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Inter laboratory comparison (ILC) report*

ISTA PT22-SH 7-029

ISTA Proficiency test: Detection of *Pseudomonas syringae* pv. *pisi* in *Pisum sativum* (pea) seed

*Original report signed and archived

COORDINATION	FULL NAME	POSITION
ORGANISER OF ILC	Ruud Barnhoorn	researcher vegetable seed pathology, Naktuinbouw NL
CHARACTERISATION OF SAMPLES	Corinne SAHUGUEDE	Proficiency test organizer GEVES-SNES, FR
PREPARATION OF SAMPLES	Ruud Barnhoorn	researcher vegetable seed pathology, Naktuinbouw NL
COORDINATION OF ILC, VALIDATION OF REPORTS'S DIFUSSION	Ruud Barnhoorn	researcher vegetable seed pathology, Naktuinbouw NL

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PROFICIENCY TEST ORGANISATION

The aim of this proficiency test was to determine the ability of participating laboratories to detect *Pseudomonas syringae* pv. *pisi* (Pspisi) in naturally and artifically contaminated pea (*Pisum* sativum) seeds and to evaluate their performance.

Schedule

Sending of samples	14 oct 2022
Deadline to send results	15 dec 2022
Sending by Naktuinbouw of global report and individualized letters	Feb 2023

six laboratories participated to this test and were randomly allocated a number, so that results remained anonymous.

1.1 Notation of results

The laboratories indicated:

- a qualitative result (positive, negative)

1.2 Composition of the sample panel

20 samples of 1.000 pea seeds have been sent to each participant containing 15 medium infected, 2 high infected and 3 non-infected replicates. (table n°1).

Table n° 1: Characteristics of samples

Number of samples	Level of contamination	Qualitative expected value
3	Healthy	Negative
15	Medium	Positive
2	High	Positive

Each sample was sent in a sealed bag.

1.3 Pretest

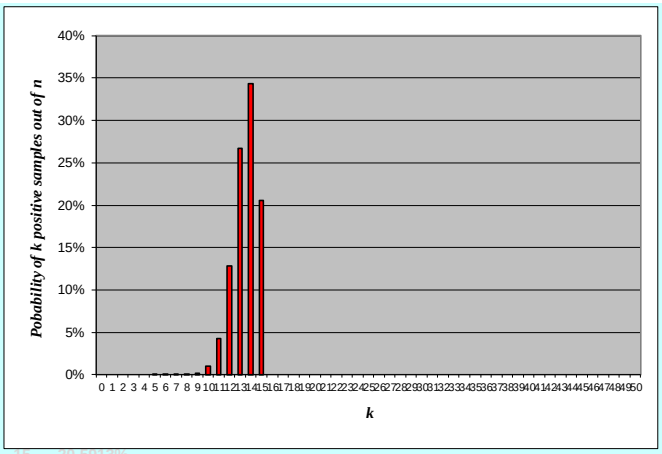
A homogeneity experiment, testing ten subsamples of 1000 seeds, was conducted using a naturally infected pea seed batch obtained from SNES GEVES. The result was that 9 out of the 10 subsamples turned out to be positive for the detection of Pspisi.
Using seedcalc8, the % of contamination of the seeds lot with a 95% confidence was calculated as the computed % in the sample. For this seed batch this corresponded with 0.23%.

Impurity Estimation & Confidence Intervals (Assay measures impurity characteristic)
(Number of seed sampled should not exceed 10% of total number in population)

# of Seed Pools	10	Computed % in sample	0.23	%
# of Seeds per Pool	1000			
Total Seeds Tested	10000	*Measured property on seed pools*		
# Deviants Pools	9			
		Desired Confidence Level	95	%

Next with this %, the extrapolation of this rate on the number of sample constituting the panel was calculated. In this PT the amount of medium samples determined is 15 which is thus used as an input in the Probability positive sample calculation tool.

		k	Prob (%) of k positive out of n
# of seeds per sample (m)	1000	0	0,0000%
		1	0,0000%
True contamination rate (π)	0,2300%	2	0,0000%
		3	0,0000%
Total # of samples (n)	15	4	0,0000%
		5	0,0000%
		6	0,0003%
		7	0,0031%
		8	0,0277%
		9	0,1938%
		10	1,0468%
		11	4,2828%
		12	12,8492%
		13	26,6886%
		14	34,3164%
		15	20,5913%
		16	

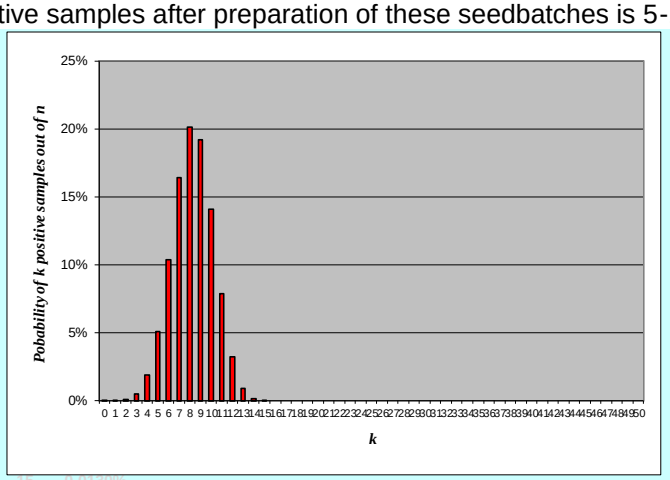


The expected number of positive samples is 12 -15 using the seeds as they are.

The intended goal is to detect 8 out of 15 medium samples. For this the seedbatch is mixed with seed of a batch not containing Pspisi.

Recalculation of the expected number of positive samples after preparation of these seedbatches is 5-11.

		k	Prob (%) of k positive out of n
# of seeds per sample (m)	1000	0	0,0006%
		1	0,0112%
True contamination rate (π)	0,0800%	2	0,0965%
		3	0,5130%
Total # of samples (n)	15	4	1,8873%
		5	5,0914%
		6	10,4056%
		7	16,4056%
		8	20,1174%
		9	19,1870%
		10	14,1169%
		11	7,8686%
		12	3,2163%
		13	0,9102%
		14	0,1594%
		15	0,0130%
		16	



A additional homogeneity test with 15 samples indeed showed 8 out of 15 positive for Pspisi

For the high infected seed samples 100% detection is mandatory as no detection is to be expected for the healthy samples. This was also proven by testing ten subsamples highly infected and healthy scoring 10 out of 10 positive for the high infected seedbatch and 0 out of 10 for the healthy seedlot.

Conclusion
The samples were homogeneous:
- For healthy level, we obtained 0 positive samples. No false positive obtained.
- For medium and high levels, the samples were homogeneous for the pathogen. 8 out of 15 positive for the medium samples and 10 out of 10 positive for the high infected samples.

1.4 Stability

The stability testing was conducted after all laboratories finished testing. The stability test has been started the 15th of December.
An extra test set of 20 samples of 1000 seeds was tested. The raw data are given in Appendix A.
For the healthy lot, all samples were negative.

The comparison between homogeneity and stability tests for each pathogen is indicated in table n°4.

Table n°4: Comparison between homogeneity and stability results

Level of contamination	homogeneity	stability
Medium	8/15	8/15
High	10/10	2/2

Stability of the lots has been confirmed:
-healthy level was negative
-medium level: the obtained results were similar than homogeneity tests (both 8 out of 15 samples)
- high level: the obtained results were similar than homogeneity test being 100%.

1.5 Validation of samples

The samples have been validated through homogeneity and stability tests.
The results of participating laboratories were compared to the expected results determined by the homogeneity and stability tests.

PROFICIENCY TEST RESULTS

Qualitative results

2.1 Statistical tools

Criteria of performance: diagnostic sensitivity – specificity for qualitative results

The analysis was done by addition of the results of the 3 lots (healthy, medium and high level) according to the Standard NF EN ISO 16140 which expresses results as presence/absence. Results of medium and high level have been grouped for analysis.
This norm gives us performance assessment criteria on diagnostic sensitivity, diagnostic specificity and accuracy calculated as follows:

	expected result + (contaminated sample)	expected result - (healthy sample)
Obtained result +	positive agreement +/+ (PA)	positive deviation -/+ (PD)
Obtained result -	negative deviation +/- (ND)	negative agreement -/- (NA)

Sensitivity: Percentage of samples correctly identified as positives. ΣPA/(ΣPA+ΣND)x100.
Specificity: Percentage of samples correctly identified as being negative. ΣNA/(ΣNA+ΣPD)× 100.
Accuracy: (ΣNA+ΣPA)/ (ΣPA+ΣNA+ΣPD+ΣND) x100.

PA = positive agreement
ND = negative deviation
NA = negative agreement
PD = positive deviation
N = total number of possible agreements

Conformity of results:

Performance criteria	Level to obtain
Sensitivity	100%: all contaminated samples are positive; no false negative results have been obtained
Specificity	100%: all healthy samples are negative; no false positive results have been obtained (>5 and <11 found positive)
Accuracy	Synthesis of the two performance criteria. So, no false positive or negative results have been obtained

The analysis of the results for a participating laboratory led to a declaration of conformity or non-conformity of the results in an individual sheet.
- “conform”: obtained results correspond to expected results.
- “not conform”: obtained results do not correspond to expected results.

2.2 Rating system

(For information, only)
The rating system is under development and these results are given for information only.
The calculation of the rating is done with the Excel file developed in collaboration with the Statistical committee of ISTA. It is based on an A, B, C and BMP rating. We use a qualitative rating system.

2.3 Analysis of data

Results for detection

- Qualitative results

Raw data of all laboratories are given in appendix.

2.4 Specificity and sensibility

Analysis of results of three levels has been carried out according to the Norm NF EN ISO 16140 suitable to results expressed as positive / negative.
Results are given in table n°5.

Table n°5: Overview of qualitative results for each laboratory on the 3 levels

No. Lab	Healthy	Medium	High
1	3/3	8/15	2/2
2	3/3	2/15	2/2
3	3/3	0/15	2/2
4	3/3	12/15	2/2
5	3/3	0/15	2/2
6	3/3	9/15	2/2

All laboratories identified the 2 high infected samples. False negative results were only observed for medium level. No false positive results were observed for the healthy level.

Criteria of performance as specificity per lab are indicated in Table n°6. Medium and high-levels results have been grouped for analysis.

Table n°6: Criteria of performance for each laboratory

No. Lab	sensitivity	specificity	accuracy
1	100%	100%	100%
2	24%	100%	20%
3	12%	100%	10%
4	94%	100%	95%
5	12%	100%	10%
6	100%	100%	100%

Evaluation of performance criteria of participants:
All six laboratories obtained 100% of specificity (no false positives). One laboratory obtained a false positive result exceeding the tolerated maximum expected amount. 2 laboratories score 100% in accuracy.

2.5 Z-score-computations and rating system

Rules of decision:
A using for 0 false positive in healthy level and the number of positive samples obtained is equal to the number of positive expected being 5 to 11 for the medium samples and 2 for the highly infested samples.
B using for 0 false positive in healthy level and the number of positive samples obtained is equal to the number of positive expected being one above (4 and 12) the expected positives of 5 to 11 for the medium samples and 2 for the highly infested samples.

C using for 0 false positive in healthy level and the number of positive samples obtained is equal to the number of positive expected being one above (3 and 13) the expected positives of 5 to 11 for the medium samples and 2 for the highly infested samples.
BMP (Below Minimum Performance) corresponds to a not expected result with a false positive in healthy level or <3 samples positive for the medium level. >13 samples positive in the medium is also scored as BMP.

The results are presented in table n° 7:

Distribution of rating is presented figure n°1

Table n°7: Computations of laboratories and rating.

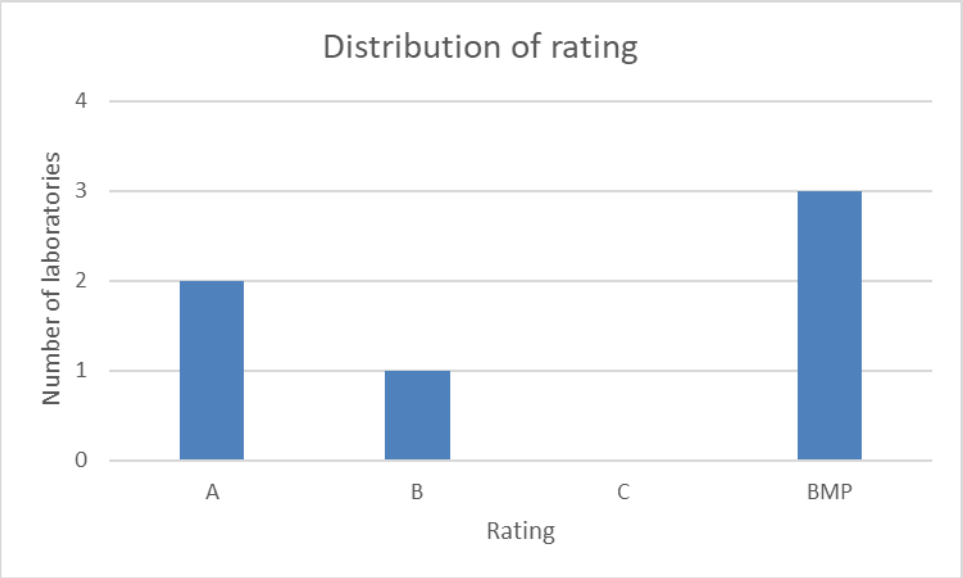
Rating for qualitative SH PTs — Change any value in a yellow cell

	Healthy lot		High level lot		Medium level lot
Minimum requirements for A rating :					
Max # of pos reps:	0	and	Min # of pos reps: 2	and	Min prob for observing k pos: 5,0%
Minimum requirements for B rating :					
Max # of pos reps:	0	and	Min # of pos reps: 2	and	Min prob for observing k pos: 1,5%
Minimum requirements for C rating :					
Max # of pos reps:	0	and	Min # of pos reps: 2	and	Min prob for observing k pos: 0,5%

	Medium level lot
# of seeds/rep:	1000
True cont. rate:	0,0800%
# of reps tested:	15

Rating	Lab	Healthy lot # of pos reps	High level lot # of pos reps	Medium level lot # of pos reps (k)
A	1	0	2	8
BMP	2	0	2	2
BMP	3	0	2	0
B	4	0	2	12
BMP	5	0	2	0
A	6	0	2	9

Figure n°1: Distribution of rating



The distribution of rating is divided between the letter A and BMP.
Two laboratories achieved an A rating, one achieved a B rating and three achieved a BMP rating.

- The B rating is due to a to high amount of positive samples found in the medium samples.
- The BMP rating is due to zero detection of positive samples in the medium samples.

CONCLUSION

The table is a summary of the different results.

Lab No.	Detection		
	% Accuracy	Deviation	Rating
1	100	8 out of the 15 medium samples detected	A
2	20	2 out of the 15 medium samples detected	BMP
3	10	0 out of the 15 medium samples detected	BMP
4	95	12 out of the 15 medium samples detected	B
5	10	0 out of the 15 medium samples detected	BMP
6	100	9 out of the 15 medium samples detected	A

Despite the high deviation tolerance for the medium samples three of the six laboratories participating in this PT for *Pseudomonas suringae* pv. *pisi* did poor in detecting positive samples in the 15 medium samples. One lab showed to have detected one more positive sample than expected but in respect to the other labs did not result in missing of samples.

Acknowledgements
This PT was made possible due to a fruitful international collaboration. The test organizer sincerely thanks the laboratory of Geves and especially Valerie Grimault in assisting in the processs of the whole PT and Corinne Sahuguede for providing infested seeds and providing the instruction for the homogeneity testing and sample construction calculation. With their help the PT could not have been organized.

APPENDICES

Appendix 1:

Compilation of qualitative results per sample correlated to the sample key.

Sample Key	N° of Sample	Lab 1	Lab 2	Lab 3	Lab 4	Lab 5	Lab 6
Medium	1	Positive	Negative	Negative	Positive	Negative	Positive
Medium	2	Negative	Negative	Negative	Negative	Negative	Negative
High	3	Positive	Positive	Positive	Positive	Positive	Positive
Medium	4	Negative	Negative	Negative	Positive	Negative	Positive
Medium	5	Negative	Negative	Negative	Positive	Negative	Positive
Healthy	6	Negative	Negative	Negative	Negative	Negative	Negative
Medium	7	Positive	Negative	Negative	Positive	Negative	Positive
Medium	8	Positive	Positive	Negative	Positive	Negative	Negative
Healthy	9	Negative	Negative	Negative	Negative	Negative	Negative
Medium	10	Positive	Negative	Negative	Positive	Negative	Negative
Medium	11	Negative	Negative	Negative	Positive	Negative	Positive
Medium	12	Positive	Negative	Negative	Negative	Negative	Negative
Medium	13	Positive	Negative	Negative	Positive	Negative	Negative
Medium	14	Positive	Positive	Negative	Positive	Negative	Positive
High	15	Positive	Positive	Positive	Positive	Positive	Positive
Medium	16	Negative	Negative	Negative	Positive	Negative	Positive
Healthy	17	Negative	Negative	Negative	Negative	Negative	Negative
Medium	18	Positive	Negative	Negative	Positive	Negative	Negative
Medium	19	Negative	Negative	Negative	Positive	Negative	Positive
Medium	20	Negative	Negative	Negative	Negative	Negative	Positive
	PC	Positive	Positive	Positive	Positive	Positive	Positive
	NC	Negative	Negative	Negative	Negative	Negative	Negative

Appendix 2:

Raw data for detection part per lab. **LAB#001**

Sample number	Dilution	Plate	Number of suspect colonies on medium 1 KBBCA		Number of suspect colonies on medium 2 SNAC		Number of suspect colonies on SNAC subcultured on medium KBBCA	Number of suspect colonies on KBBCA subcultured on medium SNAC	Identify suspect colonies with an oxydase test	Number of positive colonies by pathogenicity assay	final result
			suspects	other	suspects	other					
1	0	1	1	0	2	0	1	1	2	2	Positive
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					Negative
		2	0	0	0	0					
2	0	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					Negative
		2	0	0	0	0					
3	0	1	200	0	200	0	2	2	4	4	Positive
		2	200	0	200	0					
	1/10	1	70	0	70	0	2	2	4	4	Positive
		2	70	0	70	0					
	1/100	1	3	0	11	0	2	2	4	4	Positive

		2	3	0	8	0					
4	0	1	2	0	0	0	0				Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					Negative
		2	0	0	0	0					
5	0	1	0	0	1	0		0			Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					Negative
		2	0	0	0	0					
6	0	1	1	0	0	0	0				Negative
		2	1	0	0	0	0				
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					Negative
		2	0	0	0	0					
7	0	1	7	0	4	0	6	4	10	10	Positive
		2	1	0	0	0					
	1/10	1	0	0	1	0					Negative
		2	1	0	0	0					
	1/100	1	0	0	0	0					Negative

		2	0	0	0	0					
8	0	1	30	0	10	0	3	3	6	6	Positive
		2	41	0	9	0					
	1/10	1	3	0	7	0	3	3	6	6	Positive
		2	3	0	2	0					
	1/100	1	0	0	0	0					Negative
		2	0	0	0	0					
9	0	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					Negative
		2	0	0	0	0					
10	0	1	12	0	10	0	5	5	10	10	Positive
		2	12	0	11	0					
	1/10	1	1	0	0	0	1	0	1	1	Positive
		2	1	0	0	0					
	1/100	1	0	0	1	0		1	1	1	Positive
		2	0	0	0	0					
11	0	1	0	0	0	1					Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					Negative

		2	0	0	0	0					
12	0	1	1	0	1	0	1	2	3	3	Positive
		2	1	0	1	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					Negative
		2	0	0	0	0					
13	0	1	0	0	1	0	1		1	1	Positive
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					Negative
		2	0	0	0	0					
14	0	1	100	0	100	0	3	3	6	6	Positive
		2	100	0	100	0					
	1/10	1	5	0	3	0	3	3	6	6	Positive
		2	2	0	20	0					
	1/100	1	0	0	0	0					Negative
		2	0	0	0	0					
15	0	1	100	0	100	0	2	2	4	4	Positive
		2	100	0	100	0					
	1/10	1	38	0	22	0	2	2	4	4	Positive
		2	32	0	30	0					
	1/100	1	1	0	4	0	2	2	4	4	Positive

		2	3	0	3	0					
16	0	1	0	0	0	1					Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					Negative
		2	0	0	0	0					
17	0	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					Negative
		2	0	0	0	0					
18	0	1	16	0	20	0	3	5	8	8	Positive
		2	40	0	40	0					
	1/10	1	3	0	1	0	2	1	3	3	Positive
		2	2	0	5	0					
	1/100	1	1	0	0	0	1		1	1	Positive
		2	0	0	0	0					
19	0	1	0	4	0	0					Negative
		2	0	10	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					Negative

		2	0	0	0	0					
20	0	1	0	0	0	0					Negative
		2	0	0	0	1					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					Negative
		2	0	0	0	0					
PC	0	1	100	0	100	0					Positive
		2									
	1/10	1									
		2									
	1/100	1									
		2									
NC (buffer)	0	1	0	0	0	0					Negative
		2									
	1/10	1									
		2									
	1/100	1									
		2									

Lab#002

Sample number	Dilution	Plate	Number of suspect colonies on medium 1 KBBCA		Number of suspect colonies on medium 2 SNAC		Number of suspect colonies on SNAC subcultured on medium KBBCA	Number of suspect colonies on KBBCA subcultured on medium SNAC	Identify suspect colonies with an oxydase test	Number of positive colonies by pathogenicity assay	final result
			suspects	other	suspects	other					
1	0	1	0	0	0	0					
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
2	0	1	0	0	0	0					
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
3	0	1	111	0	98	0					
		2	73	0	108	0					
	1/10	1	5	0	16	0					Positive

		2	24	0	13	0	6	6		6	
	1/100	1	0	0	7	0					
		2	2	0	1	0					
4	0	1	0	0	0	1					
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
5	0	1	0	0	0	0					
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
6	0	1	0	0	0	0					
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					

		2	0	0	0	0					
7	0	1	0	0	0	1					
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
8	0	1	70	0	75	0					
		2	59	0	65	0					
	1/10	1	10	0	5	0					Positive
		2	8	0	7	0	6	6		6	
	1/100	1	1	0	0	0					
		2	1	0	0	0					
9	0	1	0	0	0	0					
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
10	0	1	0	0	0	0					

		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
11	0	1	0	0	0	0					
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
12	0	1	0	0	0	0					
		2	0	0	0	1					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	1					
13	0	1	0	2	0	0					
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative

		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
14	0	1	0	0	1	0		1		1	Positive
		2	0	0	0	0					
	1/10	1	0	0	0	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
15	0	1	TMTC	0	TMTC	0					
		2	TMTC	0	TMTC	0					
	1/10	1	135	0	127	0					
		2	122	0	101	0					
	1/100	1	7	0	13	0	6	6		6	Positive
		2	19	0	11	0					
16	0	1	0	0	0	0					
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					

		2	0	0	0	0					
17	0	1	0	0	0	0					
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
18	0	1	0	0	0	0					
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
19	0	1	0	0	0	0					
		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
20	0	1	0	0	0	0					

		2	0	0	0	0					
	1/10	1	0	0	0	0					Negative
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
PC	10^2	1	123	0	112	0					Positive
	10^3	1	TMTC	0	TMTC	0					
	10^4	1	TMTC	0	TMTC	0					
NC	0	1	0	0	0	0					Negative
	1/10	1	0	0	0	0					
	1/100	1	0	0	0	0					

Lab#003

Sample number	Dilution	Plate	Number of suspect colonies on LBCA				Number of suspect colonies on LBCA subcultured on medium KB/ total number of colonies subcultured	Identify suspect colonies with an oxydase test	Number of positive colonies by pathogenicity assay	final result	Comments
			Plate 1		Plate 2						
			suspects	other	suspects	other					
1	0	1	NA	NA	NA	NA	0/0	nt	nt	Negative nt = not tested 0 colonies observed"	"NA = no count made
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
2	0	1	NA	NA	NA	NA	3/4	3 oxydase -	0/3	Negative nt = not tested"	"NA = no count made
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
3	0	1	NA	NA	NA	NA	0/0	nt	nt	Positive	"NA = no count made
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		

		2	NA	NA	NA	NA				nt = not tested"	
	1/100	1	NA	NA	NA	NA	6/6	6 oxydase -	6/6		
		2	NA	NA	NA	NA					
4	0	1	NA	NA	NA	NA	0/0	nt	nt	Negative	"NA = no count made
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
5	0	1	NA	NA	NA	NA	0/0	nt	nt	nt = not tested 0 colonies observed"	
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
6	0	1	NA	NA	NA	NA	0/0	nt	nt	Negative nt = not tested 0 colonies observed"	"NA = no count made
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		

		2	NA	NA	NA	NA					
7	0	1	NA	NA	NA	NA	0/0	nt	nt	Negative	"NA = no count made
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
8	0	1	NA	NA	NA	NA	0/1	nt	0/1	nt = not tested 0 colonies observed"	
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
9	0	1	NA	NA	NA	NA	0/0	nt	nt	Negative nt = not tested 0 colonies observed"	"NA = no count made
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
10	0	1	NA	NA	NA	NA	0/3	1 oxydase -	0/3		

		2	NA	NA	NA	NA				Negative	"NA = no count made
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
11	0	1	NA	NA	NA	NA	0/1	1 oxydase -	0/1	nt = not tested"	
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
12	0	1	NA	NA	NA	NA	0/0	nt	nt	Negative nt = not tested"	"NA = no count made
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
13	0	1	NA	NA	NA	NA	0/0	nt	nt	Negative	"NA = no count made
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		

		2	NA	NA	NA	NA				nt = not tested"	
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
14	0	1	NA	NA	NA	NA	0/0	nt	nt	Negative nt = not tested 0 colonies observed"	"NA = no count made
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
15	0	1	NA	NA	NA	NA	0/0	nt	nt	Negative	"NA = no count made
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	6/6	6 oxydase -	6/6		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
16	0	1	NA	NA	NA	NA	0/0	nt	nt	nt = not tested 0 colonies observed"	
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		

		2	NA	NA	NA	NA					
17	0	1	NA	NA	NA	NA	0/0	nt	nt	Negative nt = not tested 0 colonies observed"	"NA = no count made
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
18	0	1	NA	NA	NA	NA	0/0	nt	nt	Negative	"NA = no count made
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
19	0	1	NA	NA	NA	NA	1/1	1 oxydase -	0/1	nt = not tested 0 colonies observed"	
		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
20	0	1	NA	NA	NA	NA	0/0	nt	nt		

		2	NA	NA	NA	NA					
	1/10	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					
	1/100	1	NA	NA	NA	NA	0/0	nt	nt		
		2	NA	NA	NA	NA					

Lab#004

Sample number	Dilution	Plate	Number of suspect colonies on medium 1 KBBCA		Number of suspect colonies on medium 2 SNAC		Number of suspect colonies on SNAC subcultured on medium KBBCA	Number of suspect colonies on KBBCA subcultured on medium SNAC	Identify suspect colonies with an oxydase test	Number of positive colonies by pathogenicity assay	final result	Comments
			suspects	other	suspects	other						
1	0	1	2	2	6	19	4	2	6 OX -	2	Positive	
		2	1	0	3	11	2	1	3 OX -	2		
	1/10	1	0	0	0	2	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
2	0	1	0	30	0	30	0	0		0	Negative	
		2	0	17	0	5	0	0		0		
	1/10	1	0	0	0	0	0	0		0	Negative	
		2	0	3	0	2	0	0		0		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	1	0	0	0	0		0		
3	0	1	TMTC	1	TMTC	0	0	0		0	Undetermined	Colonies not discriminable
		2	TMTC	0	TMTC	0	0	0		0		
	1/10	1	42	0	39	1	3	3	6 OX -	4	Positive	

		2	55	2	42	0	3	3	6 OX -	2		
	1/100	1	4	0	3	0	0	0		0	Undetermined	Colonies only taken from 1:10
		2	9	0	6	0	0	0		0		
4	0	1	1	1	2	2	2	1	3 OX -	2	Positive	
		2	1	1	3	4	2	1	3 OX -	2		
	1/10	1	1	1	0	0	1	0	1 OX -	1	Positive	
		2	0	0	1	0	0	1	1 OX -	1		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	1	0	0		0		
5	0	1	0	3	1	2	1	0	1 OX -	1	Positive	
		2	1	1	1	1	0	1	1 Ox -	1		
	1/10	1	0	0	0	0	0	0		0	Negative	Colony not typical on KBBCA
		2	0	0	1	1	1	0	1 OX -	0		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	1	0	0		0		
6	0	1	0	0	1	0	1	0		0	Negative	Colony not typical on KBBCA
		2	0	0	1	0	1	0		0		
	1/10	1	0	0	0	1	0	0		0	Negative	
		2	0	0	0	1	0	0		0		

	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
7	0	1	7	1	4	2	3	3	6 OX -	3	Positive	
		2	4	0	5	2	3	3	6 OX -	3		
	1/10	1	1	0	1	0	0	0		0	Undetermined	Colonies only taken from undiluted
		2	0	0	1	0	0	0		0		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
8	0	1	2	20	0	38	0	2	2 OX -	2	Positive	
		2	1	42	0	40	0	1	1 OX-	0		
	1/10	1	0	2	0	8	0	0		0	Negative	
		2	0	1	0	4	0	0		0		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
9	0	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
	1/10	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
	1/100	1	0	0	0	0	0	0		0	Negative	

		2	0	0	0	0	0	0		0		
10	0	1	1	10	0	14	0	1	1 OX -	1	Positive	
		2	0	7	0	11	0	0		0		
	1/10	1	0	2	0	2	0	0		0	Negative	
		2	0	0	0	3	0	0		0		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
11	0	1	2	12	1	17	2	1	3 OX -	3	Positive	
		2	0	9	0	23	0	0		0		
	1/10	1	0	0	0	2	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
12	0	1	0	13	0	34	0	0		0	Negative	
		2	0	18	0	52	0	0		0		
	1/10	1	0	2	0	5	0	0		0	Negative	
		2	0	1	0	3	0	0		0		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	1	0	2	0	0		0		
13	0	1	2	7	1	15	1	2	3 OX -	3	Positive	

		2	2	7	5	18	3	2	3 OX -	3		
	1/10	1	3	0	0	0	0	0		0	Undetermined	Colonies only taken from undiluted
		2	0	1	0	0	0	0		0		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
14	0	1	2	38	4	104	3	2	3 OX -	3	Positive	
		2	4	42	3	98	3	4	3 OX -	3		
	1/10	1	0	4	0	10	0	0		0	Negative	
		2	0	5	0	4	0	0		0		
	1/100	1	0	0	0	3	0	0		0	Negative	
		2	0	1	0	2	0	0		0		
15	0	1	TMTC	TMTC	TMTC	TMTC	0	0		0	Undetermined	Colonies not discriminable
		2	TMTC	TMTC	TMTC	TMTC	0	0		0		
	1/10	1	210	40	192	59	0	0		0	Undetermined	Colonies not easily discriminable
		2	200	20	217	53	0	0		0		
	1/100	1	22	0	29	7	3	3	6 OX -	3	Positive	
		2	22	1	19	16	3	3	6 OX -	3		

16	0	1	1	16	0	129	0	1	1 OX -	1	Positive	1 Colony not typical on SNAC
		2	1	20	0	126	0	1	1 OX -	0		
	1/10	1	0	4	0	12	0	0		0	Negative	
		2	0	2	0	13	0	0		0		
	1/100	1	0	1	0	2	0	0		0	Negative	
		2	0	1	0	0	0	0		0		
17	0	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	1	0	0		0		
	1/10	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
18	0	1	1	0	1	4	1	1	2 OX -	2	Positive	
		2	1	1	2	5	2	0	2 OX -	2		
	1/10	1	0	0	1	0	1	0	1 OX-	1	Positive	
		2	0	0	0	1	0	0		0		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
19	0	1	1	68	1	85	1	0	1 OX -	1	Positive	

		2	1	59	0	108	0	1	1 OX -	1		
	1/10	1	0	6	0	13	0	0		0	Negative	
		2	0	18	0	13	0	0		0		
	1/100	1	0	0	0	2	0	0		0	Negative	
		2	0	0	0	1	0	0		0		
20	0	1	1	12	0	57	0	1		0	Negative	Colony not typical on KBBCA/SNc
		2	0	24	1	62	1	0		0		
	1/10	1	0	5	0	4	0	0		0	Negative	
		2	0	2	0	7	0	0		0		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	2	0	1	0	0		0		
PC	0	1	TMTC	0	TMTC	0	0	0		0	Undetermined	Colonies not discriminable
		2	TMTC	0	TMTC	0	0	0		0		
	1/10	1	332	0	280	0	0	0		0	Undetermined	Colonies not easily discriminable
		2	283	0	296	0	0	0		0		
	1/100	1	36	0	30	0	0	0		0	Positive	
		2	29 0		27	0	3	3	6 OX -	3		
	0	1	0	0	0	0	0	0		0	Negative	

NC (buffer)		2	0	0	0	0	0	0		0		
	1/10	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		
	1/100	1	0	0	0	0	0	0		0	Negative	
		2	0	0	0	0	0	0		0		

Lab#005

Sample number	Dilution	Plate	Number of suspect colonies on medium 1 KBBCA		Number of suspect colonies on medium 2 SNAC		Number of suspect colonies on SNAC subcultured on medium KBBCA	Number of suspect colonies on KBBCA subcultured on medium SNAC	Identify suspect colonies with an oxydase test	Number of positive colonies by pathogenicity assay	final result	Comments
			suspects	other	suspects	other						
1	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
2	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
3	0	1	TMTC		TMTC		2	2		4	Positive	
		2	TMTC		TMTC							
	1/10	1	111	0	41	0	2	2		4	Positive	

		2	73	0	29	0						
	1/100	1	1	0	3	0	2	2		4	Positive	
		2	9	0	2	0						
4	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
5	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
6	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	

		2	0	0	0	0						
7	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
8	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
9	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
10	0	1	0	0	0	0	0	0			Negative	

		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
11	0	1	0	0	1	0	2	4			Negative	Plants started to show symptoms between 14-17 days after innoculation. No symptoms within 5-9 days.
		2	0	0	1	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
12	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
13	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	

		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
14	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
15	0	1	0	0	7	0	4	4		8	Positive	
		2	0	0	6	0						
	1/10	1	0	0	0	0	2	2		4	Positive	
		2	0	0	2	0						
	1/100	1	0	0	0	0	0	0			Positive	
		2	0	0	0	0						
16	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	

		2	0	0	0	0						
17	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
18	0	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
19	0	1	0	0	5	0	6	1			Negative	Mild symptoms appeared on a small number of the innoculated seedlings 17 days after innoculation. No symptoms within 5-9 days
		2	0	0	4	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
20	0	1	0	0	0	0	0	0			Negative	

		2	0	0	0	0						
	1/10	1	0	0	0	0	0	0			Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0	0	0			Negative	
		2	0	0	0	13						
PC	0	1	TMTC		TMTC						Positive	
		2										
	1/10	1	TMTC		TMTC						Positive	
		2										
	1/100	1	278		203		6	6			Positive	
		2										
NC (buffer)	0	1	0	0	0	0					Negative	
		2	0	0	0	0						
	1/10	1	0	0	0	0					Negative	
		2	0	0	0	0						
	1/100	1	0	0	0	0					Negative	
		2	0	0	0	0						

Lab#006

Sample number	Dilution	Plate	Number of suspect colonies on medium 1 KBBCA		Number of suspect colonies on medium 2 SNAC		Number of suspect colonies on SNAC subcultured on medium KBBCA	Number of suspect colonies on KBBCA subcultured on medium SNAC	Identify suspect colonies with an oxydase test	Number of positive colonies by pathogenicity assay	final result
			suspects	other	suspects	other					
1	0	1	0	0	1	0	1	0		0	Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
2	0	1	0	0	0	0	0	0		0	Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
3	0	1	tmtc	0	tmtc	0	6	6		6	Positive
		2	tmtc	0	tmtc	0					
	1/10	1	103	0	99	0					

		2	125	0	78	0					
	1/100	1	11	0	3	0					
		2	8	0	1	0					
4	0	1	4	0	4	0	6	6		0	Negative
		2	2	0	3	0					
	1/10	1	0	0	0	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
5	0	1	1	0	1	0	4	3		6	Positive
		2	2	0	2	0					
	1/10	1	0	0	1	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
6	0	1	0	0	0	0	0	0		0	Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					

		2	0	0	0	0					
7	0	1	35	0	28	0	6	6		6	Positive
		2	36	0	29	0					
	1/10	1	6	0	4	0					
		2	2	0	2	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
8	0	1	0	0	1	0	1	0		0	Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
9	0	1	0	0	1	0	1	0		0	Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
10	0	1	0	0	0	0	0	0		0	Negative

		2	0	0	0	0					
	1/10	1	0	0	0	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
11	0	1	0	0	tmtc	0	0	6		2	Positive
		2	0	0	tmtc	0					
	1/10	1	0	0	45	0					
		2	0	0	38	0					
	1/100	1	0	0	2	0					
		2	0	0	0	0					
12	0	1	11	0	26	0	6	6		6	Positive
		2	6	0	19	0					
	1/10	1	0	0	3	0					
		2	0	0	1	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
13	0	1	0	0	1	0	2	0		0	Negative
		2	0	0	0	0					
	1/10	1	0	0	1	0					

		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
14	0	1	1	0	2	0	2	4		6	Positive
		2	3	0	0	0					
	1/10	1	0	0	0	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
15	0	1	tmtc	0	tmtc	0	6	6		6	Positive
		2	tmtc	0	tmtc	0					
	1/10	1	166	0	136	0					
		2	152	0	121	0					
	1/100	1	20	0	15	0					
		2	11	0	17	0					
16	0	1	2	0	3	0	5	6		6	Positive
		2	4	0	1	0					
	1/10	1	0	0	1	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					

		2	0	0	0	0					
17	0	1	0	0	0	0	0	0		0	Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
18	0	1	0	0	0	0	0	1		1	Positive
		2	1	0	0	0					
	1/10	1	0	0	0	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
19	0	1	0	0	0	0	0	0		0	Negative
		2	0	0	0	0					
	1/10	1	0	0	0	0					
		2	0	0	0	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
20	0	1	2	0	3	0	6	5		6	Positive

		2	2	0	3	0					
	1/10	1	1	0	0	0					
		2	0	0	1	0					
	1/100	1	0	0	0	0					
		2	0	0	0	0					
PC	0	1	tmtc	0	tmtc	0	6	6		6	Positive
		2	tmtc	0	tmtc	0					
	1/10	1	tmtc	0	tmtc	0					
		2	tmtc	0	tmtc	0					
	1/100	1									
		2									
NC (buffer)	0	1	0	0	0	0	0	0		0	Negative
		2	0	0	0	0					
	1/10	1									
		2									
	1/100	1									