

OIE Reference Laboratory Reports Activities

Activities in 2021

This report has been submitted : 2022-01-07 18:05:37

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Brucellosis (Brucella abortus, B. melitensis)
Address of laboratory:	Department of Brucellosis Research Animal Health Research Institute Agricultural Research Center Ministry of Agriculture and Land Reclamation 7 Nadi El-Said Street P.O. Box 12618 Dokki Giza EGYPT
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Name (including Title) of Head of Laboratory (Responsible Official):	Dr. Momataz A. Shahein Director: Animal Health Research Institute (AHRI), (ARC) Egypt
Name (including Title and Position) of OIE Reference Expert:	Dr. Mahmoud E. R. Hamdy Chief Researcher, Department of Brucellosis Research, Animal Health Research Institute (AHRI) Dokki, (ARC) Egypt
Which of the following defines your laboratory? Check all that apply:	Governmental

ToR 1: To use, promote and disseminate diagnostic methods validated according to OIE Standards

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 OIE Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests		Nationally	Internationally
RBT	Yes	888	62
BAPAT	Yes	888	0
CFT	Yes	540	62
c-ELISA	Yes	420	62
MRT	Yes	43	0
SAT	Yes	89	0
Rivanol Test	No	693	0
iELISA (Bovine serum)	Yes	44	0
iELISA (Bovine Milk)	Yes	13	0
Direct diagnostic tests		Nationally	Internationally
Isolation and Identification	Yes	87	0
Biotyping	Yes	48	0
Multiplex-PCR	Yes	33	0

**ToR 2: To develop reference material in accordance with OIE requirements, and implement and promote the application of OIE Standards.
To store and distribute to national laboratories biological reference products and any other reagents used in the diagnosis and control of the designated pathogens**

or disease.

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

No

3. Did your laboratory supply standard reference reagents (non OIE-approved) and/or other diagnostic reagents to OIE Member Countries?

No

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to OIE Member Countries?

No

ToR 3: To develop, standardise and validate, according to OIE Standards, new procedures for diagnosis and control of the designated pathogens or diseases

6. Did your laboratory develop new diagnostic methods validated according to OIE Standards for the designated pathogen or disease?

No

7. Did your laboratory develop new vaccines according to OIE Standards for the designated pathogen or disease?

No

ToR 4: To provide diagnostic testing facilities, and, where appropriate, scientific and technical advice on disease control measures to OIE Member Countries

8. Did your laboratory carry out diagnostic testing for other OIE Member Countries?

Yes

Name of OIE Member Country seeking assistance	Date (month)	No. samples received for provision of diagnostic support	No. samples received for provision of confirmatory diagnoses
SAUDI ARABIA	July - October	62	62

9. Did your laboratory provide expert advice in technical consultancies on the request of an OIE Member Country?

Yes

Name of the OIE Member Country receiving a technical consultancy	Purpose	How the advice was provided
DJIBOUTI	consulting for confirmatory serological tests for ovine and caprine Brucellosis. Testing camels for brucellosis.	Through distance contact

ToR 5: To carry out and/or coordinate scientific and technical studies in collaboration with other laboratories, centres or organisations

10. Did your laboratory participate in international scientific studies in collaboration with OIE Member Countries other than the own?

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	OIE Member Countries involved other than your country
Tracking the Distribution of Brucella abortus in Egypt Based on Core Genome SNP Analysis and In Silico MLVA-16	3 years	This research study aimed to recognise the diversity, phylogeographic distribution and possible spread of outbreak strains of B. abortus in Egypt to trace back the sources of infection during the period from 2012 to 2020 through application of Genotyping by WGS based cgSNP analysis and in silico MLVA.	Institute of Bacterial Infections and Zoonoses, Friedrich-Loeffler Institut, Naumburger Str. 96a, 07743 Jena, Germany. Department of Livestock Infectiology and Environmental Hygiene, Institute of Animal Science, University of Hohenheim, Garbenstraße 30, 70599 Stuttgart, Germany. High-Performance and Cloud Computing Group, IT Center (ZDV), University of Tuebingen, Waechterstrasse 76, 72074 Tübingen, Germany.	GERMANY
Trans-species transmission of Brucellae among ruminants hampering brucellosis control efforts in Egypt	2 years	This study aimed to identify the genotypic fingerprinting of Brucella melitensis biovar 3 isolates from ruminants in Kafr El-Sheikh, Egypt, to compare with other peers globally and to highlight the epidemiology and potential causes of brucellosis control failure.	VISAVET Health Surveillance Centre, Complutense University of Madrid, Madrid, Spain Global Academy of Agriculture and Food Security, The Royal (Dick) School of Veterinary Studies and The Roslin Institute, The University of Edinburgh, Edinburgh, UK	SPAIN UNITED KINGDOM
Identification, geographic distribution and risk factors of Brucella abortus and Brucella melitensis infection in cattle in Algeria. Vet Microbiol. 2021 Mar;254:109004. doi: 10.1016/j.vetmic.2021.109004. Epub 2021 Jan 29. PMID: 33571821.	1 year	Identification, geographic distribution and risk factors of Brucella abortus and Brucella melitensis infection in cattle in Algeria.	<ul style="list-style-type: none"> •Higher National Veterinary School (ENSV), Algiers, Algeria. •Friedrich-Loeffler-Institut, Institute of Bacterial Infections and Zoonoses, 07743, Jena, Germany. •Medical Bacteriology Laboratory, Pasteur Institute of Algeria, Algiers, Algeria. •Institute of Veterinary Sciences, Blida 1 University, Blida, Algeria. 	GERMANY

ToR 6: To collect, process, analyse, publish and disseminate epizootiological data relevant to the designated pathogens or diseases

11. Did your Laboratory collect epizootiological data relevant to international disease control?

Yes

If the answer is yes, please provide details of the data collected:
Serological testing, Brucella isolation, identification, biotyping, and molecular Detection of Brucella strains in Egypt and Algeria.

12. Did your laboratory disseminate epizootiological data that had been processed and analysed?

Yes

If the answer is yes, please provide details of the data collected:
Serological testing, Brucella isolation, identification, biotyping, and molecular Detection of Brucella strains in Egypt and Algeria are disseminated through international publications listed in the next paragraph (No. 13).

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

a) Articles published in peer-reviewed journals: 8

- Holzer K, El-Diasty M, Wareth G, Abdel-Hamid NH, Hamdy MER, Moustafa SA, Linde J, Bartusch F, Sayour AE, Elbauomy EM, Elhadidy M, Melzer F, Beyer W. Tracking the Distribution of Brucella abortus in Egypt Based on Core Genome SNP Analysis and In Silico MLVA-16. Microorganisms. 2021 Sep 13;9(9):1942. doi: 10.3390/microorganisms9091942. PMID: 34576838; PMCID: PMC8469952.

- Lounes N, Melzer F, Sayour AE, Maamar HT, Rahal K, Benamrouche N, Lazri M, Bouyoucef A, Hendam A, Neubauer H, El-Adawy H. Identification, geographic distribution and risk factors of Brucella abortus and Brucella melitensis infection in cattle in Algeria. Vet Microbiol. 2021 Mar;254:109004. doi: 10.1016/j.vetmic.2021.109004. Epub 2021 Jan 29. PMID: 33571821.

- Wareth G, El-Diasty M, Abdel-Hamid NH, Holzer K, Hamdy MER, Moustafa S, Shahein MA, Melzer F, Beyer W, Pletz MW, Neubauer H. Molecular characterization and antimicrobial susceptibility testing of clinical and non-clinical Brucella melitensis and Brucella abortus isolates from Egypt. One Health. 2021 Apr 27;13:100255. doi: 10.1016/j.onehlt.2021.100255. PMID: 34027005; PMCID: PMC8122161.

- Abdel-Hamid NH, Ghobashy HM, Beleta EI, Elbauomy EM, Ismail RI, Nagati SF, Hassan SK, Elmonir W. Risk factors and Molecular genotyping of Brucella melitensis strains recovered from humans and their owned cattle in Upper Egypt. One Health. 2021 Jun 19;13:100281. doi: 10.1016/j.onehlt.2021.100281. PMID: 34235243; PMCID: PMC8246634.

- Hegazy YM, Abdel-Hamid NH, Eldehieh M, Oreiby AF, Algabbary MH, Hamdy MER, Beleta EI, Martínez I, Shahein MA, García N, Eltholth M. Trans-species transmission of Brucellae among ruminants hampering brucellosis control efforts in Egypt. J Appl Microbiol. 2021 Jun 5. doi: 10.1111/jam.15173. Epub ahead of print. PMID: 34091986.

- Abdel-Hamid NH, Beleta EIM, Kelany MA, Ismail RI, Shalaby NA, Khafagi MHM. Validation of real-time polymerase chain reaction versus conventional polymerase chain reaction for diagnosis of brucellosis in cattle sera. Vet World. 2021 Jan;14(1):144-154. doi: 10.14202/vetworld.2021.144-154. Epub 2021 Jan 19. PMID: 33642798; PMCID: PMC7896886.

- Khan AU, Melzer F, Sayour AE, Shell WS, Linde J, Abdel-Glil M, El-Soally SAGE, Elschner MC, Sayour HEM, Ramadan ES, Mohamed SA, Hendam A, Ismail RI, Farahat LF, Roesler U, Neubauer H, El-Adawy H. Whole-Genome Sequencing for Tracing the Genetic Diversity of Brucella abortus and Brucella melitensis Isolated from Livestock in Egypt. Pathogens. 2021 Jun 16;10(6):759. doi: 10.3390/pathogens10060759. PMID: 34208761; PMCID: PMC8235727.

- Hosein I Hosein; Mahmoud E.R. Hamdy; Ahmed M.A. Zaitoun; Ahmed M. Menshawy; Sherin R. Rouby; Bahaa Madkour; Amira M. Mazeed; Aml Abdel-Ra'ouf (2021). Brucella Prevalent Strains Circulating in Egypt during 2020-2021: Bacteriological and Molecular Study. Journal of Veterinary Medical Research (2021); 28 (1): 12-20. DOI: 10.21608/JVMR.2021.88953.1040

b) International conferences: 0

c) National conferences: 0

d) Other:

(Provide website address or link to appropriate information) 0

**ToR 7: To provide scientific and technical training for personnel from OIE Member Countries
To recommend the prescribed and alternative tests or vaccines as OIE Standards**

14. Did your laboratory provide scientific and technical training to laboratory personnel from other OIE Member Countries?

No

ToR 8: To maintain a system of quality assurance, biosafety and biosecurity relevant for the pathogen and the disease concerned

15. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)
ISO/IEC 17025:2017	EGAC accreditation certificate 2020.pdf
ISO 9001:2015	ISO9001.jpg

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
RBT	EGAC by ilac-MRA
BAPAT	EGAC by ilac-MRA
CFT	EGAC by ilac-MRA
indirect ELISA on serum	EGAC by ilac-MRA
competitive ELISA	EGAC by ilac-MRA
indirect ELISA on milk	EGAC by ilac-MRA
SAT (Tube& microplate)	EGAC by ilac-MRA
MRT	EGAC by ilac-MRA
Identification of Brucella organisms	EGAC by ilac-MRA
Rivanol Agglutination Test	EGAC by ilac-MRA

17. 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*)

ToR 9: To organise and participate in scientific meetings on behalf of the OIE

18. Did your laboratory organise scientific meetings on behalf of the OIE?

No

19. Did your laboratory participate in scientific meetings on behalf of the OIE?

No

ToR 10: To establish and maintain a network with other OIE Reference Laboratories designated for the same pathogen or disease and organise regular inter-laboratory proficiency testing to ensure comparability of results

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

Yes

21. Was your laboratory involved in maintaining a network with OIE Reference Laboratories designated for the same pathogen or disease by organising or participating in proficiency tests?

No

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

Yes

Title of the project or contract	Scope	Name(s) of relevant OIE Reference Laboratories
Tracking the Distribution of Brucella abortus in Egypt Based on Core Genome SNP Analysis and In Silico MLVA-16	Investigating the diversity, phylogeographic distribution and possible spread of outbreak of B. abortus in Egypt from 2012 to 2020 by using both WGS based cgSNP analysis and MLVA-16.	OIE Reference Lab for brucellosis, FLI, Germany (Institute of Bacterial Infections and Zoonoses, Friedrich-Loeffler Institut, Naumburger Str. 96a, 07743 Jena, Germany).
Molecular characterization and antimicrobial susceptibility testing of clinical and non-clinical Brucella melitensis and Brucella abortus isolates from Egypt. One Health. 2021 Apr 27;13:100255. doi: 10.1016/j.onehlt.2021.100255. PMID: 34027005; PMCID: PMC8122161.	Molecular characterization and antimicrobial susceptibility testing of clinical and non-clinical Brucella melitensis and Brucella abortus isolates from Egypt.	OIE Reference Lab for brucellosis, FLI, Germany (Institute of Bacterial Infections and Zoonoses, Friedrich-Loeffler Institut, Naumburger Str. 96a, 07743 Jena, Germany).
Whole-Genome Sequencing for Tracing the Genetic Diversity of Brucella abortus and Brucella melitensis Isolated from Livestock in Egypt. Pathogens. 2021 Jun 16;10(6):759. doi: 10.3390/pathogens10060759. PMID: 34208761; PMCID: PMC8235727.	Whole-Genome Sequencing for Tracing the Genetic Diversity of Brucella abortus and Brucella melitensis Isolated from Livestock in Egypt.	OIE Reference Lab for brucellosis, FLI, Germany (Institute of Bacterial Infections and Zoonoses, Friedrich-Loeffler Institut, Naumburger Str. 96a, 07743 Jena, Germany).

ToR 11: To organise inter-laboratory proficiency testing with laboratories other than OIE Reference Laboratories for the same pathogens and diseases to ensure equivalence of results

23. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than OIE Reference Laboratories for the same disease?

Yes

Note: See Interlaboratory test comparisons in: Laboratory Proficiency Testing at: <http://www.oie.int/en/our-scientific-expertise/reference-laboratories/proficiency-testing> see point 1.3

Purpose for inter-laboratory test comparisons ¹	No. participating laboratories	Region(s) of participating OIE Member Countries
Proficiency testing for CFT American version, and Rivanol Test which is a supplementary test. These two tests are of important in Diagnosis of Brucellosis.	NVSL,, Ames Iowa, USDA	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East

ToR 12: To place expert consultants at the disposal of the OIE

24. Did your laboratory place expert consultants at the disposal of the OIE?

No

25. Additional comments regarding your report:

The pandemic of Covid 19 hampers international training activities due to restrictions on international travel. The Lab is designated as an OIE Reference Lab for Brucellosis (B. abortus and B. melitensis) in June 2021.