

WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

This report has been submitted : 7 juin 2024 09:40

Laboratory Information

Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	Echinococcosis (Echinococcus granulosus and multilocularis)
Address of laboratory:	Istituto Zooprofilattico Sperimentale (IZS) of Sardinia, National Reference Laboratories for Cystic Echinococcosis (CE) - Via Duca degli Abruzzi, 8 (Administration) - Via Vienne 2 (Laboratories) 07100 - Sassari, Italy
Tel.:	+39 079 28 92 00 and +39 079 28 92 325
E-mail address:	giovanna.masala@izs-sardegna.it
Website:	https://www.izs-sardegna.it/
Name (including Title) of Head of Laboratory (Responsible Official):	Dr Giovanna Masala, DVM
Name (including Title and Position) of WOAH Reference Expert:	Dr Giovanna Masala, DVM
Which of the following defines your laboratory? Check all that apply:	Ministerial and Regional Institute of Health

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	
		Nationally	Internationally
Indirect diagnostic tests			
ELISA anti IgG of E.g. and E.m. for Human serum/plasma (CeNRE 08)		60	0
Immunoblotting anti IgG of E.g. and E.M. for Human serum/plasma (CeNRE 07)		41	0
Immunochromatographic test anti IgG of E.g. for Human serum/plasma (CeNRE 15)		41	0
Direct diagnostic tests			
Sequencing analysis (CeNRE 03)		17	0
E.g., E.m. and Tenia identification by PCR on Cestode eggs (CeNRE 04)		6	180
Canine intestinal scraping or "Shanking in a vessel" techniques (CeNRE 05)		0	0
Sedimentation counting techniques of canine faeces and microscopic examination (CeNRE 06)		3	0
Identification of E.g. s.s. by PCR for gene CAL (CeNRE 09)		29	0
Tecnica della sedimentazione e flottazione per la diagnosi parassitologica di uova di cestodi in feci di cani (CeNRE 10)		6	0
Copro-parasitological analysis of Cestode eggs after centrifugation (CeNRE 11)		0	0

Identification of E.g. cysts in organs of different species (CeNRE 01/12)		96	0
Identification of E.g. cysts in human organs (CeNRE 13)		7	0
Identification of E.g. stricto in Real Time PCR (CENRE/16)		0	803

TOR2: REFERENCE MATERIAL

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

No

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
K+ DNA E.g.s.s	Identification of E.g. s.s. by PCR for gene CAL (CeNRE 09)	Produced	5µl x 10 aliquots	0	10	ITALY,

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?

No

7. Did your laboratory validate diagnostic methods according to WOA?H 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 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
PAKISTAN	2023-03-27	Identification of E.g. s.s. by PCR for gene CAL (CeNRE 09)	177	177

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

Yes

NAME OF THE WOA?H MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
PAKISTAN	Research project	email, telephone, whats up, zoom
NIGER	Research project	email, telephone, whats up, zoom
TUNISIA	Research project	email, telephone, whats up, zoom
IRAN	Research project	email, telephone, whats up, zoom
ALGERIA	Research project	email, telephone, whats up, zoom

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
Study of Echinococcus granulosus on environment, intermediate and definitive host from various matrix	3 years	Improve knowledge on Echinococcus granulosus in Nigeria, Africa	Dr Emmanuel Jolaoluwa Awosanya, Department of Veterinary Public Health and Preventive Medicine, University of Ibadan, Ibadan 200005, Nigeria.	NIGER
Genotype and haplotype identification of Echinococcus granulosus isolates from intermediate host in Islamabad, Pakistan	2 years	Identify new genotype and haplotype	Prof. Haroon Ahmad and Dr Huma Khan, University of Islamabad (COMSAT), Islamabad, Pakistan	PAKISTAN
Multicentre study "Contamination of vegetables for human consumption by Em/Eg" in European lettuce and barries"	2 years	Risk evaluation of E.granulosus presence in lettuce and barries for human consumption	Dr Gerald Umhang Laboratoire, Laboratoire de la rage et de la faune sauvage de Nancy, ANSES, Malzéville cedex	FRANCE
Set up diagnostic methods on copro diagnosis	2 years	Standardization of methods and evaluation and comparison of results for interlab reproducibility	Dr Jacek Karamon DVM, PhD, Department of Parasitology and Invasive Diseases, National Veterinary Research Institute, Pulawy	POLAND
MEmE: Multi-centre study on Echinococcus multilocularis and Echinococcusgranulosus s.l.in Europe:development and harmonization of diagnostic methods in the food chain	5 years	Development and harmonization of diagnostic methods in the food chain	Istituto Superiore di Sanità, ISS Italy Friedrich- Loeffler-Institut, FLI Germany French Agency for Food, Environmental and Occupational Health and Safety, ANSES France National Institute for Public Health and the Environment, RIVM The Netherlands National Veterinary Research Institute in Pulawy, PIWET Poland National Veterinary Institute, SVA Sweden Norwegian Veterinary Institute, NVI Norway Statens Serum Institut, SSI Denmark National Institute for Agrarian and Veterinary Research, INIAV Portugal Instituto Nacional de Saúde Doutor Ricardo Jorge, INSA Portugal University of Tartu, UT Estonia Veterinary and Food Laboratory, VFL Estonia Institute of Food Safety, Animal Health and Environment, BIOR Latvia University of Hohenheim, UH Germany Institute of Parasitology, University of Zurich, IPZ Switzerland Leishmaniases Research Unit-Jericho, LRUJ Palestine Tel Hai College, TH Upper Galilee, Israel Istituto Zooprofilattico Sperimentale della Sardegna, IZSS Italy	ITALY
Active surveillance set up to estimate the real prevalence of Echinococcosis in Italian sheep	2 years	Detect the real prevalence of Echinococcosis in Italian sheep	Network of Italian Istituti Zooprofilattici Sperimentali	ITALY
Cystic echinococcosis: clinical, immunological and biomolecular	5 years	Detect the real prevalence of Echinococcosis and molecular	Hospital network of Sardinia	ITALY

investigations on patients from Sardinia		investigation in humans from Sardinia		
Diagnosis and determination of the prevalence of E. granulosus on samples from Tunisia	3 years	Detect the real prevalence of Echinococcosis and molecular investigation in Tunisia	Dr. Ben Smida Boubaker	TUNISIA
Preparation of an ELISA assay for the serological diagnosis of cystic echinococcosis in sheep	2 years	Set up an in vivo test	-Prof. Giovanni Garippa, Dipartimento di Medicina Veterinaria, University of Sassari, -DR. Federica Loi, IZS della Sardegna, OEVR, -Dr Daniela Pagnozzi, Porto Conte Ricerche srl, Tramariglio, Alghero	ITALY
Diagnosis and determination of the prevalence of E. granulosus on samples from Algeria	3 years	Detect the real prevalence of Echinococcosis and molecular investigation in Algeria	Dr. Housseem Samari	ALGERIA

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

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:

Our Laboratories are designed to supervise data for monitoring, surveillance and control programmes system in the ambitus of the National Informative System of Zoonosis (SINZOO).

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:

All data related to zoonoses have been collected according to Directive 2003/99/CE and have been sent to EFSA Member State through a specific Web Site. Later, data related to animals have been managed by EFSA and Zoonoses Collaboration Center (ZCC) for preparation of a report, whereas, data related to humans have been managed by Center for Disease Prevention and Control (ECDC).

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:

5

• Santucci C, Bonelli P, Peruzzo A, Fancellu A, Farà A, Mastrandrea S, Drocchi G, Cossu A, Profili S, Porcu A, Masala G. Genetic Characterization of Echinococcus granulosus sensu stricto Isolated from Human Cysts from Sardinia, Italy. *Diseases*. 2023 Jun 27;11(3):91. doi: 10.3390/diseases11030091. PMID: 37489443; PMCID: PMC10366878.

• Santucci C, Ferrari PA, Grimaldi G, Murenu A, Nemolato S, Bonelli P, Masala G, Porcu GS, Cherchi R. Environmental Influence on the Occurrence of Multi-Organ Cystic Echinococcosis Infection in a Patient from Sardinia, Italy. *Diseases*. 2023 Jun 27;11(3):90. doi: 10.3390/diseases11030090. PMID: 37489442; PMCID: PMC10366914.

• Adebudo LI, Ndiaye S, Ajayi I, Ologasa BO, Bonelli P, Awosanya EJ. Seroprevalence and determinants of Echinococcus granulosus sensu lato infection among owned dogs in Ibadan, Nigeria. *J Infect Dev Ctries*. 2023 Dec 31;17(12):1814-1820. doi: 10.3855/jidc.18518. PMID: 38252735.

• Crotti S, Brustenga L, Cruciani D, Bonelli P, D'Avino N, Felici A, Morandi B, Sebastiani C, Spina S, Gobbi M. Molecular Screening of Echinococcus spp. and Other Cestodes in Wild Carnivores from Central Italy. *Vet Sci*. 2023 Apr 27;10(5):318. doi: 10.3390/vetsci10050318. PMID: 37235401; PMCID: PMC10221036.

• Crotti S, Spina S, Cruciani D, Bonelli P, Felici A, Gavaudan S, Gobbi M, Morandi F, Piseddu T, Torricelli M, Morandi B. Tapeworms detected in wolf populations in Central Italy (Umbria and Marche regions): A long-term study. *Int J Parasitol Parasites Wildl*. 2023 Mar 27;21:11-16. doi: 10.1016/j.ijppaw.2023.03.007. PMID: 37025622; PMCID: PMC10070192.

b) International conferences:

5

- *International Symposium of the World Association Veterinary Laboratory Diagnosticians. Lyon, France 29 giugno/01 luglio 2023*
- *XXIX World Congress of Echinococcosis. Bishkek, Kyrgyzstan, 28-30 agosto 2023*
- *48th World Small Animal Veterinary Association Congress. Lisbona, Portogallo, 27-29 settembre 2023*
- *Workshop of the EURL /NRL for Parasites (ISS). Roma 16-17 novembre 2023*
- *25th International Congress of the Mediterranean Federation for Health and Production of Ruminants- Fe.Me.S.P.Rum. Eboli (Salerno) 19-20 ottobre 2023.*

c) National conferences:

2

- *14° edizione del Convegno sulla Ricerca, Sassari 30 giugno 2023*
- *Convegno Nazionale di Medicina Previdenziale Inail "Salute, Benessere E Sicurezza Del Lavoratore Al Centro Della Sanita' Inail" Roma 26, 27 e 28 giugno 2023*

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

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

- a) Technical visit : 2
 b) Seminars : 0
 c) Hands-on training courses: 2
 d) Internships (>1 month) 2

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	PAKISTAN	1
C	ALGERIA	1

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
UNI CEI EN ISO/IEC 17025:2005	PDF	Quality System Certification .pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Identification of E.g. cysts in organs of ovines (CeNRE 01)	ACCREDIA
Identification of E.g. s.s. by PCR for gene CAL (CeNRE 09)	ACCREDIA
ELISA Anti IgG of E.g. and E.m. for Humans (CeNRE 08)	ACCREDIA

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

Yes

According to Manual of Diagnostic Tests and Vaccines for Terrestrial Animals 2022, Chapter 1.1.4

TOR9: SCIENTIFIC MEETINGS

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

No

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

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
• International Symposium of the World Association Veterinary Laboratory Diagnosticians.	2023-06-29	Lyon, France	poster	Genetic variants of E. granulosus s.s. infecting sheep in Italy
• XXIX World Congress of Echinococcosis.	2023-08-28	Bishkek, Kyrgyzstan	poster	Identification Of Echinococcus Granulosus Sensu Lato Infecting Shepherd Dogs In Sardinia, Italy (Meme Project)
• XXIX World Congress of Echinococcosis.	2023-08-28	Bishkek, Kyrgyzstan	poster	Molecular Detection Of Echinococcus Granulosus Eggs From Dogs And Environmental Samples In Southwest Nigeria
• XXIX World Congress of Echinococcosis.	2023-08-28	Bishkek, Kyrgyzstan	poster	Cystic Echinococcosis In Pakistan: Identification And Genotyping Of Echinococcus Granulosus Sensu Stricto In Human Cyst Isolates
• XXIX World Congress of Echinococcosis.	2023-08-28	Bishkek, Kyrgyzstan	poster	Contamination Of Vegetables For Human Consumption By Echinococcus Granulosus In Sardinia, Italy
• XXIX World Congress of Echinococcosis.	2023-08-28	Bishkek, Kyrgyzstan	poster	Investigation Of Patients With Secondary Infection Of Echinococcal Cyst In Sardinia, Italy
• 48th World Small Animal Veterinary Association Congress.	2023-09-27	Lisbona, Portogallo	poster	Prevalence of Echinococcus granulosus sensu lato and other intestinal parasites in shepherd dogs in Sardinia, Italy
• Workshop of the EURL /NRL for Parasites (ISS).	2023-11-16	Roma, Italy	comunication	Cystic Echinococcosis in Sardinia from DNA Environmental Contamination to the Increased Risk of Human Secondary Infection
• 25th International Congress of the Mediterranean Federation for Health and Production of Ruminants- Fe.Me.S.P.Rum.	2023-11-19	Eboli (Salerno), Italy	poster	Messa a punto di un sistema di sorveglianza attiva per stimare la reale prevalenza di Echinococcosi negli ovini in Italia

TOR10: NETWORK WITH WOA?H REFERENCE LABORATORIES

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

Not applicable (only WOA?H Reference Laboratory designated for the disease)

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

Not applicable (Only WOA?H Reference Laboratory designated for the disease)

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

Not applicable (Only WOA?H Reference Laboratory designated for the disease)

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

Not applicable (Only WOA Reference Laboratory designated for the disease)

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	Name of the Test	WOAH Member Countries
National Proficiency Test: "Identification of E.g. s.s. by PCR for gene CAL" - CeNRE 09	ORGANIZER	9	Identification of E.g. s.s. by PCR for gene CAL" - CeNRE 09	ITALY,
National Proficiency test on "Molecular identification of Echinococcus at the species level"	PARTICIPANT	24	Molecular identification of Echinococcus at the species level	ITALY,
National Proficiency test on "Detection of Echinococcus spp. worms in the intestinal mucosa of definitive host"	PARTICIPANT	24	Detection of Echinococcus spp. worms in the intestinal mucosa of definitive host	ITALY,

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No