BIOLOGICAL HEALTH RISKS
QUALITY OF LABORATORIES

COMMITEE OF EXPERTS

EXTERNAL QUALITY ASSESSMENT
IN VETERINARY DIAGNOSIS

DEFINITIVE GLOBAL REPORT

VETERINARY MEDECINE

SALMONELLA GALLINARUM BIOVAR PULLORUM/GALLINARUM 2022 (SAL)

PROFICIENCY TEST 2022/14

Sciensano/PT VET SAL/2-E

Biological health risks
Quality of laboratories
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All the reports are also available on our webpage:

- NL: https://www.sciensano.be/nl/externe-kwaliteitsevaluatie/diergezondheid-pt-vet
- FR: https://www.sciensano.be/fr/evaluation-externe-de-la-qualite/sante-animale-pt-vet
- EN: https://www.sciensano.be/en/external-quality-assessment/animal-health-pt-vet

TABLE OF CONTENTS

1 INTRODUCTION

Details relevant to the proficiency test (PT) are available in the procedure SOP 2.5/01 'Management of the proficiency tests organized by the scientific directorate infectious diseases in animals'. The PT was organized according to the ISO17043 'Conformity assessment - General requirements for proficiency testing' norm.

2 AIM

The aim of this PT was to evaluate the ability of the participating laboratories to isolate *Salmonella* Gallinarum biovar Pullorum and/or biovar Gallinarum in livers of chicken.

3 MATERIALS AND METHODS

3.1 Bacteriology (organs)

3.1.1 THE PARTICIPANTS

Three laboratories participated in the proficiency test of *Salmonella* bacteriology on organs. The names of the participating laboratories are:

- Sciensano, department of Veterinary bacteriology
- ARSIA
- Dierengezondheidszorg Vlaanderen (DGZ)

3.1.2 THE SAMPLES

The samples (livers of chicken) were prepared by the National Reference Laboratory (NRL) for *Salmonella* Gallinarum biovar Gallinarum/Pullorum, Service of Veterinary bacteriology, Sciensano.

Information about the **preparation** of the samples:

- Chicken liver organs were first tested as *Salmonella* spp. free and then spiked or not with *Salmonella* spp. suspensions and homogenized.

3.1.3 HOMOGENEITY

Each time on day 1 and day 2, the homogeneity of the samples was tested by the NRL on 3 aliquots (10 g chicken liver) of each sample. All livers were negative for *Salmonella* spp. during the check for negativity and all the results were as expected during the pre-PT on day 1 and day 2. Thus, the samples could be considered as homogeneous. Nevertheless, it is not possible to store the fresh samples. Therefore, other aliquots of livers were used for the PT, as done for previous PTs.

3.1.4 TARGET VALUES

The target values were determined by the NRL based on the homogeneity tests and based on the dosis of the spiked *Salmonella* spp. (or no spiking). Initially, the panel consisted of 10 samples: 7 positive and 3 negative samples.

Sample ID	Repetition	Status
PT2022SALBACP01	2	STRONG POSITIVE (*Salmonella* Pullorum)
PT2022SALBACP02	1	WEAK POSITIVE (*Salmonella* Pullorum)
PT2022SALBACP03	2	STRONG POSITIVE (*Salmonella* Gallinarum)
PT2022SALBACP04	2	WEAK POSITIVE (*Salmonella* Gallinarum)
PT2022SALBACN01	3	NEGATIVE

3.1.5 STABILITY

The criteria for stability is that the status of the sample in Post-PT remains the status assigned in pre-PT test. The Post-PT was blinded by the NRL. The stability check was 100% conform for the day 1 (launched the day of sending of samples to the participants) of the Post-PT. For the day 2 of the Post-PT (launched the day after day 1), 2 aliquots were excluded (1 negative and 1 weak positive *Salmonella* Pullorum) because the results were reversed for these 2 aliquots. An inversion during blinding of the Post-PT could not be excluded. The results of all the other aliquots were as expected. Thus, the stability check was considered conform.

3.1.6 RANDOMISATION AND PANEL COMPOSITION

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

Sample ID: SALBAC	97504	97507	97508
22-1	P03	P02	P03
22-2	P01	N01	P04
22-3	P03	P03	P01
22-4	N01	P01	P02
22-5	P04	P01	N01
22-6	P02	P04	N01
22-7	N01	N01	P01
22-8	N01	P03	P04
22-9	P01	P04	N01
22-10	P04	N01	P03

4 TIMELINE

Randomization of the samples by QL: 05/12/2022
Sending samples to participants: 05/12/2022

- Samples bacteriology: stored refrigerated (3-5 °C)

Deadline for submitting the results: 16/12/2022
Preliminary report: 10/01/2023

5 RESULTS

5.1 Bacteriology (organs)

5.1.1 RESULTS PER SAMPLE

The panel consisted of 5 different samples. On the one hand, positive samples P01, P03 and P04 were repeated twice and P02 was once in the panel On the other hand, negative sample N01 was repeated three times. Therefore, in total, the panel consisted of 10 samples (7 positive and 3 negative samples).

Sample ID	Status	Number of repetitions (total results)	Observed result
P01	POS	2 (6)	6 POS
P02	POS	1 (3)	3 POS
P03	POS	2 (6)	6 POS
P04	POS	2 (6)	6 POS
N01	NEG	3 (9)	9 NEG

(POS = positive; NEG = negative)

5.1.2 USED METHOD

Method	Reagent(s)	Batch number(s)	N	NR	NCR	%
Method suitable for detecting non-motile *Salmonella spp.*	1. Bio-Rad - Peptoned water 2. Bio-Rad - RVS 3. Other - other - Oxoid/BGA 4. Bio-Rad - Rapid SALM Agar 5. Thermofisher - Lysine 6. Bio-Trading/TSI 7. Sorbitol/mobilité: home-made 8. Dulcitol: home-made	1. 64478316 2. 64495052 3. 4385004 4. 64508761 5. 3557567 6. 2225005925 7. / 8. /	**1**	**10**	**10**	**100**
Method suitable for detecting non-motile *Salmonella spp.*	1. Bio-Rad – RVS 2. Thermofisher milieu BGA 3. Biorad milieu RapidSalm	1. 64474883 2. 4386770 3. 64515253	**1**	**10**	**10**	**100**
Method suitable for detecting non-motile *Salmonella spp.*	1. Bio-Rad - RVS 2. Thermofisher - BGA agar 3. Thermofisher - brilliance salmonella agar 4. Biomerieux - BPW	1. 64495052 2. 2283409 3. 2298746 4. 2149350	**1**	**10**	**10**	**100**
TOTAL			**3**	**30**	**30**	**100**

(N= number of laboratories; NR = number of results; NCR = number of correct results)

5.1.3 CONCLUSION

In 2022, three laboratories participated in proficiency test of *Salmonella* bacteriology (organs) organized by Sciensano. According to the procedure currently in force, the performance of a participating laboratory is satisfactory when no mistakes are detected (100% of agreement) for strong positive samples. In the case of weak positive and negative samples, one error is allowed (90% of agreement). All laboratories succeeded in achieving the maximum score (100%) for this test.

6 ADDITIONAL INFORMATION

The **preliminary report** of this proficiency test is available on our website via the following link:

- NL: https://www.sciensano.be/nl/externe-kwaliteitsevaluatie/diergezondheid-pt-vet
- FR: https://www.sciensano.be/fr/evaluation-externe-de-la-qualite/sante-animale-pt-vet
- EN: https://www.sciensano.be/en/external-quality-assessment/animal-health-pt-vet

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

- NL: https://www.sciensano.be/fr/biblio/eke-kalender-2023
- FR: https://www.sciensano.be/en/biblio/calendrier-eeq-2023
- EN: https://www.sciensano.be/en/biblio/eqa-calendar-2023

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