Molecular detection and identification of *Babesia bovis* and *Trypanosoma* spp. in one-humped camel (*Camelus dromedarius*) breeds in Egypt

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Introduction

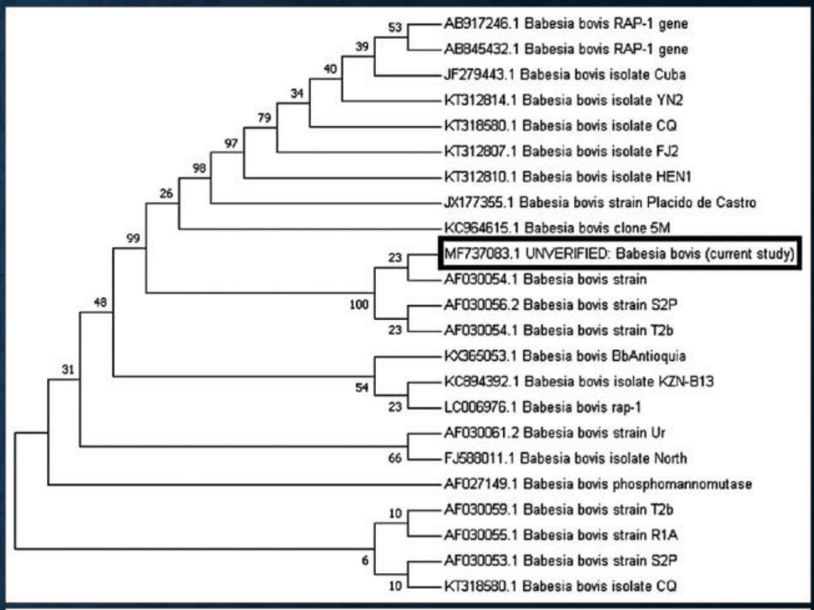
One-humped dromedary camel

- A large **even-toed ungulate** in the genus *Camelus*
- The genus ***Camelus*** contains three species: *Camelus dromedarius* (one-hump dromedary) *Camelus bactrianus* and *Camelus bactrianus ferus* (two-hump Bactrian camel).
- Dromedaries are mainly found in the Middle East, and parts of Africa, south Asia and Central Australia
- **94%** of the world's camel population
- Source for the production of milk, meat, and wool

➢ **This study aimed to characterize blood parasite infections, such as *Babesia (B.) bovis* and *Trypanosoma (T.*) spp. in one-humped camel (*Camelus dromedarius*) (n=142) breeds in Halayeb and Shalateen, Egypt, through phylogenetic analysis.**

Results and Discussion

- ✓ ***B. bovis* was detected in 4/142 camels with an infection rate of 2.81%.**
- ✓ **Sequencing and phylogenetic analyses revealed that the strain of *B. bovis* isolated from this population was closely related to strains isolated from Argentine, the United States, and Brazil.**
- ✓ ***Trypanosoma evansi* was detected in 8/142 camels with an infection rate of 5.63%.**
- ✓ **Sequencing and phylogenetic analyses revealed that this isolated strain *T. evansi* was closely related to *Trypanosoma theileri* detected from cattle in Brazil.**
- ✓ **The obtained findings have economic significance and reflect the importance of implementing effective prevention and control methods across Egypt to reduce the incidence of *B. bovis and T. evans*i in camels.**



Materials and Methods

Sample information

- **One hundred and forty two blood samples were collected from one-humped camels reared in Halayeb and Shalateen in Egypt, at the Sudan border**

Genetic characterization of *B. bovis*

➢ The prevalence of *B. bovis* was identified in camels using nested polymerase chain reaction (n-PCR) assays targeting the Rhoptry-Associated Protein-1 gene

Genetic characterization of *T. evansi*

➢ KIN multispecies PCR assay was employed to diagnose and classify trypanosome DNA in camels targeting the internal transcribed spacer 1 gene

Cloning and sequencing of PCR products

➢ Extraction of amplicons of PCR samples with high band intensities using QIAquick Gel Extraction Kit (QIAGEN, Germany)

➢ The samples were then cloned into a plasmid vector (PCR 2.1-TOPO, Invitrogen, Carlsbad, CA, USA).