Public Health England

Protecting and improving the nation's health

Summary of Results

External Quality Assessment of Food Microbiology

Non-Pathogen Scheme

Distribution Number: NP062 **Sample Numbers: NP0179, NP0180,**

Distribution Date:	**January 2019**
Results Due:	**22 February 2019**
Report Date:	**01 March 2019**
Samples prepared and quality control tested by:	**Angela Appea** **Richard Borrill** **Thomas Harper** **Margaret Njenga** **Zak Prior** **Lili Tsegaye** **Vanessa Waite**
Data analysed by:	**Joanna Donn** **Nita Patel**
Report compiled by:	**Joanna Donn** **Nita Patel**
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For general information about the scheme please refer to:
Scheme Guide:

https://www.gov.uk/government/publications/food-and-water-proficiency-testing-schemes-scheme-guide

For more specific information about results assessments, scoring systems, statistics, and guidance on analysing your results for the proficiency testing samples please refer to:
Guide to Scoring and Statistics:

https://www.gov.uk/government/publications/food-and-water-proficiency-testing-schemes-scoring-systems-and-statistics

General guidance for z-scores:
Participants' enumeration results are converted into z-scores using the following formula:

$$Z = \frac{(x_i - X_{pt})}{\sigma_{pt}}$$

x_i = participants' result (expressed as a $\log_{10}$ value)
X_{pt} = assigned value (participants' consensus median (expressed as a $\log_{10}$ value))
σ_{pt} = the fixed standard deviation for the examination (calculated by FEPTU)

The σpt-value expresses the acceptable difference between the individual participant's result and the participants' consensus median. The σpt-value used for calculating z-scores for all parameters in the Non-Pathogen Scheme is 0.35. A guide to interpreting z-scores follows, although laboratories must interpret their scores in the context of their own laboratory situation.

z = -1.99 to +1.99	satisfactory
z = -2 to -2.99 or +2 to +2.99	questionable
z= < -3.00 or > + 3.00	unsatisfactory

It is usually recommended that z-scores exceeding ±2 are investigated to establish the possible cause. As a general rule, PHE recommends that all questionable and unsatisfactory results are investigated.

FEPTU Quality control: To demonstrate homogeneity of the sample, a minimum of 10 freeze-dried vials, selected randomly from a batch, are tested in duplicate for parameters requiring enumeration

To demonstrate stability of the sample, a minimum of six vials, selected randomly from a batch, are examined throughout the distribution period for enumeration parameters

FEPTU results are determined using methods based on ISO methods and are included in the 'intended results' letters which provide guidance for participants regarding the assigned values.

The FEPTU results are used for guidance in the preliminary intended results notification, letters are posted on the website immediately after every distribution, electronic notification of their availability is sent to all participants

Refer to section 17.0 of the Scheme Guide if you have experienced difficulties with any of the examinations.

https://www.gov.uk/government/publications/food-and-water-proficiency-testing-schemes-scheme-guide

All participants are reminded that reporting an incorrect or incomplete identification of pathogen from food samples could have serious public health implications. Similarly, the levels of mirco-organisms reported in the sample may affect the subsequent outcome for the product.

Please contact FEPTU staff for advice and information:

Repeat samples	Carmen Gomes or Kermin Daruwalla	**Tel:** **+44 (0)20 8327 7119**
Data Analysis	Nita Patel or Manchari Rajkumar	**Fax:** **+44 (0)20 8200 8264**
Microbiological advice	Nita Patel or Zak Prior	**Email:** **foodeqa@phe.gov.uk**
General comments and complaints	Nita Patel or Zak Prior	FEPTU's website
Scheme consultants	Melody Greenwood and Julie E.Russell	
Scheme Co-ordinator	Nita Patel	

Accreditation: PHE Food EQA Scheme for Non-pathogen is accredited by the United Kingdom Accreditation Service (UKAS) to ISO/IEC 17043:2010.

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Sample: NP0179

Contents:

Pseudomonas fluorescens 2.1x10² (wild strain), *Penicillium chrysogenum* 3.7x10² (wild strain), *Enterobacter cloacae* 2.7x10³ (wild strain), *Escherichia coli* 5.2x10² (wild strain), *Enterococcus faecalis* 4.7x10³ (wild strain)

Expected Results:

All counts are expressed as $\log_{10}$ colony forming units (cfu) per mL reconstituted sample.

The fixed standard deviation value (σpt value) used for calculation of the z-scores is **0.35** for all parameters.

Parameter	*Pseudomonas* spp.	Yeasts	Moulds	Coliforms	*Enterobacteriaceae*	*Escherichia coli*	Enterococci	Lactic acid bacteria	Colony count 30°C
FEPTU median	2.1x10² (2.32 $\log_{10}$)	0	3.6x10² (2.56 $\log_{10}$)	4.0x10³ (3.61 $\log_{10}$)	2.7x10³ (3.43 $\log_{10}$)	5.1x10² (2.71 $\log_{10}$)	4.7x10³ (3.67 $\log_{10}$)	7.9x10³ (3.9 $\log_{10}$)	1.2x10⁴ (4.08 $\log_{10}$)
No. results returned	26	53	55	30	31	32	17	22	36
Assigned value (Participants' median)	3.5x10² (2.54 $\log_{10}$)	0	3.6x10² (2.56 $\log_{10}$)	3.3x10³ (3.51 $\log_{10}$)	3.4x10³ (3.53 $\log_{10}$)	3.0x10² (2.48 $\log_{10}$)	4.4x10³ (3.64 $\log_{10}$)	4.4x10³ (3.64 $\log_{10}$)	1.2x10⁴ (4.08 $\log_{10}$)
Uncertainty of assigned value (Ux)	0.1	N/A	0.03	0.07	0.06	0.04	0.06	0.03	0.02
Standard deviation*	0.4	N/A	0.16	0.28	0.2	0.54	0.21	0.13	0.12
Expected Range	56 - 2.2x10³	N/A	1.1x10² - 1.1x10³	8.8x10² - 1.2x10⁴	2x10² - 1.3x10⁴	24 - 3.7x10³	1.4x10³ - 1.4x10⁴	1.4x10³ - 1.4x10⁴	3.8x10³ - 3.8x10⁴
Participants' mean	3.9x10² (2.59 $\log_{10}$)	N/A	3.6x10² (2.55 $\log_{10}$)	3.1x10³ ($\log_{10}$)	3.2x10³ (3.5 $\log_{10}$)	2.1x10² (2.33 $\log_{10}$)	4.6x10³ (3.66 $\log_{10}$)	4.3x10³ (3.63 $\log_{10}$)	1.2x10⁴ (4.06 $\log_{10}$)
No of outlying counts	2	N/A	3	2	6	1	2	1	4
False positives		2							
False negatives	5		2	1	0	2	0	0	0
Your result									
Score for performance assessment									
Z-score									
Analyst 2 Result									
Analyst 2 Z-score									
Analyst 3 Result									
Analyst 3 Z-score									

* Robust S^* based on median absolute deviation about the participant's median (*MADe*)

Total sent samples	63
Not examined	3
Non returns	1

Sample: NP0180

Contents:

Candida sp. 8.9x10³ (wild strain), *Aspergillus terreus* 3.7x10³ (wild strain), *Klebsiella oxytoca* 1.5x10⁴ (wild strain), *Escherichia coli* 1.4x10⁴ (wild strain), *Aerococcus viridans* 1.3x10³ (NCTC 8251)

Expected Results:

All counts are expressed as $\log_{10}$ colony forming units (cfu) per mL reconstituted sample.

The fixed standard deviation value (σpt value) used for calculation of the z-scores is **0.35** for all parameters.

Parameter	*Pseudomonas* spp.	Yeasts	Moulds	Coliforms	*Enterobacteriaceae*	*Escherichia coli*	Enterococci	Lactic acid bacteria	Colony count 30°C
FEPTU median	0	8.9x10³ (3.95 $\log_{10}$)	3.7x10³ (3.57 $\log_{10}$)	2.5x10⁴ (4.4 $\log_{10}$)	2.4x10⁴ (4.38 $\log_{10}$)	1.3x10⁴ (4.13 $\log_{10}$)	0	0	5.9x10⁴ (4.77 $\log_{10}$)
No. results returned	27	53	54	30	33	35	19	22	36
Assigned value (Participants' median)	0	7.3x10³ (3.86 $\log_{10}$)	3.5x10³ (3.54 $\log_{10}$)	1.2x10⁴ (4.08 $\log_{10}$)	1.1x10⁴ (4.03 $\log_{10}$)	5.0x10³ (3.7 $\log_{10}$)	0	0	3.9x10⁴ (4.58 $\log_{10}$)
Uncertainty of assigned value (Ux)	N/A	0.02	0.02	0.08	0.07	0.05	N/A	N/A	0.05
Standard deviation*	N/A	0.16	0.13	0.39	[illegible]	0.3[illegible]	N/A	N/A	0.22
Expected Range	N/A	2.3x10³ - 2.3x10⁴	1.1x10³ - 1.1x10⁴	2.0x10³ - 7.1x10⁴	[illegible]x10³ - [illegible]9x10⁴	8.3x10² - 3.0x10⁴	N/A	N/A	1.2x10⁴ - 1.2x10⁵
Participants' mean	N/A	7.0x10³ (3.85 $\log_{10}$)	3.4x10³ (3.53 $\log_{10}$)	1.2x10⁴ [illegible]	1.0x10⁴ (4.02 $\log_{10}$)	5.3x10³ (3.73 $\log_{10}$)	N/A	N/A	3.8x10⁴ (4.58 $\log_{10}$)
No of outlying counts	N/A	3	3	2	1	3	N/A	N/A	4
False positives	1						1	5	
False negatives		2	1	0	0	1			0
Your result									
Score for performance assessment									
Z-score									
Analyst 2 Result									
Analyst 2 Z-score									
Analyst 3 Result									
Analyst 3 Z-score									

* Robust S^* based on median absolute deviation about the participant's median (*MADe*)

Total sent samples	63
Not examined	2
Non returns	1

Performance Assessment Sheet

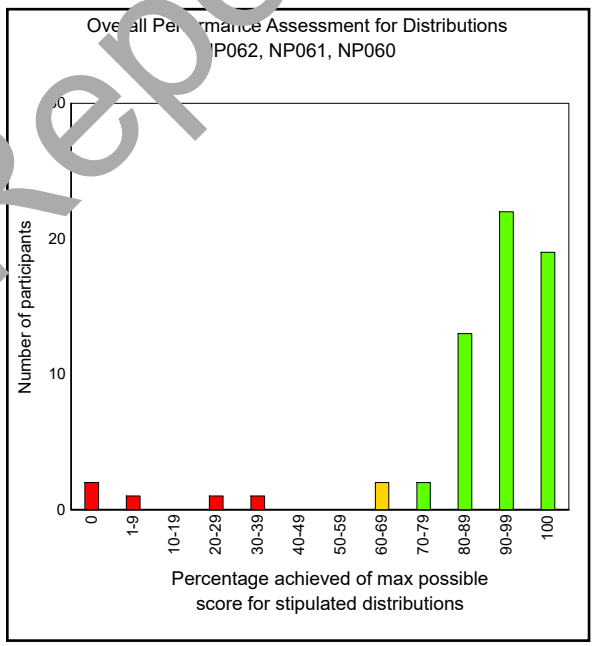
Distribution	Sample	Presumptive *Pseudomonas* spp. score	Yeasts score	Moulds score	Coliform score	*Enterobacteriaceae* score	*Escherichia coli* score	Enterococci score	Lactic acid bacteria score	Aerobic Colony Count (30ºC) score
NP062	NP0179									
	NP0180									
NP061	NP0177									
	NP0178									
NP060	NP0175									
	NP0176									
Total maximum possible score										
Total percentage										

Performance Assessment Comment:

Performance assessments are designed to alert participants to on-going problems with their examinations and are provided after every distribution. Scores are allocated to results reported for every parameter, for every sample to help assess performance.

Cumulative scores are calculated for the current and previous **two** distributions for the Non Pathogen Scheme. Participants' cumulative scores for each of the examinations are compared with the maximum possible scores after every distribution.

Your overall performance with the enumerations in the non pathogen proficiency testing samples for the current and last two distributions is collated in the chart to the right.



Performance Assessment Comment:

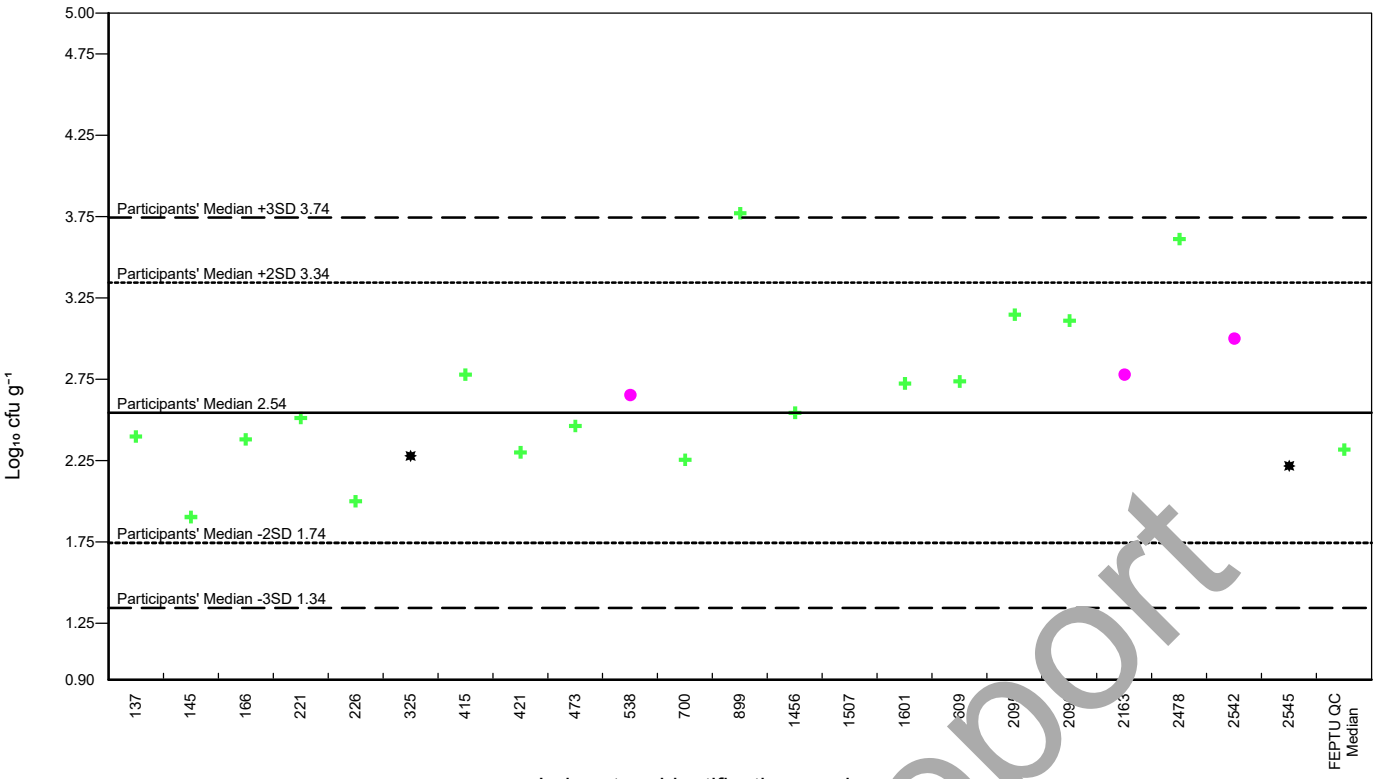
Laboratories that achieve less than 70% of the maximum possible score are likely to be experiencing significant problems with their examinations and are advised to:

a) refer to the relevant distribution reports for sample-specific comments

b) refer to the website guidance documents:
https://www.gov.uk/government/collections/external-quality-assessment-eqa-and-proficiency-testing-pt-for-food-water-and-environmental-microbiology

c) contact the organisers for advice

NP0179 - Presumptive *Pseudomonas* spp.



Key: reported result by method

No Method Stated

PCN (Pseudomonas cetrimide sodium nalidixate agar)

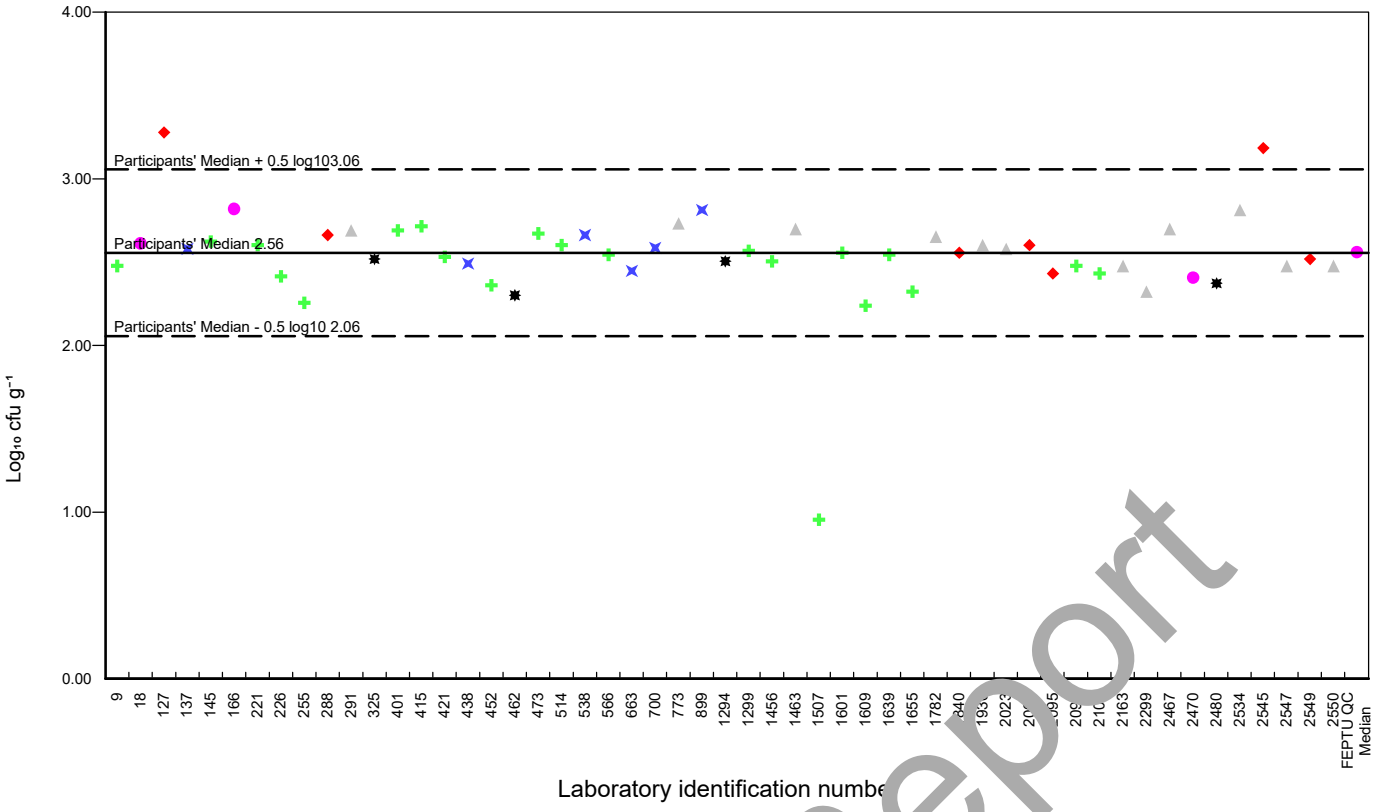
PCFC/C[illegible] (Pseud[illegible] CFC agar conta[illegible]trimide, fucidin and cephaloridine)

Other

NP0179 - Yeasts

No data for graph

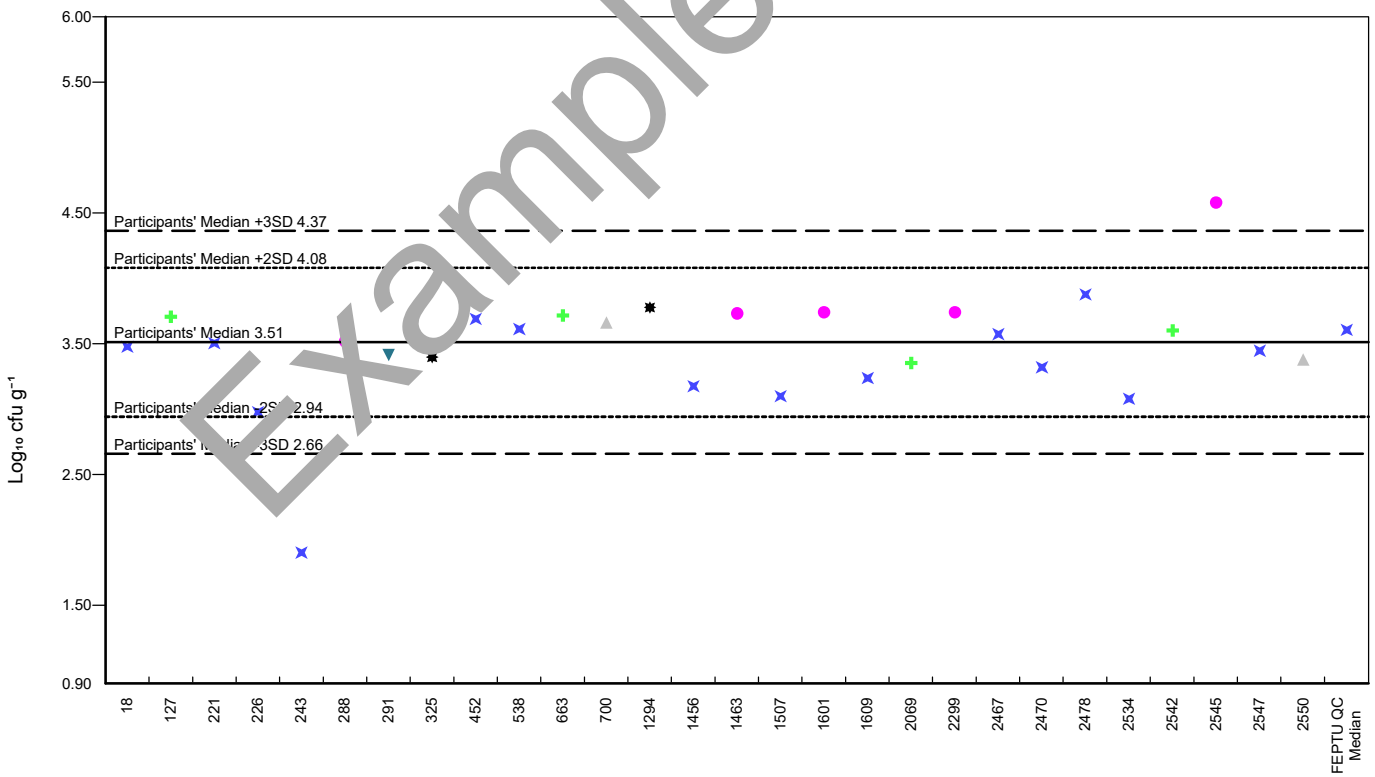
NP0179 - Moulds



Key: reported result by method

- No Method Stated
- DG (Dichloran glycerol chloramphenicol agar)
- DRBC (Dichloran Rose Bengal Chloramphenicol agar)
- OGYEA (Oxytetracycline glucose yeast extract agar)
- YGC (Yeast Extract Glucose Chloramphenicol Agar)
- Other

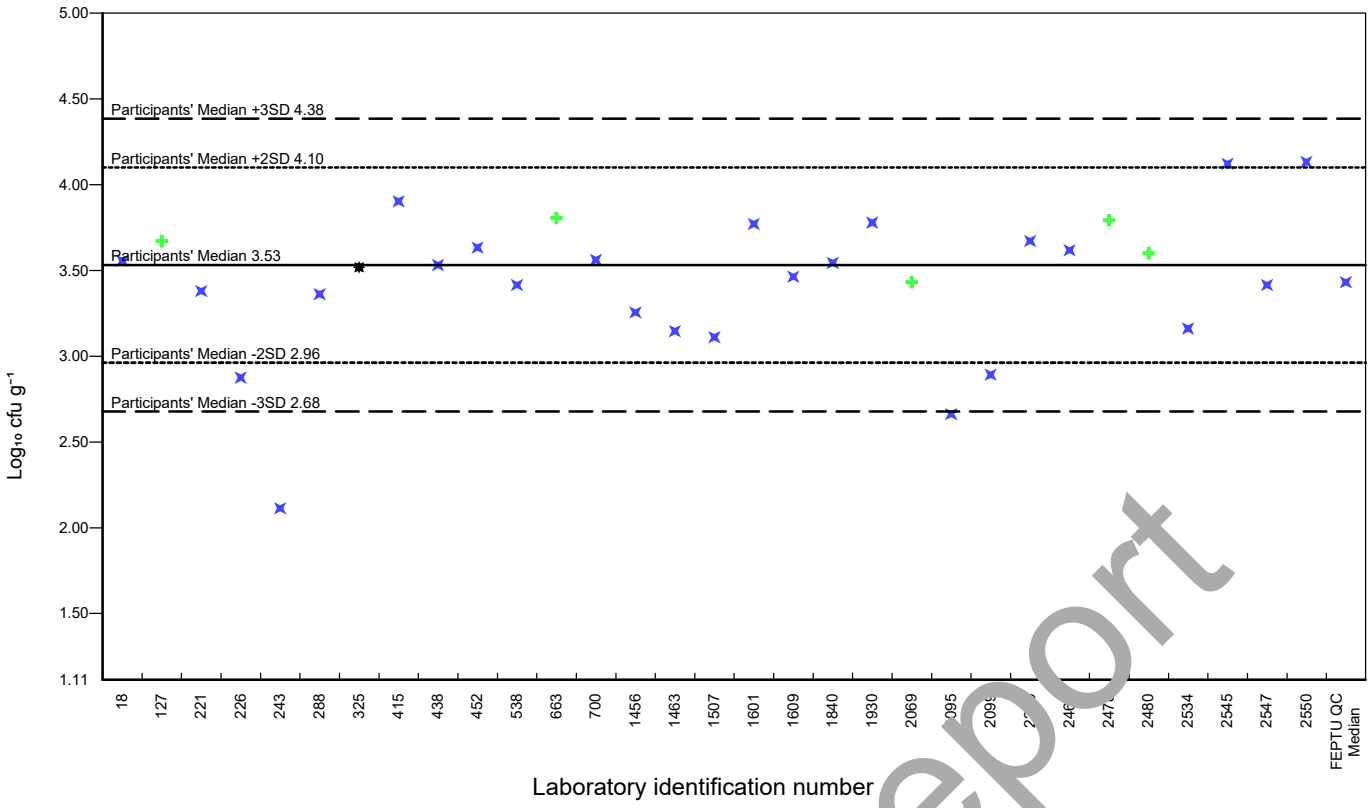
NP0179 - Coliform



Key: reported result by method

- No Method Stated
- VRBA (Violet red bile agar)
- Petrifilm
- Chromogenic agar
- MPN - Tempo
- MPN – Tube combination
- Other

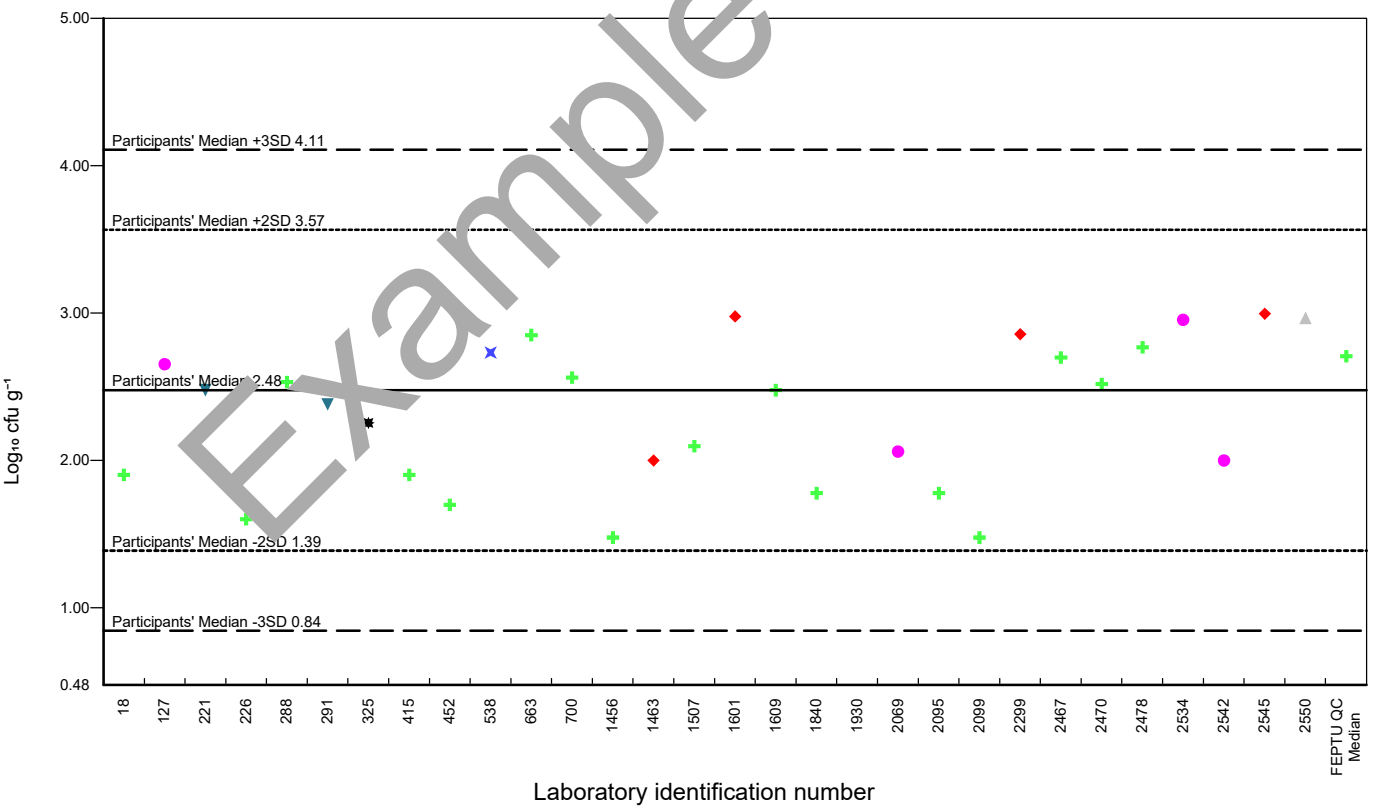
NP0179 - *Enterobacteriaceae*



Key: reported result by method

- No Method Stated
- VRBGA (Violet red bile glucose agar)
- Petrifilm
- Chromogenic agar
- MPN - Tempo
- MPN – Tube combination
- Other

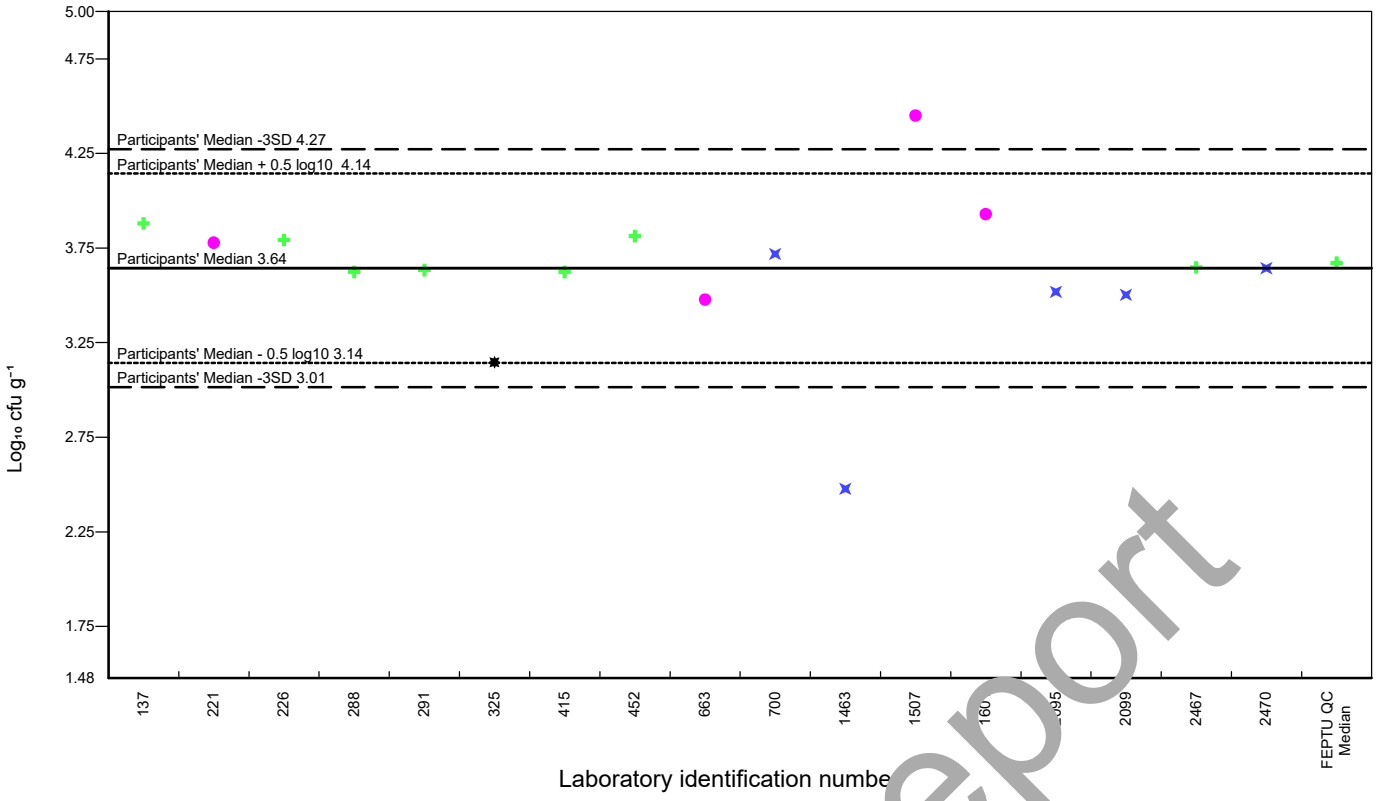
NP0179 - *Escherichia coli*



Key: reported result by method

- No Method Stated
- Direct enumeration using membrane technique on to TBX
- TBX spread/pour plate
- Petrifilm
- Chromogenic agar
- MPN – Tube combination
- Other

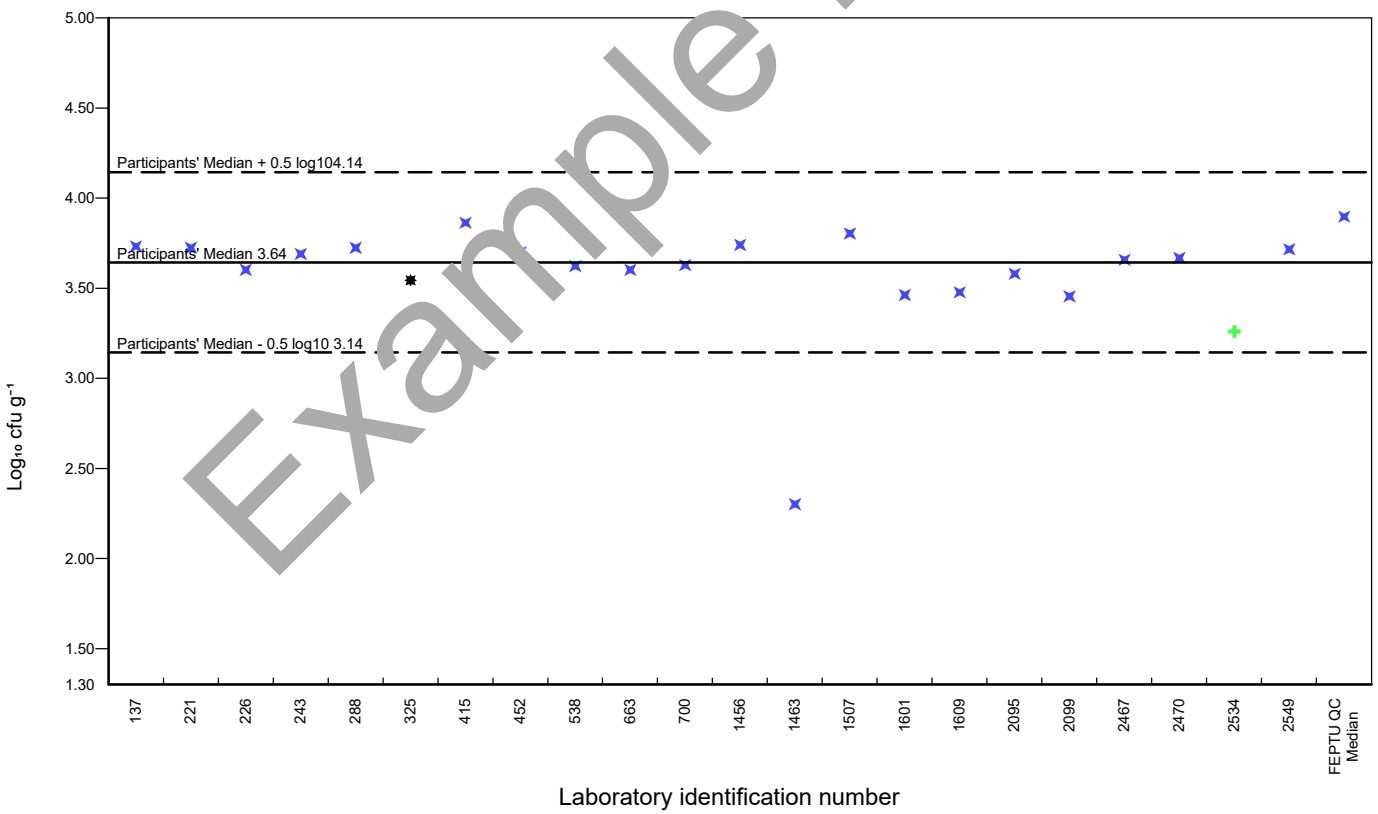
NP0179 - Enterococci



Key: reported result by method

No Method Stated | KF Streptococcus agar | S + B (Si etz an | Other

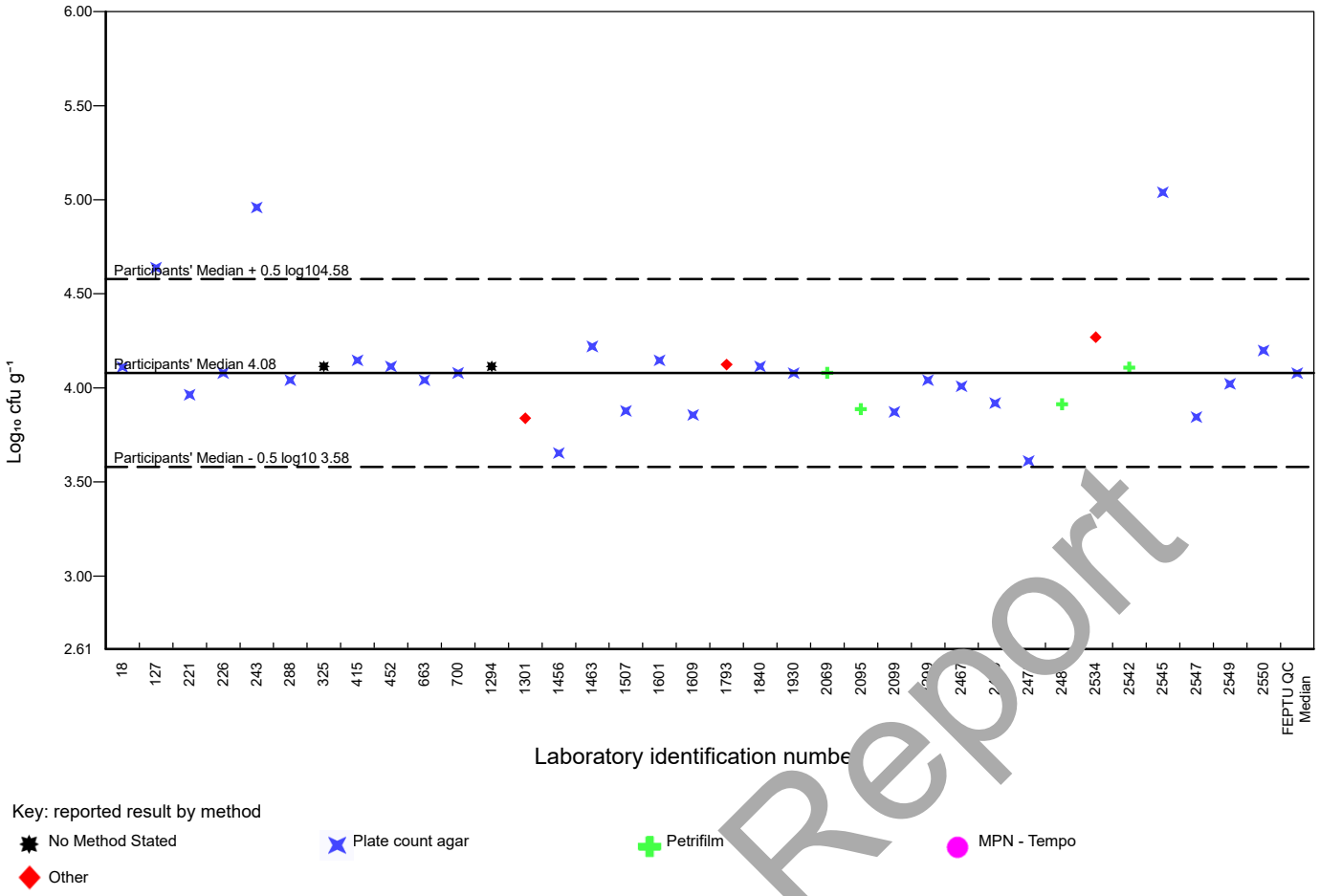
NP0179 - Lactic acid bacteria



Key: reported result by method

No Method Stated | MRS (De Man, Rogosa, Sharpe agar) | Other

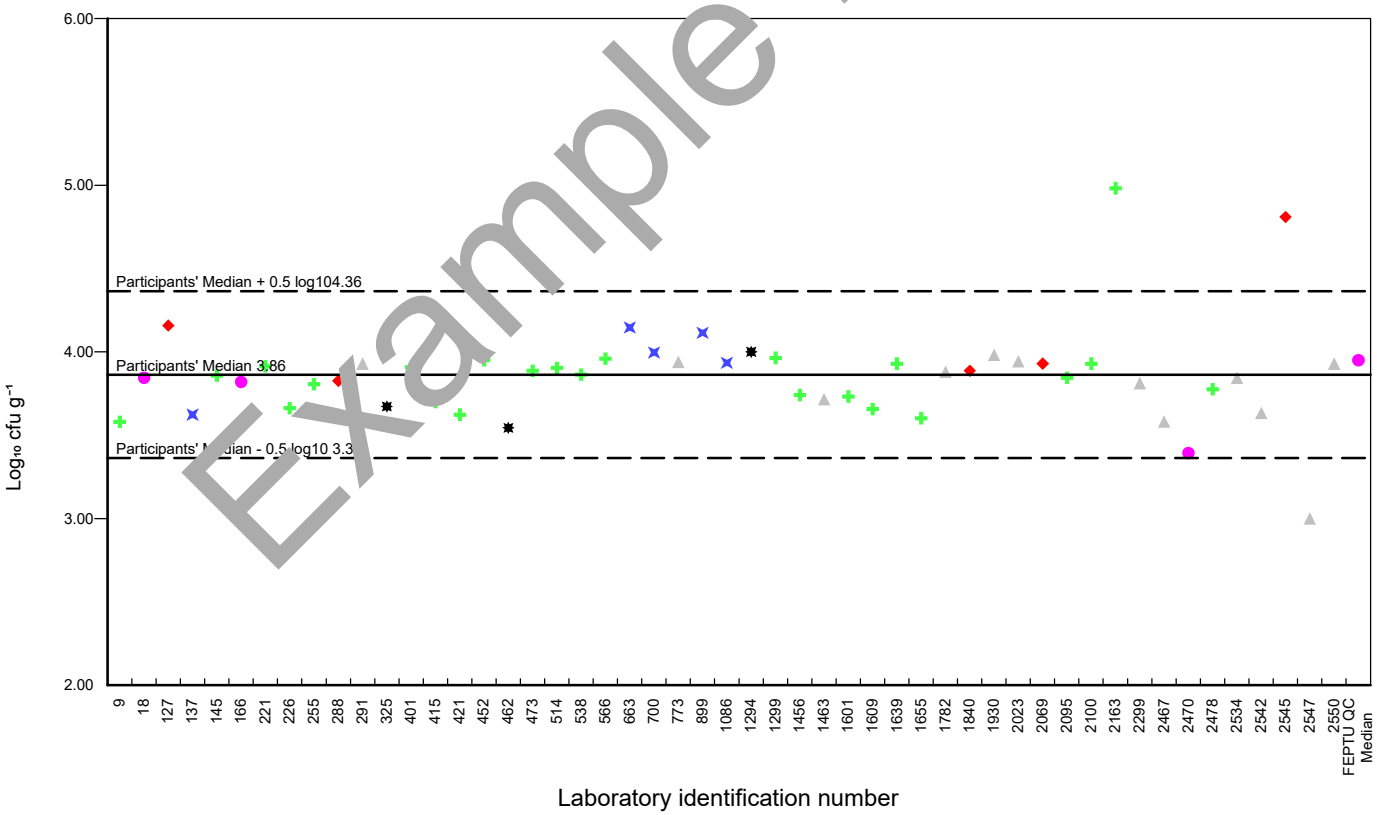
NP0179 - Aerobic Colony Count (30ºC)



NP0180 - Presumptive *Pseudomonas* spp.

No data for graph

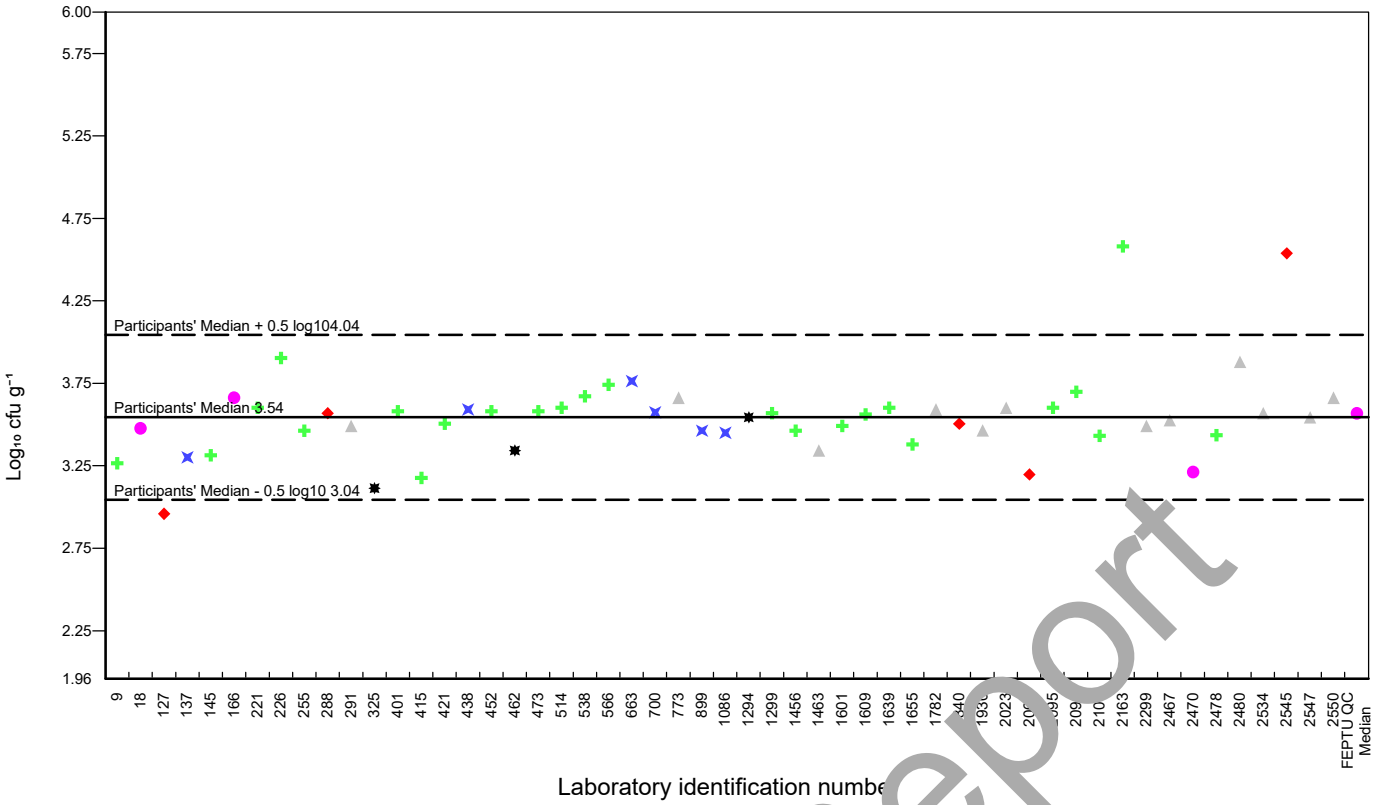
NP0180 - Yeasts



Key: reported result by method

- No Method Stated
- YGC (Yeast Extract Glucose Chloramphenicol Agar)
- DG (Dichloran glycerol chloramphenicol agar)
- Other
- DRBC (Dichloran Rose Bengal Chloramphenicol agar)
- OGYEA (Oxytetracycline glucose yeast extract agar)

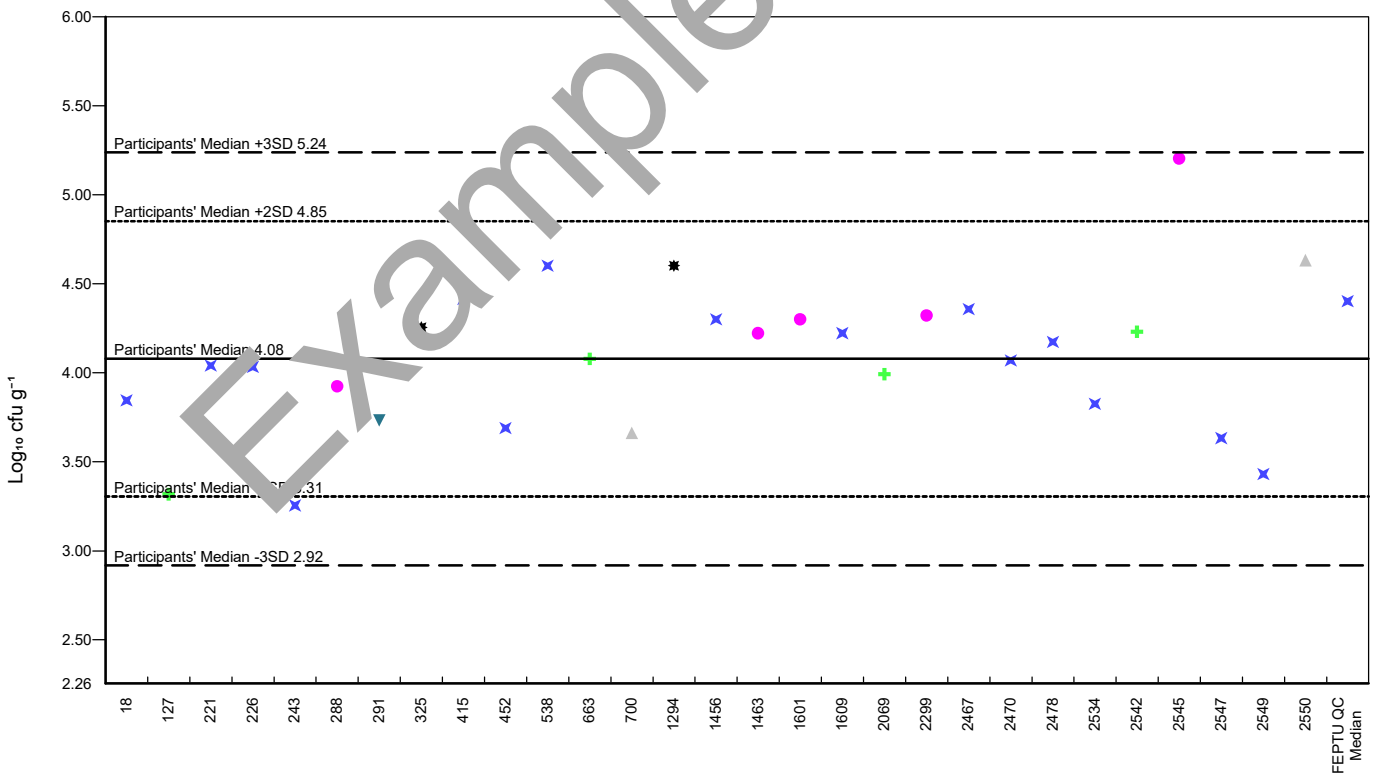
NP0180 - Moulds



Key: reported result by method

- No Method Stated
- DG (Dichloran glycerol chloramphenicol agar)
- DRBC (Di…loran … Chloramphe… …agar)
- OGYEA (Oxytetracycline glucose yeast extract agar)
- YGC (Yeast Extract Glucose Chloramphenicol Agar)
- Other

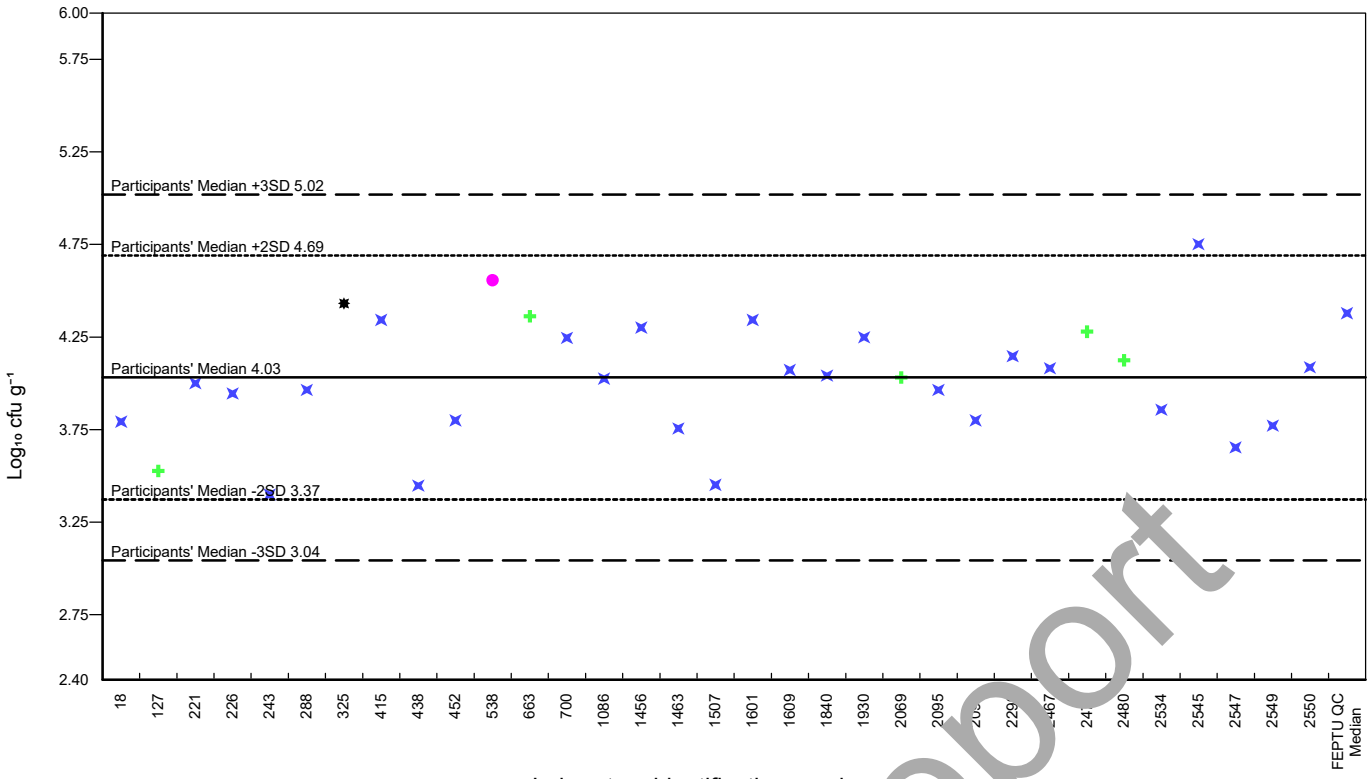
NP0180 - Coliform



Key: reported result by method

- No Method Stated
- VRBA (Violet red bile agar)
- Petrifilm
- Chromogenic agar
- MPN - Tempo
- MPN – Tube combination
- Other

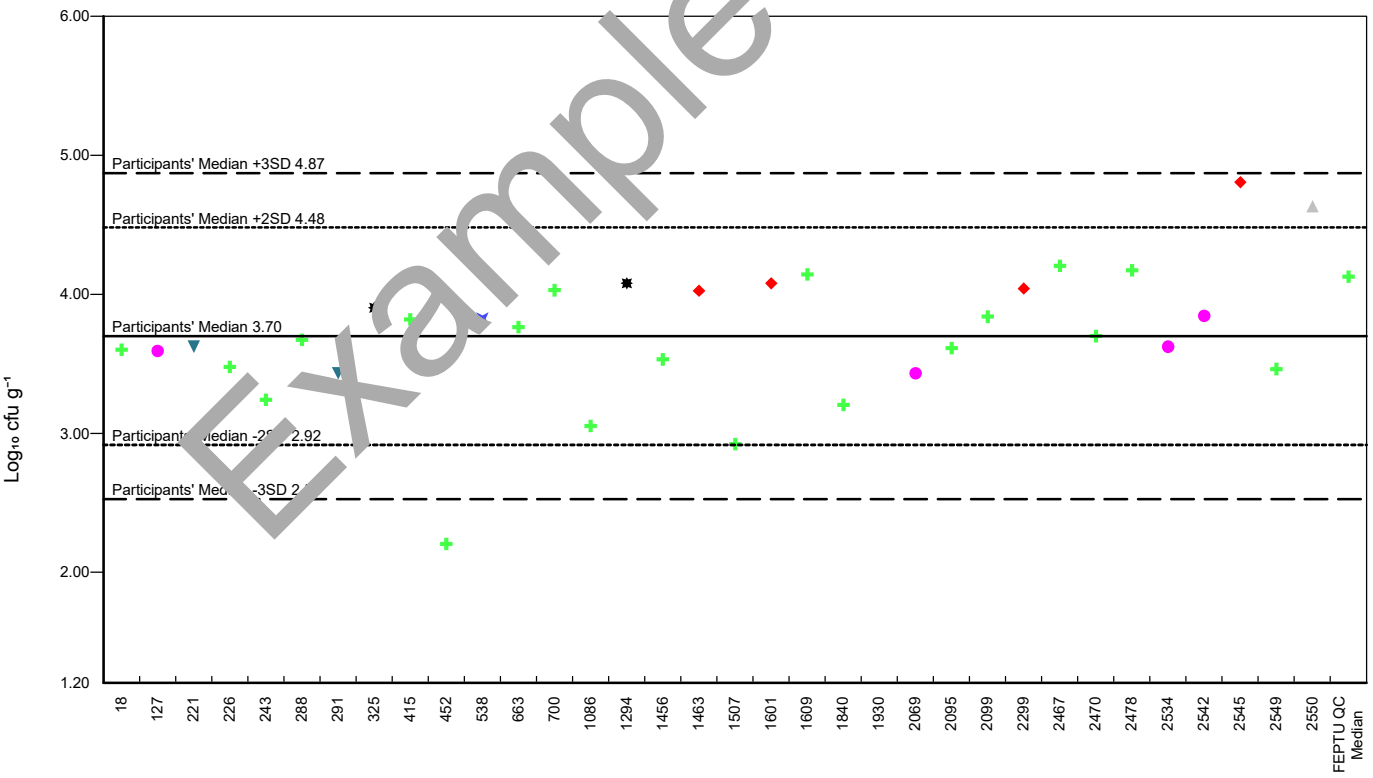
NP0180 - *Enterobacteriaceae*



Key: reported result by method

- No Method Stated
- VRBGA (Violet red bile glucose agar)
- Petrifilm
- Chromogenic agar
- MPN - Tempo
- MPN – Tube combination
- Other

NP0180 - *Escherichia coli*



Key: reported result by method

- No Method Stated
- Direct enumeration using membrane technique on to TBX
- TBX spread/pour plate
- Petrifilm
- Chromogenic agar
- MPN – Tube combination
- Other

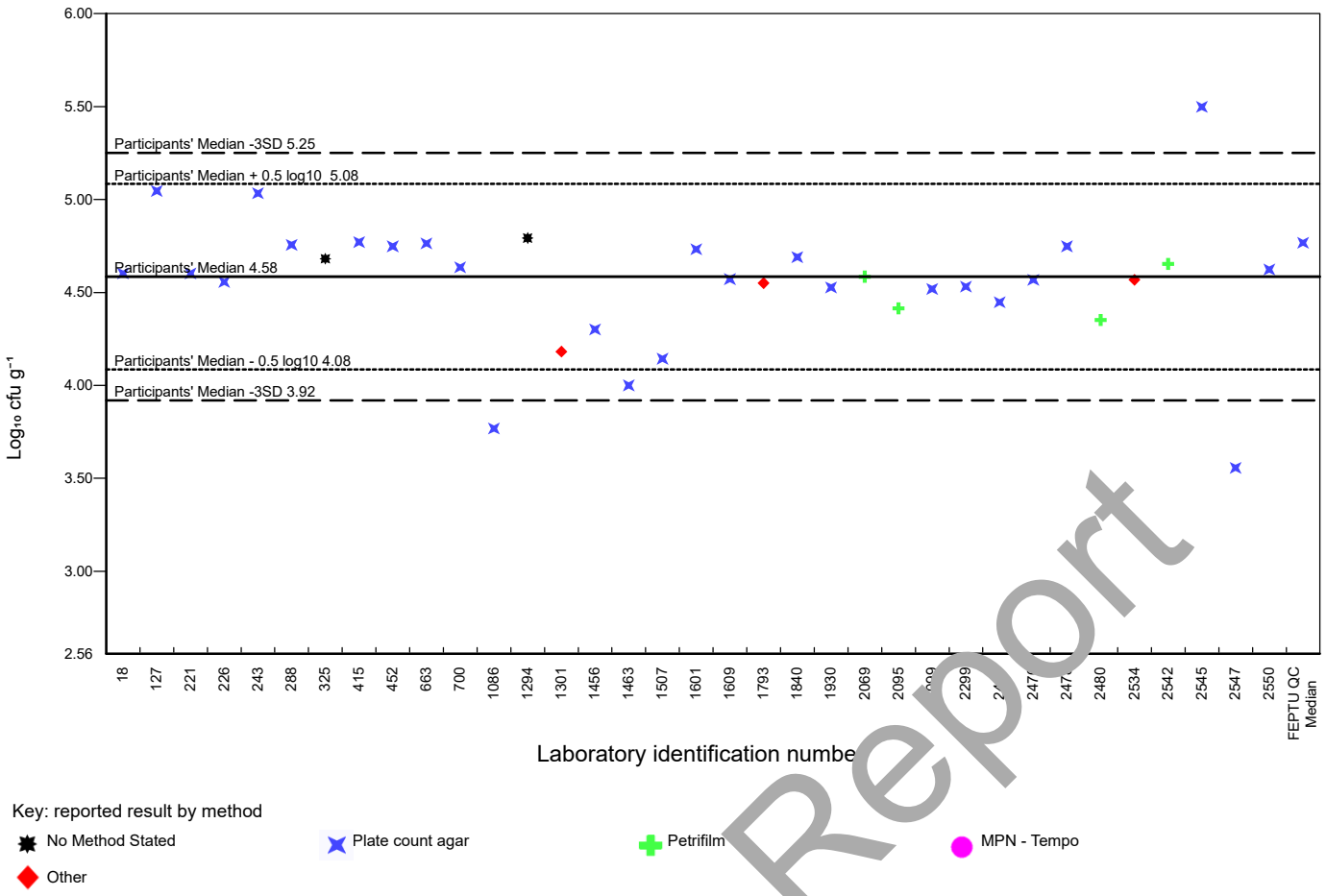
NP0180 - Enterococci

No data for graph

NP0180 - Lactic acid bacteria

No data for graph

NP0180 - Aerobic Colony Count (30ºC)



Key: reported result by method

No Method Stated | Plate count agar | Petrifilm | MPN - Tempo | Other

General comment:

Participants are advised to note that while this scheme report shows method based presentation of results, the data presented in this way has some limitations and seeks to identify trends in the results rather than assess specific method details.

Please ensure that you note on the electronic report form where results are presumptive as this has an impact on the scores allocated.

If you do not return a result for a distribution, you will not be able to view all the participants' results data in your individualised report. Therefore, we will post generic reports on the website, which will be available for 12 months after the distribution has closed, so you can access the missing data.

Trend analysis
Plotting your PT results over a period of time can help to identify potential problems. Download the updated trend analysis spreadsheet one week after this report has been issued: https://www.gov.uk/government/publications/non-pathogen-scheme-trend-analysis

End of report.