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WOAH Collaborative Centre Reports Activities 2024

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CENTRE INFORMATION

*Title of WOAHCollaborating Centre	Camel Diseases
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*Name of the writer:	Dr. Shameem Habeeba

TOR 1 AND 2: SERVICES PROVIDED

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by WOAHC

Category	Title of activity	Scope
		1. ADAFSA-CC in collaboration with the

<p>Disease control (true)</p>	<p>1. Field deployment to investigate unknown camel disease in Ethiopia in July 2024 2. Laboratory Capacity in Genome sequencing of viruses, bacteria and parasites 3. PRIMER BANK 4. Biobank 5. Isolation and identification of viruses, bacteria, fungi and parasites</p>	<p>Animal Health Institute (AHI) in Addis Ababa, Ethiopia, deployed a field visit for 10 days to investigate on unknown cause of camel deaths in Borana zone, Ethiopia (01-07-2024 to 10-07-2024). 2. Development and activation of specialized diagnostic facilities enable veterinary authority to set plans for early diagnosis, prevention, and control of camel diseases.</p> <ul style="list-style-type: none"> • Genome sequencing was carried out for characterization of pathogens namely Wesselsbron virus, Candidatus Anaplasma cameli 3. ADAFSA get the intellectual property for creating the primers and probes bank which consist of 446 vials of primers & probes for different diseases including the sequencing primers, this supports the rapid emergency response and the diseases control 4. • Camel field isolates of Corynebacterium pseudotuberculosis the etiology of Caseous lymphadenitis and Streptococcus agalactia the etiology of Contagious mastitis was prepared in lyophilized form, standardized, and deposited to ADAFSA-CC biobank, as Reference materials aiming to enhance detection methods validation and provide quality control materials.209 AMR bacteria deposited to ADAFSA-CC biobank available as source for further research studies on AMR and to track AMR spread pattern and strengthen control practices. Reference samples for different gastrointestinal parasite namely Trichuris, Nematodirus, Eimeria, Buxtonella from camels were prepared as formalin fixed suspensions and deposited to ADAFSA-CC biobank to be used as positive controls, teaching and training purposes. • Reference clinical samples and nucleic acids from camels including samples for Trypanosoma, Wesselsbron virus, Candidatus Anaplasma cameli, Camel pox were deposited in ADAFSA-CC biobank 5. Several pathogens were isolated/identified from camels and characterized at the ADAFSA-CC including Streptococcus agalactia, Dermatophytes spp, Klebsiella pneumonia, Salmonella spp, Anaplasma
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<p>Epidemiology, surveillance, risk assessment, (true)</p>	<p>1. Study on Mange mites of Camels in Emirate of Abu Dhabi, UAE 2. Study on camel Dermatophytosis in Emirate of Abu Dhabi - UAE 3. Studies on tickborne parasitic diseases (TBD) and acaricide resistance in livestock including dromedary camels 4. Seroprevalence of Toxoplasma gondii and Neospora caninum in camels in different regions of Abu Dhabi 5. Molecular and serological investigation of bovine viral diarrhea virus (BVD) in Camels in the Abu Dhabi Emirate, United Arab Emirates 6. Prevalence studies of Paratuberculosis in sheep, goat, cattle, and camel in Abu Dhabi Emirate using bacteriological molecular techniques 7. In collaboration with United Arab Emirates University (UAEU), ADAFSA-CC investigated CCHF from camel samples under one health perspective 8. A One Health” Study of the Animal and Public Health Significance of Q-fever at the Human-Livestock Interface in the United Arab Emirates 9. National AMR Surveillance Consortium a multidisciplinary approach under One Health Perspective 10. Surveillance for PPR antibodies in post vaccinated animals</p>	<p>camelii, Sarcoptes spp., Eimeria cameli</p> <p>1. To understand the prevalence and genus of mange mites’ infestation in camel in the study area .To create a database and advise appropriate strategic control measures and improving the standards of animal husbandry. 2. To identify overall prevalence of Dermatophytosis in camels in the Emirates of Abu Dhabi. • To identify the prevalent genus in the region, towards strategic control measures that can be recommended to mitigate the effect of ringworm on camel husbandry. 3. Assess the epidemiological status of TBD in farm animals and the status of acaricide resistance in ticks 4. • The study will throw light on the seroprevalence of two important protozoan infections namely Toxoplasmosis and Neosporosis in camels in the Emirates of Abu Dhabi in addition to the risk factors associated with the infection. 5. • The study supports determination of BVD prevalence in camel populations in the region, identification of BVD virus strains and genotypes, assessment of antibody levels and seroprevalence of BVD in camels which supports designing of control measures to reduce the disease burden 6. To understand the epidemiology of Paratuberculosis in camel co-herded with ruminants. 7. To understand the epidemiology of CCHF and to estimate the seroprevalence and molecular evidence of CCHFV in camels and abattoir workers in Abu Dhabi • to assess the knowledge of the abattoir workers on the zoonotic nature of CCHF and its route of transmission 8. To investigate the epidemiology of Q-Fever in animals and human. • to investigate the seroprevalence on the C. burnetii infection in camels and abattoir workers, and to detect the DNA of C. burnetii seropositive study subjects in the Al Ain city of the UAE. 9. AMR surveillance as a part of UAE AMR National Action Plan. • Enhance national health biosecurity and inform on global patterns of AMR dispersal and evolution. • Support and implement the actions of UAE</p>
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		<p>AMR National Action Plan 10. To evaluate PPR-antibody status in post vaccinated sheep & goats.</p>
	<p>1. Hands on Training on Laboratory Diagnosis of Camel Brucellosis 2. Hands On Training on "Laboratory Diagnosis of Gastro-Intestinal Parasitic Diseases in Animals with focus on Quality Assurance Programs" to Private</p>	<p>1. ADAFSA-CAMENET in collaboration with FAO provided two days on hands training for diagnosis of Brucellosis in camels on August 27-28, 2024. Delegates from six countries Jordan, Bahrain, Saudi Arabia, Qatar, Iraq & UAE participated in this training. This training covered Brucella detection techniques: culture techniques under bio-bubble containment conditions, serology tests (RBT & ELISA) and molecular (PCR) tests in addition to quality aspects method validation, implementation of ISO/IEC 17025:2017. 2. ADAFSA's WOA Collaborating Centre for Camel Diseases provided One day Hands On Training To Seven Private Laboratory Staff in Emirates of Abu Dhabi on 05-08-2024. Training imparted hands-on experience in routine laboratory techniques in diagnosis of gastrointestinal parasitic diseases in animals. • Trainees were also introduced to ISO 17025 standards and quality assurance programs in fecal microscopy which helps maintain the quality of laboratory services as well as the technical quality of data provided by the laboratories. 3. As part of contribution to the knowledge sharing and capacity building a Reference/Teaching kit with parasite ova suspension of six different parasites was prepared by ADAFSA-CC. 4. Slides kit with reference slides were prepared from clinical isolates of S.agalactiae causing gangrenous mastitis and MAP causing John's disease for provision accrued laboratory diagnosis and serve as excellent teaching material. 5. Educating on the awareness amongst the public and the stakeholders about the danger of zoonotic diseases, importance of control programs and maintaining strict standards for slaughter facilities 6. Interdisciplinary Collaboration: Encourage collaboration and communication among professionals from diverse fields, including human health, veterinary medicine,</p>



<p>Training, capacity building (true)</p>	<p>Laboratory Staff in Emirates of Abu Dhabi 3. Reference and Teaching kit For Animal Parasite Ova 4. Bacteriology Reference and Teaching Slides kit Preparation 5. Scientific Lecture on a topic - "Public Health Significance of Hydatidosis " on 09-07-2024 6. Webinar "One Health Approach" March 07 2024 In collaboration with RAK Medical & Health Sciences University - Centre for Educational Development and Research (CEDAR), Emirates Society for Clinical Microbiology (ESCM) endorsed by American society for microbiology & UK science and innovation network 7. Scientific Lecture on Camel diseases- (NAHDIC) in Addis Ababa, Ethiopia 8. Middle East Camel Network CAMENET meeting (collaboration) 9. In capacity building: Teaching and Training University/College Students 10. Scientific Lecture on Zoonotic Animal-borne Diseases in-3rd Al Dhafra Hospital health forum 5-7 Nov. 2024 11. ADAFSA- CNVZ Webinars 2024 12.. In capacity building: 13. Awareness Programs to Farm Labourers</p>	<p>environmental science, and other relevant disciplines. • To highlight the benefits of working together to achieve a holistic understanding and solution to health challenges. 7. ADAFSA-CC delivered onsite and online lectures to the staff of the Animal Health Institute(AHI) in Addis Ababa, Ethiopia on 02/07/2024. Lecture included(1) "Molecular approaches to investigate camel diseases with emphasis in unknown camel diseases (UCD)", (2) "Role of anatomic pathology in diagnosis and biosecurity system" (3) Diagnostic, Therapeutic, and Preventive Aspects of Parasitic Diseases in Dromedary Camels (4) Camel bacterial and fungal diseases - Laboratory diagnosis and quality control 8. ADAFSA-CC in collaboration with Salam Veterinary Camel Hospital organized a two-day training for GCC countries entitled: The CAMENET-ADAFSA Training Session on Camel Calf Diarrhea in Salam Veterinary Camel Hospital, Saudi Arabia (4th -5th December 2024) attended by 10 participants 9. ADAFSA's WOAH Collaborating Centre for Camel Diseases provided training to 21 students from different educational institutions in UAE namely Higher Colleges of Technology(HCT), United Arab Emirates University(UAEU), Sharjah University & Abu Dhabi Vocational and Educational Training Institute (ADVETI) in different areas of camel diseases during 2024. 10. Awareness amongst the public and the stakeholders about the danger of zoonotic diseases, importance of prevention and control programs and maintaining strict standards for handling and dealing with animals. 11. ADAFSA's WOAH Collaborating Centre for Camel Diseases in collaboration with Le Centre National de Veille Zoosanitaire (CNVZ), WOAH Collaborating Centre in Continuing Education and Veterinary Capacity Building, Tunis Organized a webinar on Field Diagnosis of Camel Diseases with a total participation of 130 attendees. 12. ADAFSA's WOAH Collaborating Centre for</p>
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		<p>Camel Diseases provided workshop on Surveillance of highly pathogenic avian influenza in birds and mammals in the Emirate of Abu Dhabi attended by 51 participants including targeting public farmers, vets and ADAFSA employee 13. ADAFSA's WOA Collaborating Centre for Camel Diseases conducted awareness programs on "Tick Talks to Prevent Tick-Borne infections" targeting farm labourers in Al Dhafra and Abu Dhabi on 25-26 December 2024. Program provided onsite training to 18 farm labourers on adopting scientific practices to prevent tick bites and precautionary/preventive steps to avoid tick-borne diseases</p>
Diagnosis, biotechnology and laboratory (true)	Increase scope of diagnostic tests by validation of eight new tests for detection of different pathogens of camel as well other farm animals.	To increase diagnostic capacity of lab for Wesslesbron virus (WSLV), Paramyxovirinae viruses, Toxoplasmosis, Neosporosis ,Brucella ovis, Haemophilus spp and Mycoplasma agalactiae & M. tuberculosis

TOR 3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main focus area for which you were designated

Proposal title	Scope/Content	Applicable Area
Interlaboratory Comparison (ILC) Program on diagnostic tests for Camel Diseases	Collaboration with national(7) and international laboratories(7) to share laboratory expertise on diagnosis of: Trypanosoma spp. by microscopy Acid Fast Bacilli (AFB) by microscopy. Pasteurella multocida identification and antimicrobial susceptibility test (AST) Trypanosoma spp. By RT-PCR Camel pox virus by RT-PCR	Laboratory Expertise
Intellectual Works Right registered under Certificate number 744-2024 for Veterinary Parasitology Reference Slides Kit with Ministry of Economy-the Department of Trademarks and Intellectual property,	ADAFSA -CC contributed to the knowledge sharing and capacity building by preparing reference slides for blood parasites infecting camels and cattle	Laboratory Expertise Training and Education

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UAE		
Development of Teaching Kit for Animal Parasite Ova	Educational and reference kit for gastrointestinal parasites that infect camels prepared from field samples, serve as a reference for parasitic diseases of camels, targeting diagnostic laboratories as well as university students, and researchers	Laboratory Expertise Training and Education
Bacteriology Reference Slides Kit - Intellectual Works Rights Registration achieved under Certificate number: 775-2024 - UAE Ministry of Economy	Reference slides kit prepared from camel field isolates standardized to serve as a reference for camel bacterial diseases, targeting diagnostic laboratories as well as university students, and researchers	Laboratory Expertise Training and Education
PPR-Ab Proficiency Testing scheme in camels	Conducted cycle of PPR-ab PT scheme in camels & issued final report to participant Laboratories. Seven laboratories from all over the world including WOAH reference laboratories participated. Laboratories from Europe, Africa, Middle East & Asia participated in it.	Laboratory Expertise Training and Education

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

No

4. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

Yes

Name of WOAH CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
Animal Health Institute(AHI) in Addis Ababa, Ethiopia	Ethiopia	África	Investigation of unknown camel disease Unknown Camel Disease (UCD) in Ethiopia & capacity building on camel disease
WOAH Collaborating Centre for Continuing Education and Capacity Building in the Veterinary Domain. Tunisia Centre National de Veille Zoosanitaire (CNVZ)	Tunisia	África	Capacity Building of Veterinarians by sharing scientific knowledge on camel disease diagnosis

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<p>Middle East Camel Network -CAMENET (United Arab Emirates, Bahrain, Saudi Arabia, Qatar, Oman, Kuwait, Jordan, Yemen)</p>	<p>United Arab Emirates- Kingdom of Saudi Arabia - Kuwait</p>	<p>Oriente Medio</p>	<p>1. CAMENET Steering and technical committee meetings : Online and onsite meetings discussed the action plan for 2024-2025. 2. Onsite Technical committee meeting : conducted during the Camel and Food security conference, in October 2024 – Kuwait which covered important challenges and opportunities for the activities listed for 2024, and how to overcome the challenges. 3. Onsite Steering Committee meeting: conducted in Al Salam veterinary hospital Al - Qassim, Kingdom of Saudi Arabia to discuss the success and achieved activities of the year with the upcoming activities of 2025 and how to design a better way to achieve it</p>
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TOR 4 AND 5: NETWORKING AND COLLABORATION

5. Did your Collaborating Centre maintain a network with other WOAHA Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of WOAHA CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
<p>Higher College of Technology (HCT) , United Arab Emirates</p>	<p>United Arab Emirates</p>	<p>Middle East</p>	<p>1.To assess the epidemiological status of TBD 2. To identify factors that contribute to the acaricide resistance in ticks</p>
<p>Faculty of Medical and Health Sciences, LIWA College, Abu Dhabi UAE</p>	<p>United Arab Emirates</p>	<p>Middle East</p>	<p>To isolate, evaluate and compare the efficiency of an antigen isolated from T.evansi for the detection of Trypanosomosis</p>

Ministry of Health and Prevention, Ministry of Climate Change and Environment, UAE	United Arab Emirates	Middle East	UAE AMR National Action Plan
UAE-UK One Health AMR consortium which includes academic, research institutions and government agencies from both UK and UAE at the Federal and Emirate level.	United Arab Emirates and United Kingdom	Europe Middle East	Establish a National One Health AMR Biosecurity Consortium aiming to implement a national One Health genomic epidemiological research and surveillance infrastructure focusing on AMR.

TOR 6: EXPERT CONSULTANTS

6. Did your Collaborating Centre place expert consultants at the disposal of WOA?H?

Yes

Name of expert	Kind of consultancy	Subject
Dr. Shameem Habeeba	Invited speaker	WOAH Sub-Regional webinar on "Parasitic Diseases of Camels-An Overview" on 27th March 2024 organized by WOA?H Sub-Regional Representation office in Abu Dhabi
Dr. Abdel malik Khalafalla	Invited speaker	WOAH Sub-Regional webinar on: Pox and Pox-like Diseases of Camels Webinar, 9 May 2024
Dr. Abdel malik Khalafalla	Participant and PPR-GREN Chair	The PPR Global Eradication Programme (GEP) 7th Advisory Committee Meeting (hybrid), Rome, Italy, 25-28 June 2024
Dr Abdel malik Khalafalla	Participation of an expert	WOAH AD HOC GROUP ON PESTE DES PETITS RUMINANTS, Virtual meeting, 12- 14 November 2024
Zulaikha Alhammadi	Invited speaker	Workshop on the Surveillance, Diagnosis, Control and Prevention of Brucellosis in Arab Countries on November 11-14, 2024, in Riyadh, Saudi Arabia.
		Middle east Camel Network and Enhancing

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Asma Abdi Shah	Invited Speaker	Camel Sector - CAMEL AND FOOD SECURITY CONFERENCE -Kuwait -October 29,30- 2024
Dr. Mohammed Albreiki	Invited speaker	STAR-IDAZ Africa and the Middle East Regional Network Meeting - 21 August 2024
Dr. Hassan Ishag	Expert	consultation on Three Workshop to develop roadmaps on MERS CoV STAR-IDAZ Africa and the Middle East Regional Network Meeting - 21 August 2024, 5 October and 10 October 2024
Prof Abdel Malik Dr. Hassan Ishag Dr El Tigani Ahmed Dr. Shameem Habeeba Dr. Ghada Ahmed Dr. Rashid Ali Khan Dr. Mohd Al Breiki Noura Al Zarooni	Disease Investigation team	Investigation team of five provided onsite training. lectures to the staff of the Animal Health Institute (AHI) in Addis Ababa, Ethiopia on 02/07/2024. Sample Investigation tests were conducted in labs of ADAFSA
Dr. Ghada Abdelwahab	Invited speaker	Emirates Society for Clinical Microbiology (ESCM) "Overview of AMR and animal health from one health perspective" -07/03/2024

TOR 7: SCIENTIFIC AND TECHNICAL TRAINING

7. Did your Collaborating Centre provide advice/services to requests from Members in your main focus area?

Yes

1. *Disease Investigation team from ADAFSA-CC of five provided onsite training to the staff of the Animal Health Institute (AHI) in Addis Ababa, Ethiopia on 02/07/2024.*

2. *ADAFSA-CC delivered onsite and online lectures to the staff of the Animal Health Institute (AHI) in Addis Ababa, Ethiopia on 02/07/2024. Lecture included (1) "Molecular approaches to investigate camel diseases with emphasis in unknown camel diseases (UCD)"; (2) "Role of anatomic pathology in diagnosis and biosecurity system" (3) Diagnostic, Therapeutic, and Preventive Aspects of Parasitic Diseases in Dromedary Camels (4) Camel bacterial and fungal diseases -Laboratory diagnosis and quality control*

8. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by WOA, to personnel from WOA Members?

Yes

a) Technical visit : 10

b) Seminars : 290

c) Hands-on training courses: 72

d) Internships (>1 month) : 0

Type of technical training provided (a, b, c or d)	Content	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
A	The CAMENET-ADAFSA Training Session on Camel Calf Diarrhea in Salam Veterinary Camel Hospital, Saudi Arabia (4th -5th December 2024).	CAMENET member countries- KSA, Oman, UAE, Bahrain, QATAR	10
B	ADAFSA-CC-QMS provided Virtual training workshop on Camel Disease Diagnosis, jointly with Tunisian collaborative reference centre for continuous training and capacity building, held November11, 2024.	Tunisia	130
B	Virtual-Workshops on Diagnosis/Therapeutics and Control of Camel Diseases	Ethiopia	60
B	Laboratory diagnosis of camel diseases, FAO Training Webinars on Camel particularities, production and good breeding practices , 21 October 24, 2024	FAO member countries	100
B	Rabies in camels, FAO Training Webinars on Camel particularities, production and good breeding practices, 22 October 24, 2024	FAO member countries	100
B	Camel contagious ecthyma, FAO Training Webinars on Camel particularities, production and good breeding practices, 22 October 24, 2024	FAO member countries	100
B	Camel brucellosis, FAO Training Webinars on Camel particularities, production and good breeding practices , 23 October 24, 2024	FAO member countries	100
C	HandsOn Training on Laboratory Diagnosis of Camel Brucellosis- Serology, Bacteriology, Molecular Detection - dated 27 – 28 August 2024	FAO- KSA, BAHRAIN, UAE, QATAR, IRAQ, JORDAN	12

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C	Onsite-Workshop on Camel Disease Diagnosis-Animal Health Institute Ethiopia	Ethiopia	60
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TOR 8: SCIENTIFIC MEETINGS

9. Did your Collaborating Centre organise or participate in the organisation of scientific meetings related to your main focus area on behalf of WOA?H?

Yes

National/International	Title of event	Co-organiser	Date	Location	No. Participants
Internationally	Workshop on Field Diagnosis of Camel Diseases	WOAH Collaborating Centre for Continuing Education and Capacity Building in the Veterinary Domain. Tunisia Centre National de Veille Zoosanitaire (CNVZ)	2024-11-11	Virtual UAE-Tunisia	130
Internationally	Meetings of the steering and technical Committee of the Middle East Camel Network (CAMENET)	Sub-Regional Office of the World Organization for Animal Health (OIE) for the Arabian Gulf- Alsalam Veterinary Hospital, KSA- Kuwait institute for science and research (KISR)	2024-12-04	Virtual/Hybrid/Onsite	15
Internationally	Workshop on Diagnosis/Therapeutics and Control of Camel Diseases	Animal Health Institute Ethiopia	2024-07-03	Virtual and Onsite Ethiopia	60
Internationally	Camel and Food Security Conference	Camel middle east network -CAMENET	2024-12-30	Virtual	200
Internationally	Antimicrobial Resistance webinar	ADAFSA -WOAH Collaborating Centre for Camel Diseases	2024-11-19	Virtual	141

TOR 9: DATA AND INFORMATION DISSEMINATION

10. Publication and dissemination of any information within the remit of the mandate given by WOAHA that may be useful to Members of WOAHA

a) Articles published in peer-reviewed journals:

4

1. Habeeba, S. Bensalah, O.K., Ibrahim, A., Muhairi, S., Al Hammadi, Z.M., Commey, A., Osman, E., Saeed, M., Shah, A.A.M.. (2024), Acaricide resistance in ticks from livestock farms in Abu Dhabi, United Arab Emirates. *Acarologia* 64(1): 138-145.

<https://doi.org/10.24349/utkq-zek0>

2. Ishag, H.Z.A.; Habeeba, S.; El Tigani-Asil, E.T.A.; Yuosf, M.F.; AlHammadi, Z.M.A.H.; Commey, A.N.O.; Bin Hraiz, H.T.A.A.; Shah, A.A.M.; Khalafalla, A.I. (2024), Molecular Detection of *Candidatus Anaplasma camelii* in naturally infected dromedary camels (*Camelus dromedarius*) in Abu Dhabi Emirate, United Arab Emirates, 2019–2023. *Vet. Sci.* 2024, 11, 123. <https://doi.org/10.3390/vetsci110301233>.

3. Ali MM, Fathelrahman E, El Awad AI, Eltahir YM, Osman R, El-Khatib Y, AlRifai RH, El Sadig M, Khalafalla AI, Reeves A (2024). Epidemiology and Scenario Simulations of the Middle East Respiratory Syndrome Corona Virus (MERS-CoV) Disease Spread and Control for Dromedary Camels in United Arab Emirates (UAE). *Animals (Basel)*. 2024 Jan 23;14(3):362. doi: 10.3390/ani14030362

4. Khalafalla AI, Dadar M, Sazmand A (2024). Editorial: Current knowledge on camelids infectious and parasitic diseases. *Front Vet Sci*. 2024 Jan 4;10:1351318. doi: 10.3389/fvets.2023.1351318. eCollection 2023. PMID: 38249562

References gene/genomic sequences:

1. Deposited 15 genomic sequences for Wesselsbron virus detected from camel samples of Ethiopia for the first time under the accession numbers: PQ672109- PQ672123

2. Deposited 9 genomic sequences for *Candidatus Anaplasma cameli* detected from camel samples of United Arab Emirates under the GenBank accession numbers OR159796-OR159804

b) International conferences:

5

1. Keynote speech:

Oral Presentation: Dr Shameem Habeeba- "Parasitic Diseases of Camels-An Overview" on 27th March 2024 at WOAHA Sub-Regional webinar organized by World Organisation for Animal Health, SRRL, Abu Dhabi

Oral Presentation: Dr. Abdelmalik Khalafalla - "Pox and Pox-like Diseases of Camels", 9 May 2024 at WOAHA Sub-Regional webinar SRRL, Abu Dhabi

Oral Presentation: Asma Abdi Shah-Middle east Camel Network and Enhancing Camel Sector - Camel and food security Conference - Kuwait - October 29,30- 2024

Oral Presentation: Dr. Ghada Abdelwahab "Overview of AMR and animal health from one health perspective" One Health Approach webinar 07 March 2024 – organized by Emirates Society for Clinical Microbiology (ESCM) & Centre for education Development & Research Rak Medical & Health Science university – Endorsed by UK science and innovation & The American Society for Microbiology.

Poster Presentation:

1. Dr. Ghada Abdelwahab "Antibiotics Resistance in *Escherichia coli* Isolated from Livestock in the Emirate of Abu Dhabi, UAE, 2014–2019"- 4th Annual International Conference of the Emirates Society of Clinical Microbiology (ESCM).

2. Dr. Hassan Ishag -Secured Third position for a poster "Use of genomics to study *E. coli* resistance in camels "in Genomics for Antimicrobial Resistance and One Health Conference (Johannesburg, South Africa, 15-16 March 2024)

c) National conferences:

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1. Oral Presentation: Dr. Ghada Abdelwahab - "Overview of AMR in Animal sector - Data of Abu Dhabi-UAE" – AMR Webinar - during World AMR awareness week- organized by ADAFSA- WOAAH Collaborating Centre for Camel Diseases- 19/11/2024

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

9

UAE- National AMR Surveillance Consortium: nine (9) articles published in 2024 as a joint effort of the consortium, addressed variety of topics related to AMR.

11. What have you done in the past year to advance your area of focus, e.g. updated technology?

- *New technology MALDI ToF for diagnosis of animal diseases including camels.*
- *Enhance AMR surveillance on AMR in animal sector.*
- *Building up capacity in Biobanking of superbug MDR isolates from camel and other livestock for future research studies.*
- *Enhancement capacity building and diagnosis facilities by building up a biobank depository for camel viral, parasite and bacterial isolates including resistant bacteria from camels in addition to reference samples for infectious diseases collected from camel. The Biobank also includes reference nucleic acids from camel pathogens as well as camel sera.*

12. Additional comments regarding your report: