

EXPERTISE AND SERVICE PROVISION
QUALITY OF LABORATORIES

EXTERNAL QUALITY ASSESSMENT
IN VETERINARY DIAGNOSIS

DEFINITIVE GLOBAL REPORT

Proficiency Testing in Veterinary Diagnosis

Leptospirosis

SURVEY 2020/12

Sciensano/PT VET Leptospirosis/1-E

Expertise and service provision
Quality of laboratories
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A preliminary version of this report was submitted to the National reference laboratory: 25/01/2021

Authorization to release the report: By Bernard China, scheme coordinator, on 27/01/2021.

Bernard China 

All the reports are also available on our webpage:

https://www.wiv-isp.be/QML/activities/PT%20VET/fr/originaux/rapports_annee.htm
https://www.wiv-isp.be/QML/activities/PT%20VET/nl/originaux/rapports_annee.htm

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Introduction

This survey was dedicated to the detection of *Leptospira* spp. from organs using RT-qPCR

The samples

The samples were prepared by the National Reference Laboratory, Veterinary Bacteriology, Infectious diseases in animals Directorate, Sciensano.

Bacteriology

3 organ samples (0,5 mL) were used: PT2020LEPBACON1, PT2020LEPBACOP1 and PT2020LEPBACOP2.

Homogeneity

The homogeneity of the samples were tested in triplicate by the NRL before the survey using RT-qPCR. The samples were considered as homogeneous.

Target Values

The target value was determined by the NRL based on the homogeneity tests.

PT2020LEPBACON1 is negative.

PT2020LEPBACOP1 and PT2020LEPBACOP2 are positive.

Stability

The stability was determined by comparison of the pre-survey results and the results obtained by the NRL during and after the survey. The samples were considered as stable.

The participants

5 laboratories participated to the *Leptospira* spp. Bacteriology survey:
Sciensano ; Arsia , DGZ, LNCR (France) ; Biosellal (France)

Randomisation and panel composition

Since a specific number has been assigned to each laboratory, the randomisation has been performed as follow:

| | Group 1 97504 and 97508 | Group 2 97507, 97510 and 97514. |
|---------------------|------------------------------------|--|
| Sample Order | | |
| LEPBAC2001 | PT2020LEPBACOP1 | PT2020LEPBACON1 |
| LEPBAC2002 | PT2020LEPBACOP2 | PT2020LEPBACOP1 |
| LEPBAC2003 | PT2020LEPBACOP1 | PT2020LEPBACOP2 |
| LEPBAC2004 | PT2020LEPBACOP1 | PT2020LEPBACOP1 |
| LEPBAC2005 | PT2020LEPBACON1 | PT2020LEPBACOP1 |

The panel was constituted of 5 samples of 0.5 ml

Survey Timeline

Transfer of the samples from NRL to QL:3/11/2020

Randomization of the samples by QL:3/11/2020

Sending samples to participants: 4/11/2020. The samples were sent on dry ice.

Deadline for the results encoding: 7/12/2020

Preliminary report: 8/12/2020

Results

1. Bacteriology

The panel consisted in 5 organ samples: 4 positive samples and 1 negative sample.

1.1. Results per sample

5 laboratories encoded results.

Table R1. Results per sample

| Sample ID | Expected result | Number of repetitions (total results) | Observed result |
|------------------------|------------------------|--|------------------------|
| PT2020LEPBACOP1 | Positive | 3 (15) | 15 positive results |
| PT2020LEPBACOP2 | Positive | 1 (5) | 5 Positive results |
| PT2020LEPBACON1 | Negative | 1 (5) | 5 Positive results |

Globally, on 25 encoded results, 100% were considered as correct.

1.2. Used methods

1.2.1. Extraction methods

Thermofisher Scientific MagMAX total nucleic isolation KIT : 1
Indical Bioscience IndiMag Pathogen Kit (384) : 1
Indical MagAttract Pathogen Kit Cadon: 1
Life Technologies MagVet Universal Isolation Kit (384 Tests): 1
BioSella BioExtract Column: 1

1.2.2. Amplification methods

IN HOUSE / HOME MADE: 1
OTHER: BIO-T-KIT Leptospire pathogènes
VetMAX PathoLept Real-Time PCR Kit: 1
Bio-XKit Leptospire: 1
BactoReal Kit Leptospira spp. (LipL32) (Ingenetix): 1

1.2.3. Thermocyclers

Roche LightCycler480: 1
ABI7500 (Thermofisher): 2
AriaMX (Agilent): 1
Not precised: 1

1.3. Conclusion

All the participants encoded correct results independently of the used method.

ANNEXES

Annex 1. Quantitative data for *Leptospira* spp. Bacteriology (not under accreditation)

SAMPLE PT2020LEPBACOP1

Table A1. Quantitative normalized values (%)

| Lab | L97504 | L97507 | L97508 | L97510 | L97514 |
|---------------|-----------|------------------------------------|--|--------|--|
| Method | Home made | VetMAX PathoLept Real-Time PCR Kit | BactoReal Kit <i>Leptospira</i> spp. (LipL32)' Ingenetix | Bio-X | BIO-T-KIT <i>Leptospira</i> pathogènes |
| R1 | 26.48 | 25.13 | 26.92 | 35.5 | 22.32 |
| R2 | 26.24 | 25.1 | 26.74 | 36.2 | 22.3 |
| R3 | 26.29 | 25.02 | 26.83 | 35.8 | 22.13 |
| Mean | 26.34 | 25.08 | 26.83 | 35.83 | 22.25 |
| SD | 0.13 | 0.06 | 0.09 | 0.35 | 0.10 |
| CV | 0.5% | 0.2% | 0.3% | 1.0% | 0.5% |

Rn= repetition n

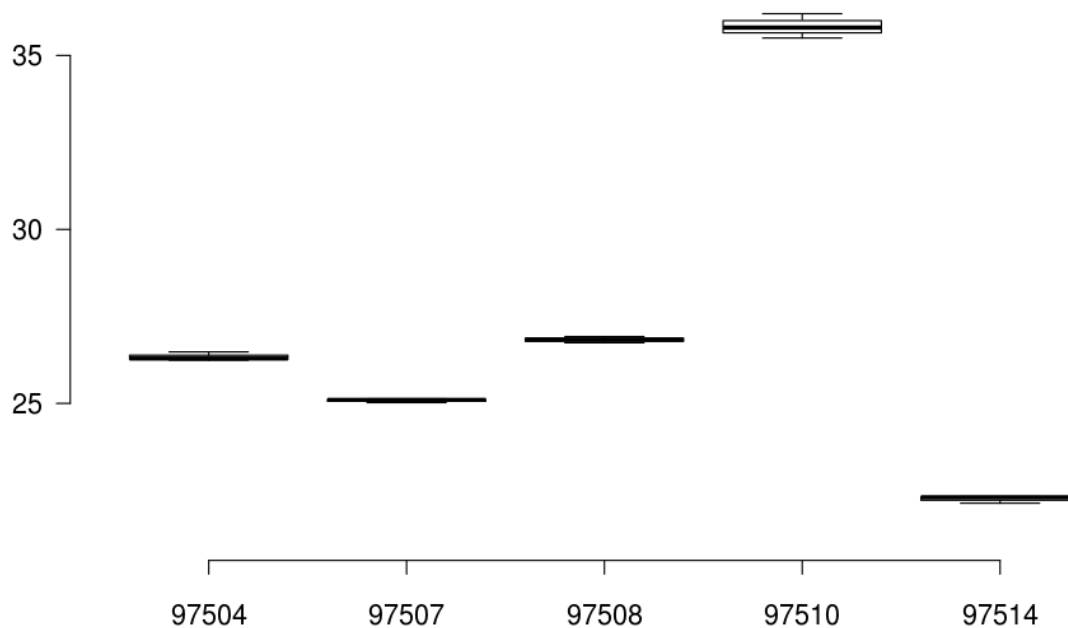


Figure A1. Boxplot dispersion of the results per participant for the sample NM1

Annex 2: additional information

PRELIMINARY REPORT

The preliminary report of this survey is available on our website via the following link:

https://www.wiv-isp.be/QML/activities/PT%20VET/fr/originaux/rapports_annee.htm

The calendar for Proficiency Testing in Veterinary diagnosis is available on our website:

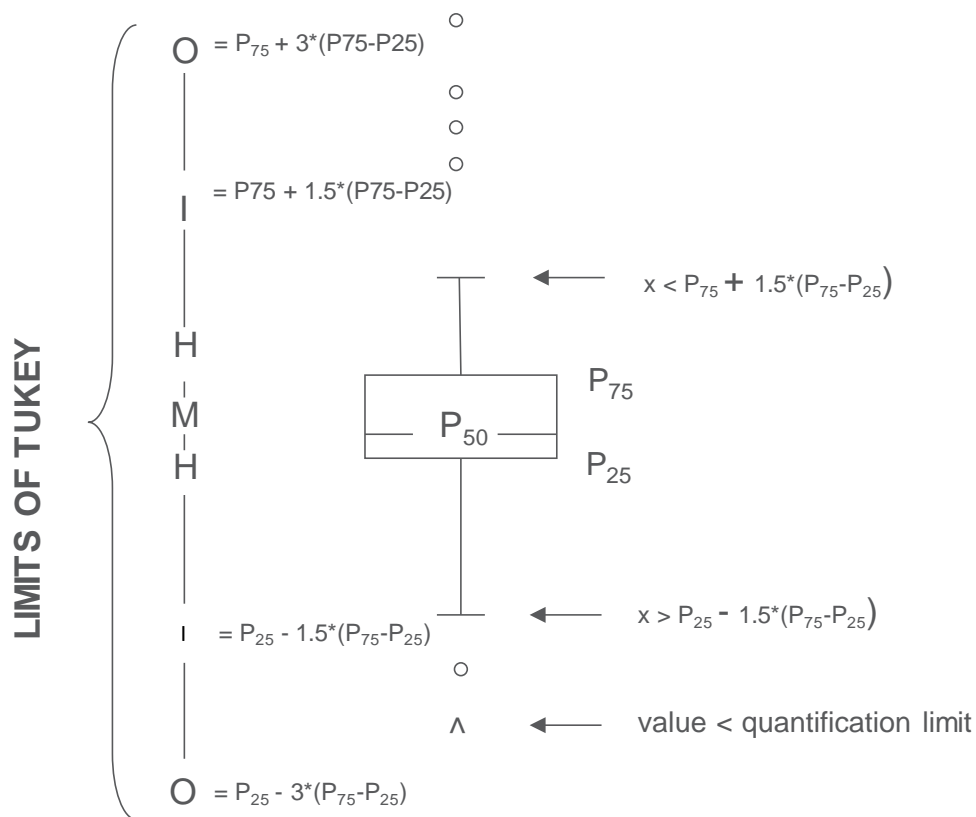
The link is:

https://www.wiv-isp.be/QML/activities/external_quality/calendar/calender_PT%20VET/_fr/Calendrier_2020-PT%20VET%202.htm

Graphical representation

Besides the tables with the results a "Box and whisker" plot is added. It contains the following elements for the methods with at least 6 participants:

- a rectangle ranging from percentile 25 (P_{25}) to percentile 75 (P_{75})
- a central line representing the median of the results (P_{50})
- a lower limit showing the smallest value $x > P_{25} - 1.5 * (P_{75} - P_{25})$
- an upper limit representing the largest value $x < P_{75} + 1.5 * (P_{75} - P_{25})$
- all points outside this interval are represented by a dot.



Corresponding limits in case of normal distribution

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