A LABORATORY NETWORK FOR DIAGNOSTIC OF CAMELIDS DISEASES

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World distribution of camelids

- Bactrian Camel
- Small camels
- Dromadary

Livestock Pop & Prod: No, 400,000 more, 150,000-400,000, 50,000-150,000, 10,000-50,000, less than 10,000, not available
The place of camel in the world

Countries where camel livestock is important
- Sahelian & Arabic Peninsula countries

Countries where camel livestock is the main agricultural wealth
- desert countries
- country of pastoralist only

New implementations (Europe, America)
The specific constraints for diseases control in camel

Camel herd mobility
Desert margins
Absence of systematic vaccination
Low specific competencies in veterinary services
Traditional knowledge based on symptoms not on diseases

Specific metabolism (hyperthermia, mineral metabolism)
Specific pharmacological aspect
Specific immunological aspect
Coarse symptomatology
It is necessary to get good and reliable data on camel health status

Considering:
Importance of camel, Increase demand for camel products
Change in camel production systems
Increase of camel movements and trade
Risk of TADs transmission
Lack of knowledge on camel diseases
Weakness of professional skills
Insufficient information exchange
OIE ad-hoc Group on Camel Diseases

- Establishment of the list of camelid diseases
- Improve diagnostic capacity for camel diseases
- Establish specific guidelines for trade in camelids and camelid products.
The diseases of Camelidae were listed and divided into three groups:

1) Significant diseases;
2) Diseases for which Camelids are potential pathogen carriers;
3) Minor or non-significant diseases.

For each disease, the available antigen detection methods and serological tests were added, followed by recommendations for diagnostic and prevention.

The list of diseases were developed for the Dromedary Camel, the Bactrian Camel and the New World Camelids (Llama and Alpaca).
VIRAL DISEASES IN CAMELIDS

- **Camel pox** is the only specific disease of camels that occurs in almost every country in which camel husbandry is practiced, apart from the introduced dromedary camel in Australia.

- The real impact of other significant viral diseases in camelids (ecthyma, rabies, BVD) still remains controversial.

- Role of camelids as **potential carrier** for vector borne diseases (BT, RVF, AHS, WNF) should be investigated (susceptibility to different strain/serotypes, viraemia duration...)
Bacterial disease of camelids

• Among significant bacterial diseases of camelids, **brucellosis** is worldwide distributed with important economical impact.
• Investigations should be carried out on susceptibility and to identify the most prevalent bacteria biovars (coli, Salm, Past).
Knowledge of camelid diseases is limited, more research is necessary to elucidate the role of some of the pathogens mentioned in the epidemiology and pathogenesis of several diseases.

Camelids susceptibility and epidemiological investigations should be carried out for several pathogens according to economic impact, public health, high morbidity and/or mortality, trade constraints at world level.

10 diseases were retained: Emerging diseases (PPR, BT, RVF), Contagious Ecthyma, BVD (in small camelids), Brucellosis, Enterotoxemia, TB (Bactrian and small camelids), Mange and Tick infestation.

For multifactorial diseases (e.g. Neonatal Diarrhea, Respiratory Disease Complex, Mastitis and Sudden Mortality Syndrome) a holistic approach (ecopathology) should be adopted including risk factors and different aetiologies.
The ad hoc Group comment and recommendations
For diagnostic purposes:

• Diagnostic techniques are available for some pathogens, but need to be validated for use in camelids;
• When they are not available, specific diagnostic kit and reagents for camel should be developed with the collaboration of OIE Reference Laboratories where relevant;
• Technology transfer between labs should be encouraged and national labs for camel disease supported.
• There is a need for specimens from camelids: OIE encourages Delegates from camelid-rearing countries to collect specimens to send to OIE RL’s for diagnostic test validation;
The ad hoc Group comment and recommendations
For diagnostic purposes:

Need to establish a laboratory network for diseases of Camelids with the main objectives:

- to exchange information
- to validate diagnostic tests that are currently used for the significant diseases in other species.
- Identify regional leading laboratories for camel diseases
- Organize proficiency testing among diagnostics lab within the region.
- Identify potential Collaborating Centers for specific diseases of camel
OIE laboratory network on diseases of camelids

Three types of laboratories will be included:

- **OIE Reference laboratories for diseases of interest**
- **Associated research laboratories** (e.g. Biopharma in Morocco, Central Veterinary Research Laboratory in Dubai, National Research Centre on Camel in India and Brucella Vaccine Centre in Saudi Arabia)
- **Laboratories in camel rearing countries which especially collect data and samples in the field**

1. Camel dromedary: Chad, Djibouti, Ethiopia, India, Iran, Kenya, Mauritania, Pakistan, Saudi Arabia, Sudan, Syria, Tunisia, Turkmenistan, and Yemen.
2. Bactrien Camel: China, Kazakhstan and Mongolia.
3. New world camelids: Argentina, Chile, Peru, and USA.
The Group recommendations

• Encourage twining project between OIE Reference Laboratories and National Laboratories from camelid rearing countries which have the potential to support the other National Laboratories in their Region.

• Encourage the representatives of camel rearing countries (OIE Delegates) to facilitate the shipment of samples from their national laboratories to OIE Reference laboratories for validation of diagnostic assays, surveillance programme or when outbreak occurs.

• **Sustainable funds (international organisations, donors, etc) could be available to support this shipment.**

• Review the list of the diseases-specific chapters existing in the *Terrestrial Manual* for potential inclusion of specific requirements for camelids.
CONCLUSION

• The camel health control is not easy; the type of dominant farming system is extensive, nomadic and performed in remote areas.

• it is necessary to get reliable data on camelids health status to improve vet competencies.

• The OIE ad hoc Group, after listing the main diseases and identifying investigation priorities recommend establishment of a laboratory network for:

  1. Information exchange

  2. Encouraging collection of samples and diagnostic essay validation (collaboration of OIE RL)

  3. Technical data treatment and edition

  4. Dissemination of knowledge (proficiency tests, training, workshops, twinning...).
Thank you