**NMKL - NordVal International**
c/o Institute of Marine Research
P.O. box 1870 Nordnes, N-5817 Bergen, Norway
www.nmkl.org

# NordVal International Certificate

| | |
|---|---|
| Issued for: | Compact Dry EC Method for the Enumeration of *Escherichia coli* and coliforms |
| NordVal No: | 036 |
| First approval date: | 01 December 2008 |
| Renewal date: | 13 November 2026 |
| Valid until: | 01 December 2028 |

## Compact Dry EC

**Manufactured and supplied by:**

Shimadzu Diagnostics Corporation,
20th Floor Ueno Frontier Tower,
3-24-6 Ueno, Taito-ku, Tokyo,
110-8736 JAPAN

The performance of this has been compared to the reference methods:

- ISO 16649-2:2001: “Microbiology of food and animal feeding stuffs. Horizontal method for the enumeration of beta-glucuronidase-positive Escherichia coli. Part 2: Colony-count technique at 44 degrees C using 5-bromo-4-chloro-3-indolyl beta-D-glucuronide.”

and

- ISO 4832:2006: “Microbiology of food and animal feeding stuffs. Horizontal method for the enumeration of coliforms. Colony-count technique.”

The validation studies have been conducted by Campden, UK, according to t ISO 16140-2:2016, and concludes Compact Dry EC provide equivalent results to the reference methods.

The production of Compact Dry EC is certified according to ISO 9001 and ISO 13485.

Date: 13. November 2026

Yours sincerely,

Hrólfur Sigurðsson

Hrólfur Sigurðsson
Chair of NordVal International

Eystein Oveland
NMKL Executive Director

## PRINCIPLE OF THE METHOD

Compact Dry EC is a ready-to-use dry chromogenic plate for enumeration of *E.coli* and coliforms. Pre-treat the samples according to ISO 6887 or NMKL 91. The medium contains two kinds of chromogenic enzyme substrates: Magenta-Gal and X-Gluc. *E.coli* forms blue colonies. The total coliform group count is the sum of both the red and blue colonies.

An aliquot of 1 ml of an appropriate dilution is plated onto Compact Dry EC plate. The incubation conditions tested in the study were 37 ± 1°C for 24 ± 2h.

## FIELD OF APPLICATION

The method has been tested on enumeration of *Escherichia coli* and coliforms in a broad range of foods.

## HISTORY

In 2007, the method was validated according to the ISO 16140:2003. Every two years until 2018 the method has been renewed without any additional studies.

In 2018 a renewal study was performed to comply with the requirements for relative trueness and accuracy profile in the new standard ISO 16140-2:2016. As the design of the Inter-laboratory study (ILS) is the same for the 2003 and 2016 versions of ISO16140, the data from the ILS data of 2007 are re-evaluated using the new statistical approach outlined in ISO16140-2:2016.

## METHOD COMPARISON STUDY

### Relative trueness study

The trueness study is a comparative study between results obtained by the reference method and the results of the alternative method. Different categories, types and items were tested as shown in Table 1 below.

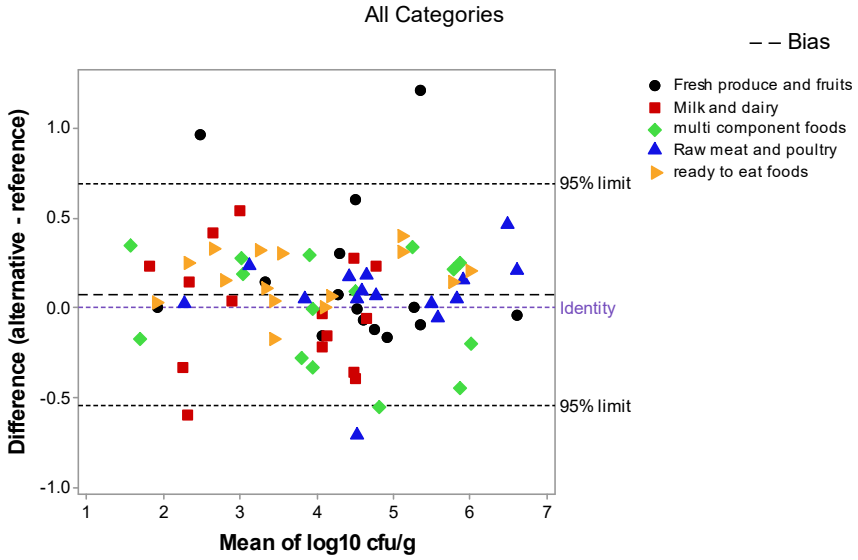
**Table 1. Categories and types tested**

| Category | Types | No. of samples |
|---|---|---|
| Milk and dairy products | Dry milk product e.g. milk powder, powder for milk based desserts, dried infant formula | 5 |
| | Dairy products e.g. ice-cream, yogurts, cream, hard cheese, soft cheese, raw milk cheese | 5 |
| | Pasteurised milk products e.g. skimmed, semi-skimmed, full fat and flavoured milks | 5 |
| Fresh produce and fruits | Cut ready to eat fruit e.g. fruit mixes, fruit juices | 5 |
| | Cut ready to eat vegetables e.g. Bagged pre-cut salads and shredded carrot, cabbage, vegetable juices | 5 |
| | Leafy greens/Sprouts e.g. soy, mung, alfalfa, | 5 |
| Raw poultry and meats (Combined category raw/ RTC meats and poultry) | Fresh poultry cuts e.g. turkey breast, turkey fillet | 5 |
| | Fresh mince e.g. lamb, beef, pork | 5 |
| | Processed ready to cook e.g. frozen patties, marinated kebabs, seasoned chicken breasts | 5 |
| Ready to eat foods (Combined category RTE/RTRH meats and poultry) | Ready to eat poultry e.g. turkey fillet, chicken sausage, pate | 5 |
| | Cooked fish products e.g. prawns, terrine, pate, smoked fish | 5 |
| | Cooked meat e.g. ham, salami, pate, corned beef | 5 |
| Multi component foods or meal components | Ready to re-heat refrigerated food e.g. cooked chilled foods, rice and pasta, products | 5 |
| | Ready to re-heat food frozen e.g. fries, pizza | 5 |
| | Composite foods with substantial raw ingredients e.g. pasta salads, sandwiches, deli-salads | 5 |

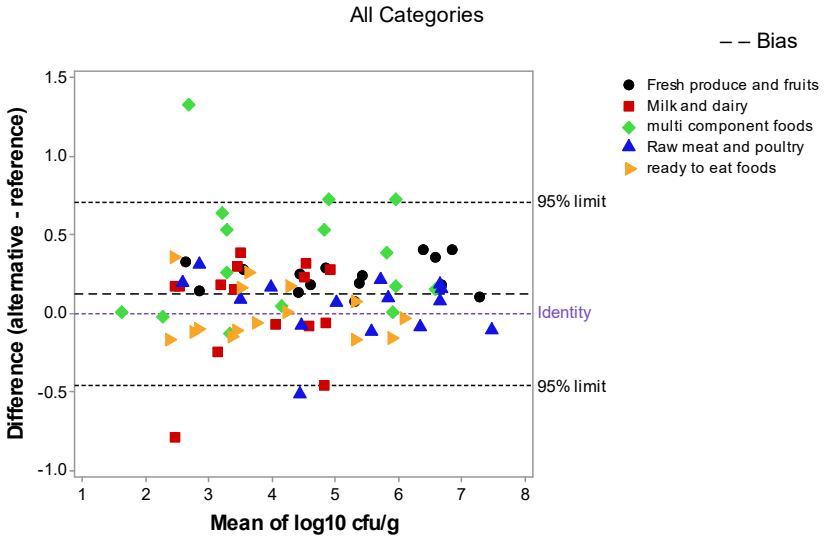
The relative trueness is illustrated by the use of a Bland-Altman plot, i.e. the difference (bias) between paired samples analysed with the reference method and the alternative method respectively, plotted against the mean values obtained by the reference method. In the plot, Upper and Lower limits are included as the bias ± 2 times the standard deviation of the bias. The Bland-Altman Plot in **Figure 1** illustrates the difference obtained in the enumeration of *E. coli* and total count by the alternative and the reference method, respectively.

**Figure 1. Bland-Altman Plot of the enumeration of E. coli and total count in foods**

*E. coli*:




Coliforms:




It is expected that no more than 1 in 20 data values will lie outside the 95% confidence levels (upper limit and lower limits).

**For *E. coli*:**

For 'All Categories' there are five in 75 values which lie outside the CLs. This is a little more than the expectation of less than one in 20. There was no identifiable trend in the data outside the CLs, which covered 4 different food categories, 4 different inoculated strains and 3 different seeding/spiking protocols.

**For coliforms:**

For 'All Categories' there are six in 75 values which lie outside the CLs. This is a little more than the expectation of less than one in 20. Of the six points outside of the CLs, the data covered 3 different food categories, and 3 different inoculated strains.

## Accuracy profile

The accuracy profile study is a comparative study between the results obtained by the reference method and the results of the alternative method. Each item used were artificially contaminated obtaining three target levels; low ($10^2$ cfu/g), medium ($10^4$ cfu/g) and high ($10^6$ cfu/g). Five test portions of each level of each item were analysed, resulting in 150 samples. The tested categories, types, items and inoculated strains are provided in the Table 2.

**Table 2. Categories, types and food items**

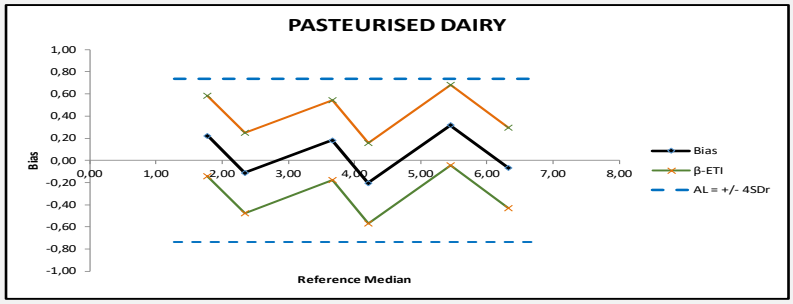
| Category | Types | Strains – E.coli | Strains - Coliforms | Items |
|---|---|---|---|---|
| Dairy products | Pasteurised dairy products | *E. coli* CRA 1476 from dried milk | *E. coli* CRA 1476 from dried milk | Pasteurised cream |
| | | *E. coli* NCTC 8008 | *Enterobacter agglomerans* CRA 5613 from milk powder | Cream cheese |
| Fruits and vegetables | Fresh produce | *E. coli* ATCC 25922 | *E.hermanii* CRA 7477 from sesame seeds | Ready to cook Vegetable preparation |
| | | *E. coli* NCIMB 700555 | *Citrobacter amalonaticus* CRA 7458 from beansprouts | Vegetable juice |
| Raw poultry and meats (Combined category raw/ RTC meats and poultry) | Fresh meat | *E. coli* CRA 16041 from raw ground mince | *Enterobacter aerogenes* NCTC 10006 | Pork mince |
| | | *E. coli* CRA 1593 from poultry | *Citrobacter freundii* NCTC 9750 | Raw bacon |
| Ready to eat foods (Combined category RTE/RTRH meats and poultry) | Cooked fish products e.g. prawns | *E.coli* CRA 2003 isolated from fish | *E.coli* CRA 2003 from fish | |
| | | *E.coli* CRA 1968 isolated from lamb | *Klebsiella oxytoca* ATCC 15926 | Fish pate |
| Multi component foods | Composite foods with raw ingredients | *E.coli* CRA 16044 isolated from beef | *Enterobacter agglomerans* CRA 5513 from skimmed milk powder | Sandwiches |
| | | *E.coli* CRA 1265 dried foods | *E. adecarboxylata* CRA 5501 from skimmed milk powder | Cooked chilled rice |

The total number of samples analysed for both *E. coli* and Coliforms with both methods were 150. The statistical results and the accuracy profiles are provided in the **Figures 2 to 6**.

## Figure 2. Dairy products

*E. coli*:

| (Food) Category | DAIRY |
|---|---|
| (Food) Type | PASTEURISED DAIRY |

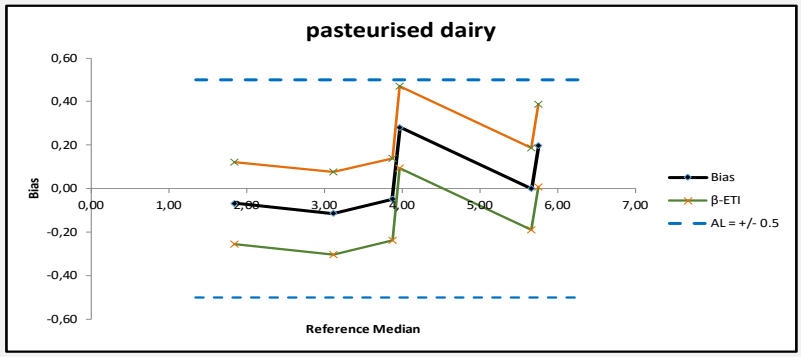



| Sample Name | Reference central value | Bias | Lower β-ETI | Upper β-ETI | β-ETI compared to AL=±0.5 Acceptable | β-ETI compared to final AL Acceptable |
|---|---|---|---|---|---|---|
| 107 45 75 342 322 | 1,78 | 0,222 | -0,140 | 0,584 | NO | YES |
| 299 41 22 277 230 | 2,34 | -0,112 | -0,474 | 0,250 | YES | YES |
| 314 346 25 63 328 | 3,66 | 0,182 | -0,180 | 0,545 | NO | YES |
| 198 154 231 338 254 | 4,20 | -0,204 | -0,566 | 0,158 | NO | YES |
| 58 141 172 83 109 | 5,45 | 0,316 | -0,046 | 0,679 | NO | YES |
| 130 233 94 162 100 | 6,32 | -0,067 | -0,429 | 0,295 | YES | YES |

| | Reference method | Alternative method | SD repeatability of reference method <= 0.125 | Final AL |
|---|---|---|---|---|
| SD Repeatability | 0,184 | 0,251 | NO | +/- 0,736 |

Coliforms:

| (Food) Category | dairy |
|---|---|
| (Food) Type | pasteurised dairy |



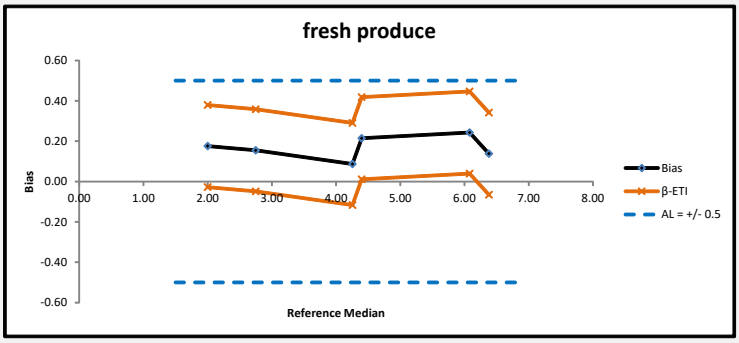

| Sample Name | Reference central value | Bias | Lower β-ETI | Upper β-ETI | β-ETI compared to AL=±0.5 Acceptable | β-ETI compared to final AL Acceptable |
|---|---|---|---|---|---|---|
| 142 21 248 188 53 | 1,85 | -0,067 | -0,256 | 0,122 | YES | YES |
| 107 45 75 342 322 | 3,11 | -0,114 | -0,303 | 0,075 | YES | YES |
| 31 10 97 13 273 | 3,88 | -0,049 | -0,238 | 0,140 | YES | YES |
| 314 346 25 63 328 | 3,97 | 0,282 | 0,093 | 0,471 | YES | YES |
| 196 229 57 102 259 | 5,66 | 0,000 | -0,189 | 0,189 | YES | YES |
| 58 141 172 83 109 | 5,76 | 0,198 | 0,009 | 0,387 | YES | YES |

| | Reference method | Alternative method | SD repeatability of reference method <= 0.125 | Final AL |
|---|---|---|---|---|
| SD Repeatability | 0,132 | 0,131 | NO | +/- 0,500 |

## Figure 3. Fruit and vegetable products

*E. coli*:

| (Food) Category | fruit and veg |
|---|---|
| (Food) Type | fresh produce |

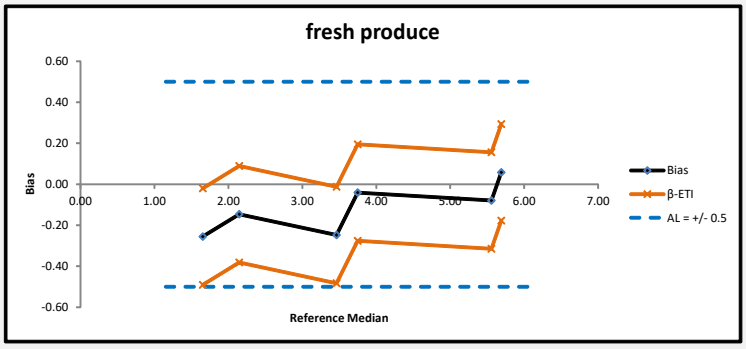



| Sample Name | Reference Central value | Bias | Lower β-ETI | Upper β-ETI | β-ETI compared to AL=±0.5 Acceptable | β-ETI compared to final AL Acceptable |
|---|---|---|---|---|---|---|
| 164 79 181 213 305 | 2.00 | 0.176 | -0.027 | 0.380 | YES | YES |
| 119 121 176 150 91 | 2.75 | 0.155 | -0.049 | 0.358 | YES | YES |
| 276 129 67 3 174 | 4.26 | 0.087 | -0.116 | 0.291 | YES | YES |
| 116 104 88 201 105 | 4.40 | 0.215 | 0.011 | 0.418 | YES | YES |
| 173 98 44 127 52 | 6.08 | 0.243 | 0.039 | 0.447 | YES | YES |
| 140 326 66 190 343 | 6.38 | 0.138 | -0.065 | 0.342 | YES | YES |

| | Reference method | Alternative method | SD repeatability of reference method <= 0.125 | Final AL |
|---|---|---|---|---|
| SD Repeatability | 0.132 | 0.141 | NO | +/- 0.500 |

Coliforms:

| (Food) Category | fruit and veg |
|---|---|
| (Food) Type | fresh produce |



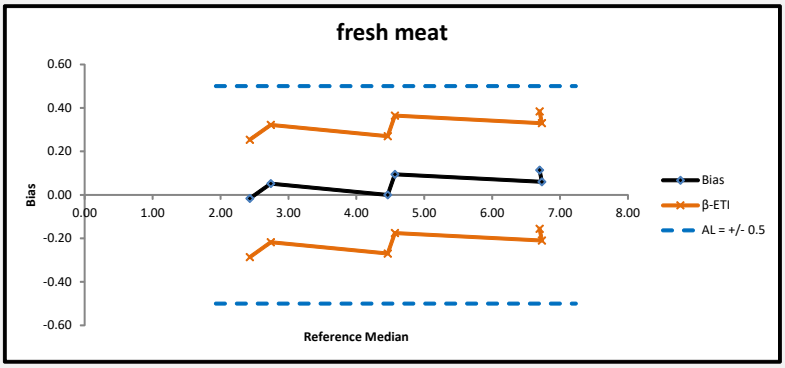

| Sample Name | Reference Central value | Bias | Lower β-ETI | Upper β-ETI | β-ETI compared to AL=±0.5 Acceptable | β-ETI compared to final AL Acceptable |
|---|---|---|---|---|---|---|
| 8 17 327 246 37 | 1.65 | -0.255 | -0.491 | -0.020 | YES | YES |
| 264 252 139 300 294 | 2.15 | -0.146 | -0.381 | 0.089 | YES | YES |
| 312 301 64 267 340 | 3.46 | -0.248 | -0.483 | -0.012 | YES | YES |
| 236 92 223 9 158 | 3.75 | -0.041 | -0.276 | 0.195 | YES | YES |
| 316 86 323 117 203 | 5.56 | -0.079 | -0.314 | 0.156 | YES | YES |
| 74 234 272 34 144 | 5.69 | 0.058 | -0.177 | 0.293 | YES | YES |

| | Reference method | Alternative method | SD repeatability of reference method <= 0.125 | Final AL |
|---|---|---|---|---|
| SD Repeatability | 0.086 | 0.163 | YES | +/- 0.500 |

## Figure 4. Meat and poultry

*E. coli*:

| (Food) Category | raw poultry and meat |
|---|---|
| (Food) Type | fresh meat |

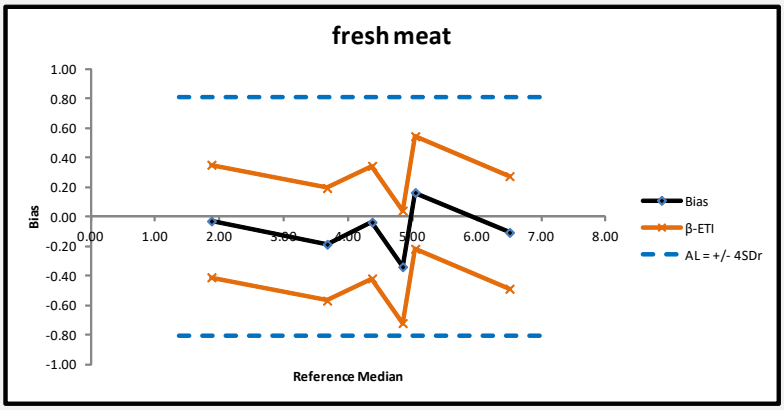



| Sample Name | Reference Central value | Bias | Lower β-ETI | Upper β-ETI | β-ETI compared to AL=±0.5 Acceptable | β-ETI compared to final AL Acceptable |
|---|---|---|---|---|---|---|
| 206 345 33 210 48 | 2.43 | -0.016 | -0.286 | 0.254 | YES | YES |
| 90 81 293 260 286 | 2.74 | 0.052 | -0.218 | 0.322 | YES | YES |
| 185 199 26 208 178 | 4.46 | 0.000 | -0.270 | 0.270 | YES | YES |
| 280 220 14 311 50 | 4.57 | 0.095 | -0.175 | 0.365 | YES | YES |
| 335 191 99 19 193 | 6.73 | 0.060 | -0.210 | 0.330 | YES | YES |
| 336 237 84 278 221 | 6.70 | 0.114 | -0.156 | 0.384 | YES | YES |

| | Reference method | Alternative method | SD repeatability of reference method <= 0.125 | Final AL |
|---|---|---|---|---|
| SD Repeatability | 0.159 | 0.187 | NO | +/- 0.500 |

Coliforms:

| (Food) Category | raw poultry and meat |
|---|---|
| (Food) Type | fresh meat |



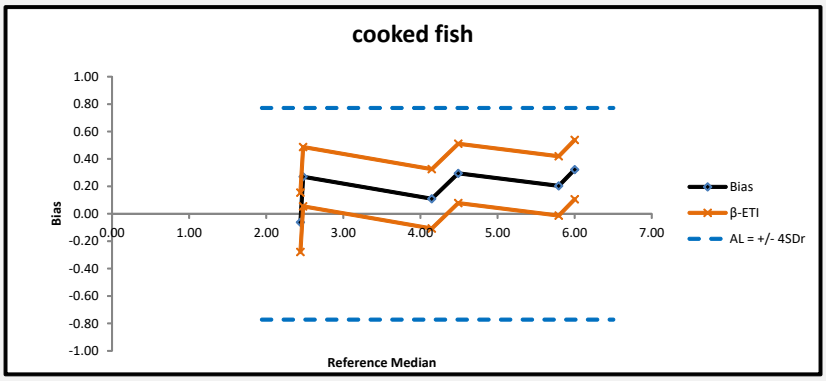

| Sample Name | Reference Central value | Bias | Lower β-ETI | Upper β-ETI | β-ETI compared to AL=±0.5 Acceptable | β-ETI compared to final AL Acceptable |
|---|---|---|---|---|---|---|
| 168 135 283 214 47 | 1.88 | -0.030 | -0.411 | 0.351 | YES | YES |
| 204 253 207 76 156 | 3.67 | -0.188 | -0.569 | 0.193 | NO | YES |
| 284 225 85 257 96 | 4.37 | -0.038 | -0.419 | 0.343 | YES | YES |
| 348 171 65 281 151 | 4.85 | -0.340 | -0.721 | 0.041 | NO | YES |
| 167 36 324 216 133 | 5.04 | 0.163 | -0.218 | 0.544 | NO | YES |
| 165 69 310 118 349 | 6.51 | -0.107 | -0.488 | 0.274 | YES | YES |

| | Reference method | Alternative method | SD repeatability of reference method <= 0.125 | Final AL |
|---|---|---|---|---|
| SD Repeatability | 0.202 | 0.264 | NO | +/- 0.808 |

## Figure 5. Ready to eat foods

*E. coli*:

| (Food) Category | RTE foods |
|---|---|
| (Food) Type | cooked fish |

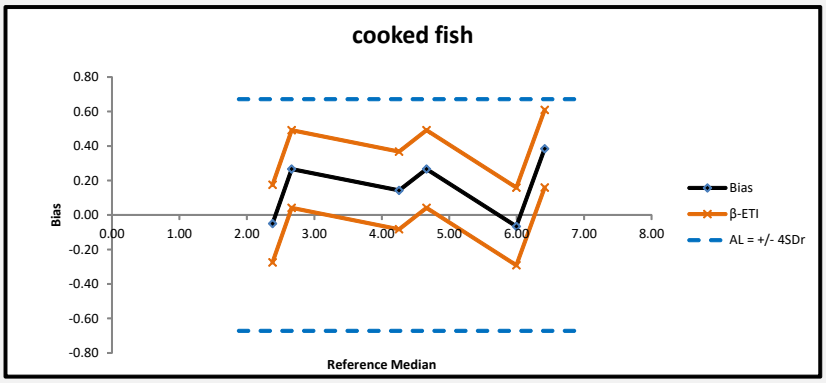



| Sample Name | Reference Central value | Bias | Lower β-ETI | Upper β-ETI | β-ETI compared to AL=±0.5 Acceptable | β-ETI compared to final AL Acceptable |
|---|---|---|---|---|---|---|
| 51 247 218 87 287 | 2.44 | -0.062 | -0.279 | 0.154 | YES | YES |
| 163 241 152 227 125 | 2.48 | 0.270 | 0.054 | 0.487 | YES | YES |
| 289 68 23 309 226 | 4.15 | 0.109 | -0.107 | 0.326 | YES | YES |
| 24 325 166 70 71 | 4.49 | 0.295 | 0.078 | 0.511 | NO | YES |
| 195 261 42 61 320 | 5.79 | 0.203 | -0.013 | 0.420 | YES | YES |
| 62 145 266 317 271 | 6.00 | 0.322 | 0.106 | 0.539 | NO | YES |

| | Reference method | Alternative method | SD repeatability of reference method <= 0.125 | Final AL |
|---|---|---|---|---|
| SD Repeatability | 0.193 | 0.150 | NO | +/- 0.772 |

Coliforms:

| (Food) Category | RTE foods |
|---|---|
| (Food) Type | cooked fish |



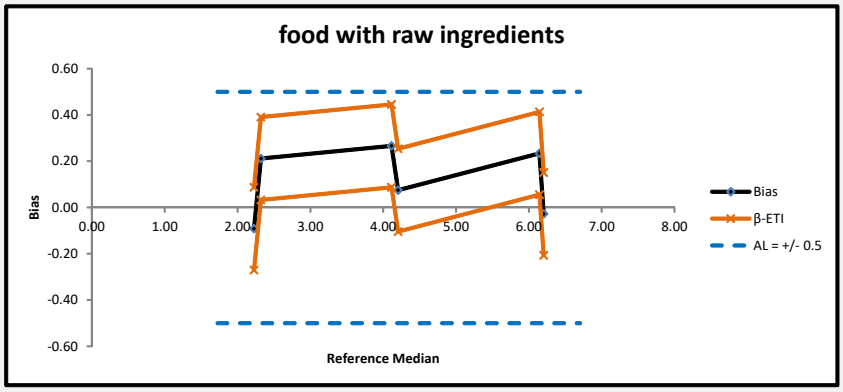

| Sample Name | Reference Central value | Bias | Lower β-ETI | Upper β-ETI | β-ETI compared to AL=±0.5 Acceptable | β-ETI compared to final AL Acceptable |
|---|---|---|---|---|---|---|
| 51 247 218 87 287 | 2.38 | -0.050 | -0.275 | 0.175 | YES | YES |
| 111 155 255 186 202 | 2.66 | 0.267 | 0.041 | 0.492 | YES | YES |
| 289 68 23 309 226 | 4.26 | 0.143 | -0.083 | 0.368 | YES | YES |
| 256 192 295 16 298 | 4.66 | 0.267 | 0.041 | 0.492 | YES | YES |
| 195 261 42 61 320 | 6.00 | -0.066 | -0.291 | 0.159 | YES | YES |
| 319 189 78 82 182 | 6.41 | 0.384 | 0.159 | 0.610 | NO | YES |

| | Reference method | Alternative method | SD repeatability of reference method <= 0.125 | Final AL |
|---|---|---|---|---|
| SD Repeatability | 0.168 | 0.156 | NO | +/- 0.672 |

## Figure 6. Multi component foods

*E. coli*:

| (Food) Category | Mulit component |
|---|---|
| (Food) Type | food with raw ingredients |

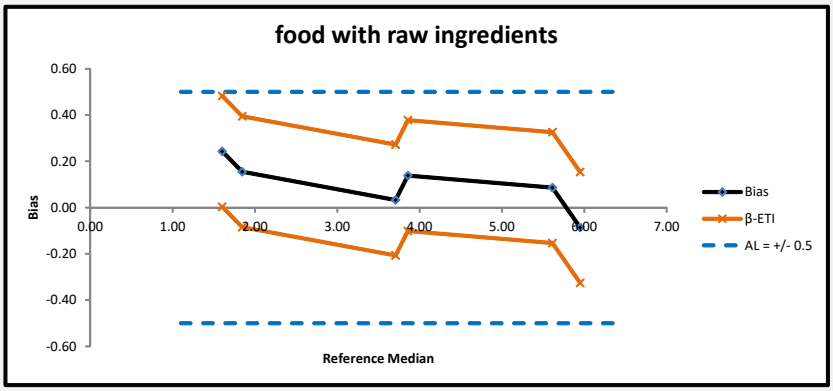



| Sample Name | Reference Central value | Bias | Lower β-ETI | Upper β-ETI | β-ETI compared to AL=±0.5 Acceptable | β-ETI compared to final AL Acceptable |
|---|---|---|---|---|---|---|
| 37 20 28 148 126 | 2.23 | -0.092 | -0.271 | 0.087 | YES | YES |
| 122 169 282 60 159 | 2.32 | 0.211 | 0.032 | 0.390 | YES | YES |
| 308 235 239 179 29 | 4.11 | 0.266 | 0.087 | 0.445 | YES | YES |
| 113 318 112 279 27 | 4.20 | 0.075 | -0.104 | 0.254 | YES | YES |
| 251 128 329 30 146 | 6.15 | 0.234 | 0.055 | 0.413 | YES | YES |
| 265 93 101 302 114 | 6.20 | -0.028 | -0.207 | 0.151 | YES | YES |

| | Reference method | Alternative method | SD repeatability of reference method <= 0.125 | Final AL |
|---|---|---|---|---|
| SD Repeatability | 0.170 | 0.124 | NO | +/- 0.500 |

Coliforms:

| (Food) Category | Mulit component |
|---|---|
| (Food) Type | food with raw ingredients |




| 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 |
|---|---|---|---|---|---|---|
| 329 30 146 275 2422 | 1.60 | 0.243 | 0.003 | 0.483 | YES | YES |
| 180 304 306 258 55 | 1.85 | 0.155 | -0.085 | 0.395 | YES | YES |
| 242 184 211 334 331 | 3.71 | 0.033 | -0.207 | 0.272 | YES | YES |
| 18 175 1 143 138 | 3.86 | 0.138 | -0.101 | 0.378 | YES | YES |
| 131 59 161 103 209 | 5.61 | 0.086 | -0.153 | 0.326 | YES | YES |
| 245 115 224 249 315 | 5.95 | -0.086 | -0.326 | 0.154 | YES | YES |

| | Reference method | Alternative method | SD repeatability of reference method <= 0.125 | Final AL |
|---|---|---|---|---|
| SD Repeatability | 0.230 | 0.166 | NO | +/- 0.500 |

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

For both E.coli and coliforms, the accuracy profiles fulfil the performance criteria after the permitted recalculation and the alternative method is accepted as being equivalent to the reference methods.

## Selectivity (inclusivity/ exclusivity)

Inclusivity is the ability of an alternative method to detect the target analyte from a wide range of strains.

*For E.coli:*
In the original study: 31 strains were studied. All 31 strains grew and produced typical colonies on the Compact Dry EC medium. By comparison, 5 strains failed to grow in the TBX medium (ISO16649-2:2001) and one strain yielded atypical colonies.
In the renewal study of 2018: Of the 20 inclusivity strains tested all strains were detected using both the alternative and reference method.

*For coliforms:*
In the original study: All 33 coliform strains produced typical colonies in VRBA (ISO 4832) and Compact Dry EC medium.
In the renewal study from 2018: Of the 20 inclusivity strains tested 18 strains were detected using the alternative and the reference methods. Those not detected by either method were *Shimwellia blattae* NCTC 12127 and *Klebsiella rhinoscleromatis* CRA 4272.

Exclusivity is the lack of interference from a relevant range of non-target strains of the alternative method.

*For E.coli:*
In the original study: The results from the 21 strains of non-target organisms showed that the majority (19 cultures) failed to grow or produced atypical colonies by both methods. Two strains of *Shigella* did yield typical colonies by both methods, which is not surprising because strains of *Shigella* have β-glucuronidase activity which would give rise to typical conies with chromogenic media developed to show this activity.
In the current study (2018): Of the 10 exclusivity strains tested, none were detected by either the alternate or reference methods.

*For coliforms:*
In the original study: The results from the 20 strains of non-target organisms used to determine the exclusivity of the EC method showed that 9 strains did not grow on either the EC medium or on VRBA. In addition, one strain of *Yersinia enterocolitica* did not grow on the Compact Dry EC medium but did grow in VRBA. For Compact Dry EC, there were 7 strains giving atypical growth and 3 giving typical growth. For VRBA there were 5 strains giving atypical growth and 6 giving typical growth.
In the recent study (2018): Of the 10 exclusivity strains tested, three were detected by the alternate method and by the reference method these were *A.hydrophila* CRA 4111, *A.sobria* CRA 8390 and *S. fonticola* CRA 4613.

## Conclusion of the comparison studies

*For E.coli:* The results of the method comparison study showed that the Compact Dry EC provide equivalent results to the reference method ISO 16649-2:2001.

*For coliforms:* The results of the method comparison study showed that the Compact Dry EC provide equivalent results to the reference method ISO 4832:2006.

## INTERLABORATORY STUDY

### *E. coli*

The interlaboratory study was conducted in November 2007.

Number of laboratories: 9 [13 labs participated. 2 were excluded as the analysis were not performed on the agreed date and further 2 labs failed to test their samples for *E.coli* by the reference method.]

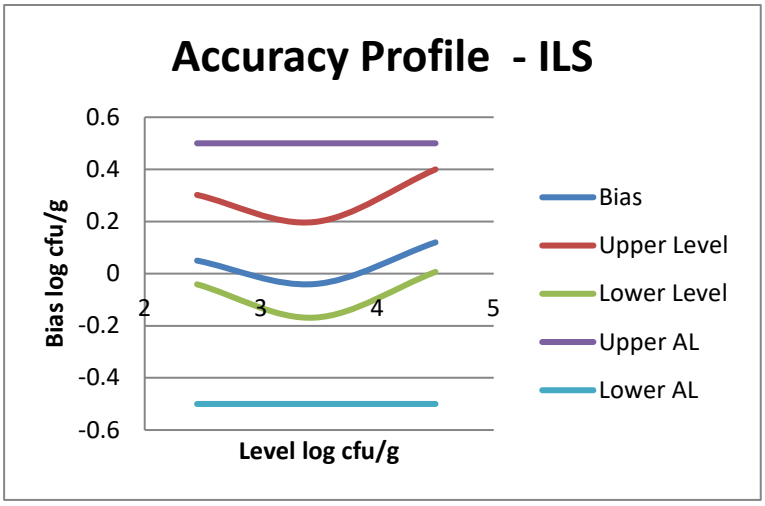
Samples: Pasteurised milk artificially contaminated with defined numbers of *E.coli.* The laboratories performed the analyses according to ISO 16649-2:2001 and Compact Dry EC method.

**Table 6. Results (log cfu/g) – interlaboratory study of *E. coli***

| | Referance method | | Alternative method | | | Upper | Lower | Upper | Lower |
|---|---|---|---|---|---|---|---|---|---|
| Level | Median | $S_R$ | Alt method | $S_R$ | Bias | Level | Level | AL | AL |
| 1 | 2.40 | 0.17 | 2.45 | 0.18 | 0.05 | 0.30 | -0.04 | 0.50 | -0.50 |
| 2 | 3.50 | 0.17 | 3.46 | 0.17 | -0.04 | 0.20 | -0.17 | 0.50 | -0.50 |
| 3 | 4.38 | 0.34 | 4.50 | 0.20 | 0.12 | 0.40 | 0.01 | 0.50 | -0.50 |

The results show that the bias is small and that the precision is satisfactory.

**Figure 7. Accuracy Profile of the interlaboratory study for *E. coli***



## Coliforms

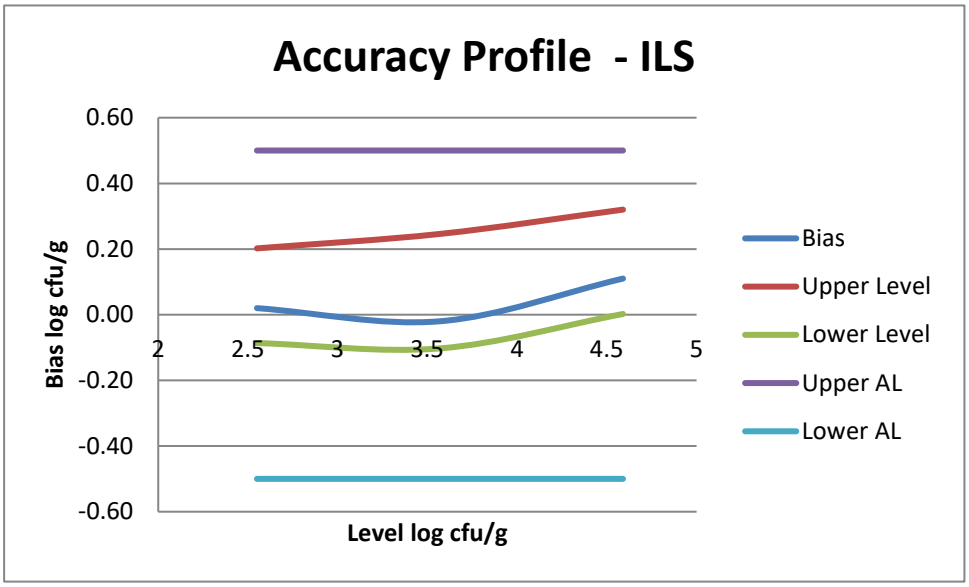
The interlaboratory study was conducted in November 2007.
Number of laboratories: 11
Samples: Pasteurised milk artificially contaminated with defined numbers of *E.coli.* The laboratories performed the analyses according to ISO 4832:2006 and Compact Dry EC method.

**Table 7. Results (log cfu/g) – interlaboratory study of coliforms**

| | Referance method | | Alternative method | | | Upper | Lower | Upper | Lower |
|---|---|---|---|---|---|---|---|---|---|
| Level | Median | $S_R$ | Alt method | $S_R$ | Bias | Level | Level | AL | AL |
| 1 | 2.53 | 0.16 | 2.55 | 0.13 | 0.02 | 0.20 | -0.09 | 0.50 | -0.50 |
| 2 | 3.59 | 0.11 | 3.57 | 0.19 | -0.02 | 0.25 | -0.10 | 0.50 | -0.50 |
| 3 | 4.48 | 0.075 | 4.59 | 0.15 | 0.11 | 0.32 | 0.00 | 0.50 | -0.50 |

The results show that the bias is small and that the precision is satisfactory.

**Figure 8. Accuracy Profile of the interlaboratory study for coliforms**




## COLCLUSION

According to the comparison study and the interlaboratory study no substantial differences were found between the Compact Dry EC method and the reference method (ISO 16649-2:2001) for the enumeration of *Escherichia coli*, and no substantial differences were found between the Compact Dry EC method and the reference method (ISO 4832:2006) for the enumeration of coliforms.