World Organisation for Animal Health

Salvatore Catania - -

# WOAH Reference Laboratory Reports Activities 2024

**This report has been submitted: 28 janvier 2025 17:03**

## LABORATORY INFORMATION

| | |
|---|---|
| ***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:** | Avian mycoplasmosis (Mycoplasma gallisepticum, Mycoplasma synoviae) |
| ***Address of laboratory:** | Istituto Zooprofilattico Sperimentale delle Venezie, SCT1-Verona, Via Bovolino 1c, 37060 - Buttapietra (VR), Italy |
| ***Tel:** | +39045500285 |
| ***E-mail address:** | scatania@izsvenezie.it |
| **Website:** | www.izsvenezie.com |
| ***Name (including Title) of Head of Laboratory (Responsible Official):** | Dr. Salvatore Catania |
| ***Name (including Title and Position) of WOAH Reference Expert:** | Dr. Salvatore Catania |
| ***Which of the following defines your laboratory? Check all that apply:** | Governmental Research agency |

## TOR1: DIAGNOSTIC METHODS

1. Did your laboratory perform diagnostic tests for the specified disease/topic for purposes such as disease diagnosis, screening of animals for export, surveillance, etc.? (Not for quality control, proficiency testing or staff training)

Yes

| Diagnostic Test | Indicated in WOAH Manual (Yes/No) | Total number of test performed last year | |
|---|---|---|---|
| Indirect diagnostic tests | | Nationally | Internationally |
| Indirect ELISA for Mycoplasma gallisepticum | Yes | 19500 | 0 |
| Indirect ELISA for Mycoplasma synoviae | Yes | 5460 | 0 |
| Indirect ELISA for Mycoplasma meleagridis | No | 4528 | 0 |

| Direct diagnostic tests | | Nationally | Internationally |
|---|---|---|---|
| Real-time PCR for Mycoplasma gallisepticum | Yes | 2289 | 0 |
| Real-time PCR for Mycoplasma synoviae | Yes | 2314 | 0 |
| Real-time PCR for Mycoplasma meleagridis | No | 11 | 0 |
| Real-time PCR for Mycoplasma iowae | No | 78 | 0 |
| Avian mycoplasma culturing | Yes | 572 | 6 |
| 16s-rDNA PCR + Denaturing Gradient Gel Electrophoresis (DGGE) | Yes | 175 | 6 |
| Mgc2 gene sequencing | Yes | 62 | 6 |
| vlhA gene sequencing | Yes | 143 | 0 |
| Multi Locus Sequence Typing for Mycoplasma gallisepticum | Yes | 16 | 29 |
| Multi Locus Sequence Typing for Mycoplasma synoviae | Yes | 79 | 3 |
| Multi Locus Variable number tandem repeats Analysis for Mycoplasma synoviae | Yes | 75 | 0 |

# TOR2: REFERENCE MATERIAL

2. Did your laboratory produce or supply imported standard reference reagents officially recognised by WOAH?

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOAH Members?

No

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAH Members?

No

# TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

No

7. Did your laboratory validate diagnostic methods according to WOAH Standards for the designated pathogen or disease?

No

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

No

9. Did your laboratory validate vaccines according to WOAH Standards for the designated pathogen or disease?

No

# TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOAH Members?

Yes

| Name of WOAH Member Country seeking assistance | Date | Which diagnostic test used | No. samples received for provision of diagnostic support | No. samples received for provision of confirmatory diagnoses |
|---|---|---|---|---|
| SPAIN | 2024-03-27 | Mgc2 gene sequencing; Multi Locus Sequence Typing for Mycoplasma gallisepticum | 28 | 0 |
| SPAIN | 2024-12-10 | Avian mycoplasma culturing; 16s-rDNA PCR + Denaturing Gradient Gel Electrophoresis (DGGE); Real-time PCR for Mycoplasma gallisepticum; Real-time PCR for Mycoplasma synoviae; Multi Locus Sequence Typing for Mycoplasma gallisepticum; | 0 | 6 |
| UNITED KINGDOM | 2024-01-24 | Multi Locus Sequence Typing for Mycoplasma synoviae; | 3 | 0 |

11. Did your laboratory provide expert advice in technical consultancies on the request of an WOAH Member?

Yes

| Name of the WOAH Member Country receiving a technical consultancy | Purpose | How the advice was provided |
|---|---|---|
| SPAIN | Request of technical assistance and specific methodological information related to the molecular diagnosis of M. gallisepticum and M. synoviae, as well as to the differentiation between vaccine strains and field strains. | Remotely (e-mail) |
| | To seek guidance, resources and collaboration regarding molecular diagnostics for avian mycoplasmas, in particular any recommendation for real-time PCR methodology for M. | |

| | | |
|---|---|---|
| SLOVENIA | gallisepticum, M. synoviae and M. meleagridis. Also, to ask for mycoplasma strains to be used as positive controls and for method verification in molecular diagnostics. | Remotely (e-mail) |
| SPAIN | To seek expert opinion and guidance regarding a specific technical issue related to the classification of M. synoviae PRR (proline-rich region) strains. | Remotely (e-mail) |
| CHILE | To seek guidance and recommendation on M. gallisepticum and M. synoviae molecular diagnostics. | Remotely (e-mail) |
| ITALY | To request assistance regarding the validation of serological methods for M. gallisepticum and M. synoviae. | Remotely (e-mail) |
| SWITZERLAND | To seek guidance and information on implementing real-time PCR methods for detecting M. gallisepticum and M. synoviae. | Remotely (e-mail) |
| SPAIN | To seek advice and expert opinion regarding the detection of M. gallisepticum in specific kinds of biologic material. | Remotely (e-mail) |
| SPAIN | To request expert advice and potential assistance regarding the cultivation and maintenance of M. synoviae in a laboratory setting (optimal culture medium reccomendations). | Remotely (e-mail) |

# TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAH Members other than the own?

Yes

| Title of the study | Duration | Purpose of the study | Partners (Institutions) | WOAH Member Countries involved other than your country |
|---|---|---|---|---|
| | | | Universidad de Las Palmas de Gran Canaria. (Spain) - National Veterinary Institute (Sweden) - University of Melbourne (Australia) - University of | |

**Salvatore Catania - -**

| | | | | |
|---|---|---|---|---|
| MyMIC: Standardization of diagnostics and antimicrobial susceptibility testing and clinical interpretation in animal mycoplasmas. | 2022-2025 | This project aims to set up a network of laboratories working on mycoplasma diagnostics and their susceptibility to ATBs to compare the different methods used and the results of minimum inhibitory concentrations. | Maiduguri (Nigeria) - University of Agriculture Peshawar (Pakistan) - Anses (France) - CIRAD (France) - PIWET (Poland) - University of Giessen (Germany) - University of Bern (Switzerland) - University of Veterinary Medicine, Vienna (Austria) - Veterinary Medical Research Institute (Hungary) - Kimron Veterinary Institute (Israel) - Finnish Food Authority (Finland) - GD Animal Health (The Netherlands) - Centro Nacional de Sanidad Agropecuaria (CENSA) | AUSTRALIA AUSTRIA BELGIUM CUBA FINLAND FRANCE GERMANY HUNGARY ISRAEL NIGERIA PAKISTAN POLAND SPAIN SWEDEN SWITZERLAND THE NETHERLANDS UNITED KINGDOM |

13. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH?

Yes

Research need : 1

**Please type the Research need:** There is a need to develop a diagnostic test that allows for the discrimination between vaccine and wild strains in positive animal groups with a high degree of specificity.

**Relevance for WOAH** Disease Control,

**Relevance for the Code or Manual** Code, Manual,

**Field** Epidemiology and Surveillance, Diagnostics, Vaccines,

**Animal Category** Terrestrial,

**Disease:**

Avian mycoplasmosis (Mycoplasma gallisepticum, Mycoplasma synoviae)

**Kind of disease (Zoonosis, Transboundary diseases)**

**If any, please specify relevance for Codes or Manual, chapter and title**

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

*Answer:*

**Notes:**

*Answer:*

# TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

No

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

No

16. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category and list the details in the box)

a) Articles published in peer-reviewed journals:

*4*

- *Tata A, Zacometti C, Massaro A, Bragolusi M, Ceroni S, Falappa S, Prataviera D, Merenda M, Piro R, Catania S. Empowering veterinary clinical diagnosis in industrial poultry production by ambient mass spectrometry and chemiometrics: a new approach for precise poultry farming. Poult Sci. 2024 Jun;103(6):103709. doi: 10.1016/j.psj.2024.103709. Epub 2024 Apr 1. PMID: 38598914; PMCID: PMC11017065.*
- *Catania S, Bottinelli M, Fincato A, Tondo A, Matucci A, Nai G, Righetti V, Abbate F, Ramírez AS, Gobbo F, Merenda M. Pathogenic avian mycoplasmas show phenotypic differences in their biofilm forming ability compared to non-pathogenic species in vitro. Biofilm. 2024 Mar 6;7:100190. doi: 10.1016/j.bioflm.2024.100190. PMID: 38515541; PMCID: PMC10955283.*
- *Guarneri F, Romeo C, Scali F, Zoppi S, Formenti N, Maisano AM, Catania S, Gottschalk M, Alborali GL. Serotype diversity and antimicrobial susceptibility profiles of Actinobacillus pleuropneumoniae isolated in Italian pig farms from 2015 to 2022. Vet Res. 2024 Apr 9;55(1):48. doi: 10.1186/s13567-024-01305-x. PMID: 38594744; PMCID: PMC11005290.*
- *Feberwee A, Ferguson-Noel N, Catania S, Bottinelli M, Wawagema N, Gyuranecz M, Gautier-Bouchardon AV, Lysnyansky I, Wiegel J, Möller Palau-Ribes F, Ramirez AS. Mycoplasma gallisepticum and Mycoplasma synoviae in commercial poultry: current control strategies and future challenges. Avian Pathol. 2024 Nov 25:1-7. doi: 10.1080/03079457.2024.2419037. Epub ahead of print. PMID: 39471302.*

b) International conferences:

*14*

*♣ 25th Biennial Congress of the International Organization for Mycoplasmology (IOM)*

*o The unexpected outcome: incidental detection of M. gallinarum septicemia in turkeys affected by respiratory syndrome. M. Bottinelli, Ilenia Rossi, Verdiana Righetti, Beatrice Colò, Davide Prataviera, Massimo Zago, Elena Rinaldi, Elisabetta Stefani*

*o Genotyping of Mycoplasma hyorhinis through Multi-Locus Sequence Typing. N. Giorgia, Verdiana Righetti, Davide Prataviera, Massimo Bottazzari, Michele Gastaldelli, Elisabetta Stefani, Marianna Merenda.*

*o Mycoplasma arthritis in antibiotic-free pigs: a case study for vaccination trials. M. Merenda, Marco Bottinelli, Beatrice Colò, Micaela Picchi, Elena Rinaldi, Claudio Tonelli, Denis Vio.*

*o Development of molecular assays for the detection of antibiotic susceptibility in Mycoplasma iowae. D. Buni, Enikő Wehmann, Dorottya Földi, Krisztián Bányai, Krisztina Bali, Janet Bradbury, Marco Bottinelli, Salvatore Catania, Inna Lysnyansky, Miklós Gyuranecz, Zsuzsa Kreizinger.*

*o Antimicrobial susceptibility profiles of Mycoplasma hyosynoviae strains isolated from swine across Europe between 2018 and 2023. U. Klein, Dorottya Földi, Zsófia Eszter Nagy, Lilla Tóth, Nikolett Belecz, Karola Költő, Marianna Merenda, Salvatore Catania, Joachim Spergser, Philip Vyt, Ute Siesonop, Zsuzsa Kreizinger, Miklós Gyuranecz.*

*♣ 3rd International Avian Mycoplasma Conference*

*o Intriguing cases of mycoplasma infection in poultry farming: insights into biosafety gaps and diagnostic approaches. S. Catania.*

*♣ 27th International Pig Veterinary Society Congress & 15th European Symposium of Porcine Health Management*

*o Outbreak of arthritis in pigs with involvement of Mycoplasma hyorhinis and Mycoplasma hyosynoviae. M. Merenda, M. Gastaldelli, A. Tondo , G. Foiani., C. Tonelli, P. Mondin , D. Prataviera, V. Righetti, G. Nai, R. Bardini, Vio D.*

*o Antimicrobial susceptibility profiles of Mycoplasma hyosynoviae strains isolated from swine across Europe between 2018 and 2023. D.*

*Földi, U. Klein, E.Z. Nagy, L. Tóth, N. Belecz, K. Költö, M. Merenda, S. Catania, J. Spergser, U. Siesenop, P. Vyt, Z. Kreizinger, M. Gyuranecz*

*♣ 7th Congress of the European Association of Veterinary Laboratory Diagnosticians*
*o Minimum Inhibitory Concentration of Antimicrobials May Not Prevent Mycoplasma gallisepticum and Mycoplasma synoviae from Synthesizing Biofilm In Vitro. B. Coló, Marco Bottinelli, Giorgia Nai, Davide Prataviera, Elena Rinaldi, Annalucia Tondo, Salvatore Catania.*
*o Isolation of a potentially novel Mycoplasma species related to M. bovirhinis from dairy cattle in Northern Italy. G. Michele, Annalucia Tondo, Giorgia Nai, Antonio Barberio, Katia Qualtieri, Marianna Merenda, Salvatore Catania.*
*o How the laboratory can support swine practitioners in understanding the diffusion of Mycoplasma hyorhinis. V. Righetti, Giorgia Nai, Ana Morales-Arce, Elisabetta Stefani, Michele Gastaldelli, Davide Prataviera, Massimo Bottazzari, Ilenia Rossi, Marianna Merenda.*
*o Business Intelligence Tools to Enhance Antimicrobial Stewardship: The Role of Diagnostic Laboratories in Producing Useful and Comparable Data. A. Maisano, Santucci G., Bontempi G., Formenti N., Bottinelli, M., Barberio A., Gagliazzo L., Alborali L., Ricci A., Varisco G., Candela L., Maggio A., Filippini G., Della Marta U., Catania S.*
*o Optimization of bacterial liquid cultures for autogenous vaccine production to be administered to species of aquaculture interest. D. Prataviera, Annalucia Tondo, Beatrice Colò, Micaela Picchi, Luana Cortinovis, Marco Bottinelli, Salvatore Catania.*
*o Blood culture as a diagnostic method for pneumonia in dairy calves: a field investigation. M. Ossola, S. Raineri, A. Gazzola, L. Filippone Pavesi, V. Ferrulli, A. Boccardo, D. Pravettoni, D. Prataviera, S. Catania, M. Cornaggia, C.F. Magistrali, A. Maisano.*

c) National conferences:

*2*
*♣ IX Simposio Scientifico SIPA 2024:*
*o Reovirus aviari isolati in allevamenti di broiler del nord-est italia nel 2019-2024, caratteristiche geneti- che e casi clinici. Bortolami A., Viel L., Zandonà L., Leardini S., Castaldello I., Franzo G., Gavazzi L., Luisetto P., Pastori A., Fusaro A., Cecchinato M., Rinaldi E., Catania S., Terregino C.*
*o Nuovi sistemi analitici per comprendere il complesso equilibrio avicolo. Un caso clinico per condividere le potenzialità del sistema. Tata A., Zacometti C., Massaro A., Leone A., Falappa S., Ceroni S., Catania S.*
*♣ Alimentatione et santé animale dans l'avicolture - Atelier d'échanges pour le partenariat Italie-Senegal.*
*o La gestion des élevages pour réduire l'impact des mycoplasmoses et améliorer les productions. Salvatore Catania.*

d) Other (Provide website address or link to appropriate information):

*3*
*Website:*
*- https://www.izsvenezie.com/reference-laboratories/avian-mycoplasmosis/*
*- https://www.izsvenezie.it/istituto/centri-di-referenza/micoplasmosi-aviarie/*
*- https://www.izsvenezie.it/servizi/servizi-specifici/genotipizzazione-micoplasmi/*

# TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAH Members?

Yes

a) Technical visit : 0

b) Seminars : 0

c) Hands-on training courses: 1

d) Internships (>1 month) 0

| Type of technical training provided (a, b, c or d) | Country of origin of the expert(s) provided with training | No. participants from the corresponding country |
|---|---|---|
| C | SPAIN | 2 |

# TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

| Quality management system adopted | Certificate scan (PDF, JPG, PNG format) | |
|---|---|---|
| ISO/IEC 17025:2017 | Accreditation Certificate available at: https://www.izsvenezie.it/documenti/servizi/qualita-accreditamento/certificato-ISO-17043-aqua.pdf | certificato-ISO-17043-aqua_scad_2028.pdf |

19. Is your quality management system accredited?

Yes

| Test for which your laboratory is accredited | Accreditation body |
|---|---|
| Real-time PCR for Mycoplasma gallisepticum - Real-time PCR for Mycoplasma synoviae - Real-time PCR for Mycoplasma meleagridis – Indirect ELISA for Mycoplasma gallisepticum – Indirect ELISA for Mycoplasma synoviae – Indirect ELISA for Mycoplasma synoviae | ACCREDIA |

20. Does your laboratory maintain a "biorisk management system" for the pathogen and the disease concerned?

Yes

Use of MSC Class II biosafety cabinets.

# TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOAH?

No

22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOAH?

No

# TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

23. Did your laboratory exchange information with other WOAH Reference Laboratories designated for the same pathogen or disease?

Yes

24. Do you network (collaborate or share information) with other WOAH Reference Laboratories designated for the same pathogen?

No

25. Did you organise or participate in inter-laboratory proficiency tests with WOAH Reference Laboratories designated for the same pathogen during the past 2 years?

No
*No*

26. Did your laboratory collaborate with other WOAH Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

No

# TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAH Reference Laboratories for the same pathogen during the past 2 years?

Yes

| Purpose for inter-laboratory test comparisons1 | Role of your reference laboratory (organizer/participant) | No. participating laboratories | Name of the test | WOAH Member Countries |
|---|---|---|---|---|
| Quality insurance - Ring trial | Participant | 2 | Mycoplasma gallisepticum & meleagridis culture Isolation | UNITED KINGDOM, |
| Quality insurance - Ring trial | Participant | 92 | Mycoplasma (Mg/Ms) antibody detection | THE NETHERLANDS, |
| Quality insurance - Ring trial | Participant | 53 | Mycoplasma (Mg/Ms) bacteria detection (PCR) | THE NETHERLANDS, |

# TOR12: EXPERT CONSULTANTS

28. Did your laboratory place expert consultants at the disposal of WOAH?

No

29. Additional comments regarding your report:

No