

WOAH Reference Laboratory Reports Activities 2022

Activities in 2022

This report has been submitted : 26 avril 2023 11:19

Laboratory Information

Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	Trichinellosis
Address of laboratory:	Viale Regina Elena 299 00161 Roma ITALY
Tel.:	+39 06 4990 2078
E-mail address:	mariaangeles.gomezmorales@iss.it
Website:	https://www.iss.it/
Name (including Title) of Head of Laboratory (Responsible Official):	Professor, Dr. Anna Teresa Palamara Research Director
Name (including Title and Position) of WOAH Reference Expert:	Maria de los Angeles Gomez Morales, PhD Research Director
Which of the following defines your laboratory? Check all that apply:	Governmental

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 swine	Yes	0	0
Indirect ELISA for humans	No	2	0
Western blot for swine	No	0	

			0
Western blot for human	No	7	1
Western blot for canids	No	0	0
Direct diagnostic tests		Nationally	Internationally
Artificial muscle digestion	Yes	45	0
Multiplex PCR	No	93	328

TOR2: REFERENCE MATERIAL

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

Yes

TYPE OF REAGENT AVAILABLE	RELATED DIAGNOSTIC TESTING	PRODUCED/ IMPORTED	QUANTITY SUPPLIED NATIONWIDE (ML, MG)	QUANTITY SUPPLIED AT INTERNATIONAL LEVEL (ML, MG)	NAME OF BENEFICIARY WOA?H MEMBER COUNTRIES
Trichinella positive reference pig sera	ELISA Western blot	PRODUCED AND IMPORTED		< 10mL	LITHUANIA
richinella positive reference pig sera	ELISA Western blot	PRODUCED AND IMPORTED		< 10mL	SERBIA

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

Yes

TYPE OF REAGENT AVAILABLE	RELATED DIAGNOSTIC TEST	PRODUCED/ PROVIDE	AMOUNT SUPPLIED NATIONALLY (ML, MG)	AMOUNT SUPPLIED INTERNATIONALLY (ML, MG)	NO. OF RECIPIENT WOA?H MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
Mouse carcass infected with T. spiralis	Artificial digestion Multiplex PCR	Produce	4	13 carcasses	9 member countries	Europe
T. spiralis muscle larvae	Artificial digestion Multiplex PCR Immunodiagnostic	Produce	0	100 larvae	3	Europe
T. nativa muscle larvae	Artificial digestion Multiplex PCR Immunodiagnostic	Produce	0	100 larvae	3	Europe
T. britovi muscle larvae	Artificial digestion Multiplex PCR Immunodiagnostic	Produce	0	100 larvae	3	Europe
T. pseudospiralis muscle larvae	Artificial digestion Multiplex PCR Immunodiagnostic	Produce	0	100 larvae	3	Europe
Trichinella positive reference pig sera	Immunodiagnostic	Produce and provide	0	17	1	Europe
Trichinella positive reference pig sera	Immunodiagnostic	Provide	0	5	1	Europe

T. nelsoni ISS-29	PCR	Produce and provide	0	100 larvae	1	America
T. nelsoni ISS-37	PCR	Produce and provide	0	100 larvae	1	America
T. nelsoni ISS-232	PCR	Produce and provide	0	100 larvae	1	America
Trichinella positive reference human	Immunodiagnostic	Provide	0	5 mL	1	Europe

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOA H Members?

No

TOR3: NEW PROCEDURES

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

Yes

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

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
High resolution typing of T. spiralis and T. britovi larvae by multi locus analysis of polymorphic microsatellites	This test shall be applied to single larvae collected from both infected muscles and meat-derived products (e.g., sausages), either fresh or fixed in ethanol. It is recommended to use this SOP when a detailed genetic characterization of the parasite is required, as in outbreak investigations and/or when assessing a possible source of infection (Bilska-Zajac et al., 2021; La Rosa et al., 2018) https://www.iss.it/en/web/guest/-/standard-operating-procedures-sops-

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

No

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

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

NAME OF WOA H 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
SOUTH AFRICA	2022-01-28	Identification of Trichinella muscle larvae at species level by	2	2

Multiplex PCR

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

Yes

NAME OF THE WOA MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
CROATIA	Clinical picture in animals infected with <i>Trichinella</i> spp.	By e-mail
AUSTRIA	The need for <i>Trichinella</i> examination of Nutria (<i>Myocastor coypus</i>) meat if it is target for human consumption	By e-mail
GERMANY	Use of pepsin with enzymatic activity different from that stated in ISO 18043	By e-mail
PORTUGAL	Organization of PT	By e-mail
FINLAND	Larvae sedimentation after digestion of rotten horse meat	By e-mail
SPAIN	Most appropriate magnification for routine examination of the digest fluid after artificial digestion	By e-mail

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

No

TOR6: EPIZOOLOGICAL DATA

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

Yes

IF THE ANSWER IS YES, PLEASE PROVIDE DETAILS OF THE DATA COLLECTED:

Epizootiological data relevant to *Trichinella* infection are collected in a database that is under revision at the moment. The database will be available at the International Commission on Trichinellosis website very soon.

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

Yes

IF THE ANSWER IS YES, PLEASE PROVIDE DETAILS OF THE DATA COLLECTED:

Our laboratory disseminate information regarding epizootological data under request

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

1.- Marucci G, Tonanzi D, Interisano M, Vatta P, Galati F, La Rosa G. *The International Trichinella Reference Centre database. Report on thirty-three years of activity and future perspectives.* Food Waterborne Parasitol. 2022 Apr 19;27:e00156. doi: 10.1016/j.fawpar.2022.e00156. PMID: 35498549; PMCID: PMC9046644.

2.- G R, G M, P B, L G, G D, C T, G P, S R, Di Donato A, G M, C G, M T. *Trichinella surveillance program in wild birds, Emilia-Romagna (northern Italy), 2006-2021. First report of Trichinella pseudospiralis in western marsh harrier (Circus aeruginosus) in Italy.* Int J Parasitol Parasites Wildl. 2022 Sep 30;19:191-195. doi: 10.1016/j.ijppaw.2022.09.006. PMID: 36213525; PMCID: PMC9535160.

3.- Sgroi G, D'Alessio N, Marucci G, Pacifico L, Buono F, Deak G, Anastasio A, Interisano M, Fraulo P, Pesce A, Toscano V, Romano AC, Toce M, Palazzo L, De Carlo E, Fioretti A, Veneziano V. *Trichinella britovi in wild boar meat from Italy, 2015-2021: A citizen science approach to surveillance.* One Health. 2022 Dec 29;16:100480. doi: 10.1016/j.onehlt.2022.100480. PMID: 36632478; PMCID: PMC9826805.

4.- Gómez-Morales, M.A., Cherchi S, Ludovisi, A., 2022. *Serological testing for Trichinella infection in animals and man: Current status and opportunities for advancements.* Food and Waterborne Parasitology 27 (2022) e00165

b) International conferences:

1

National Reference Laboratories for Parasites, Istituto Superiore di Sanità, Roma , Italy, November 24, 2021

c) National conferences:

0

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

2

1.- Pozio E, Gómez-Morales, M.A. 2022. *Trichinella and trichinellosis: from wildlife to the human being*; In: Sing A. (eds) Zoonoses - Infections Affecting Humans and Animals. Springer.

2.- Provision of support to the European Food Safety Authority and the European Centre for Disease Prevention and Control for the production of the Chapter Trichinella of the The European Union One Health 2021 Zoonoses Report. EFSA Journal 2022;20(12):7666, 273 pp. <https://doi.org/10.2903/j.efsa.2022.7666>

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

a) Technical visit : 4

b) Seminars :

c) Hands-on training courses:

d) Internships (> 1 month)

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

a	Poland	1
a	Iceland	1
a	Norway	1
a	Lithuania	1

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
17025	PDF	Certificato accreditamento 17025_2022-2026.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Detection of anti-Trichinella antibodies in swine serum by indirect ELISA (MI-01)	ACCREDIA
Identification of Trichinella muscle larvae at species level by Multiplex PCR (MI-02)	ACCREDIA
Detection of anti-Trichinella antibodies in human serum by indirect ELISA (MI-03)	ACCREDIA
Identification of Trichinella spp. proteins recognized by specific IgG in serum of infected pigs by Western blotting (MI-13)	ACCREDIA
Identification of Trichinella spp. proteins recognized by specific IgG from serum samples of humans with trichinellosis by Western blotting (MI-16)	ACCREDIA
Proficiency Testing on the digestion method to detect Trichinella larvae	ACCREDIA
Proficiency Testing on the identification of Trichinella larvae at species level	ACCREDIA

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

Yes

(See Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Chapter 1.1.4)

TOR9: SCIENTIFIC MEETINGS

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

No

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

No

TOR10: NETWORK WITH WOA REFERENCE LABORATORIES

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

Yes

24. Are you a member of a network of WOA Reference Laboratories designated for the same pathogen?

No

25. Did you organise or participate in inter-laboratory proficiency tests with WOA Reference Laboratories designated for the same pathogen?

No

26. Did your laboratory collaborate with other WOA 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 WOA Reference Laboratories for the same pathogen?

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Region(s) of participating WOA Member Countries
Determining the laboratory capability to conduct specific diagnostic tests (Proficiency testing on the digestion method to detect <i>Trichinella</i> larvae in meat)	Organizer/Participant	32	Europe
Determining the laboratory capability to conduct specific diagnostic tests (Proficiency testing on <i>Trichinella</i> spp. larva identification at species level by a molecular method)	Organizer	23	Europe

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report: