hansenii	16	15969	Typical: mixture of small blue & white colonies	Typical: mixture of small blue & white colonies	Typical: mixture of pale & darker pink colonies (C)
Zygosaccharomyces rouxii	17	16128	Typical: very pale pin point blue colonies	Typical: blue colonies	Typical (B)
Saccharomyces cerevisiae	18	15968	Typical: blue-green colonies	Typical: dark blue	Typical (C)
Zygosaccharomyces bailii	19	16124	Typical: very small white colonies	Typical: blue colonies	Typical (B)
Pichia membranaefaciens	20	16014	Typical: Mixture of large darker blue diffuse colonies and smaller paler colonies	Typical: Mixture of large darker blue diffuse colonies and smaller paler colonies	Typical (D)
Candida utilis	21	16329	Typical: blue-green colonies	Typical: Blue colonies	Typical (C)
Rhodotorula graminis	22	16003	Typical: blue colonies	Typical: Mixture of dark blue intense colonies and smaller grey colonies	Typical (C) orange coloured colonies
Candida parapsilosis	23	16160	Typical: blue-green colonies	Typical: Small blue colonies	Typical (C)
Kluveromyces lactis	24	16455 (NCYC 416)	Typical: pale green colonies	Typical: very small green-blue	Typical (C)

Organism		Campden Code	Alternative Method COMPACT DRY YM		STANDARD PLATE COUNT (DRBC)
			3 Day	7 Day	
				colonies	
Pichia anomala	25	16175	Typical: mixture of dark blue and paler blue colonies	Typical: blue colonies	Typical (C)
Naumovia dairensis	26	16456 (CBS 421)	white colonies but yeast-like	white colonies but yeast-like	Typical (B)
Schizosaccharomyces pombe	27	16016	Typical: mixture of large darker blue and smaller paler colonies	Typical mixture of large darker blue and smaller paler colonies	Typical (C)
Dekkera bruxellensis	28	16012	No Growth	No Growth	Typical (A)
Galactomyces geotrichum	29	16457 (CBS 772.71)	Typical: very large blue colonies but "furry"	Typical: very large blue colonies but "furry"	Typical (D) but furry
Zygosaccharomyces bisporus	30	16009	Typical: pale green colonies	Typical: pale green colonies (small)	Typical (C)
Dekkera bruxellensis	31	16013	Typical: green colonies	Typical: green/blue colonies	Typical (C)

(A) = Pin point colonies
(B) = Small or very small colonies
(C) = Medium colonies
(D) = Large colonies

Typical: refers to a colony morphology expected for the target organism. Where the colours are different from blue the observed colour is described.

Exclusivity results for Compact Dry YM method compared to ISO 21527-1 (2008)

Organism		Campden Code	Alternative method COMPACT DRY YM		STANDARD PLATE COUNT METHOD (DRBC)
			3 Day	7 Day	
Enterobacter aerogenes		15736	NG, NG	NG, NG	Pink colonies
Escherichia coli		11017	NG, NG	NG, NG	NG, NG
Edwardsiella tarda		8392	NG, NG	NG, NG	NG, NG
Enterobacter cloacae		1472	NG, NG	NG, NG	Pink colonies of different sizes & shades
Citrobacter freundii		40	NG, NG	NG, NG	NG, NG
Hafnia alvei		4009	NG, NG	NG, NG	NG, NG
Bacillus cereus		4110	NG, NG	NG, NG	NG, NG
Bacillus subtilis		4112	NG, NG	NG, NG	NG, NG*
Brochothrix thermospacta		16019	NG, NG	NG, NG	NG, NG
Enterococcus faecalis		4113	NG, NG	NG, NG	NG, NG
Lactobacillus gasseri		6804	NG, NG	NG, NG	NG, NG
Avibacterium avium		8389	NG, NG	NG, NG	NG, NG
Pasteurella bettyae		16395	NG, NG	NG, NG	NG, NG
Pediococcus pentosaceus		16030	NG, NG	NG, NG	NG, NG
Pseudomonas aeruginosa		8299	NG, NG	NG, NG	Pink colonies
Pseudomonas fluorescens		15937	NG, NG	Blue/grey colonies, irregular edges, atypical, yeast-like	Pink colonies
Pseudomonas fragi		16050	NG, NG	NG, NG	Pink colonies
Staphylococcus aureus		1224	NG, NG	NG, NG	NG, NG
Staphylococcus aureus		16482	NG, NG	NG, NG	NG, NG
Lactobacillus plantarum		166	NG, NG	NG, NG	NG, NG