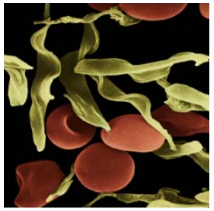
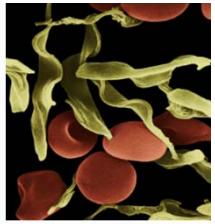




Prevalence of *Trypanosoma evansi* in camels (*Camelus dromedarius*) in Ghardaïa district, south Algeria.

Karima Benfodil , Philippe Büscher, Sara Dehou, Nicolas Bebronne , Manon Geerts, Nick Van Reet, Fatima Balharbi, Said Fettata, Samir Ansel, Abdellah Mohamed Cherif, Khatima Ait-Oudhia

3rd International Conference on Non Tsetse Transmitted Animal Trypanosomosis
3-4 December 2018, N.W. University, Potchefstroom, South Africa

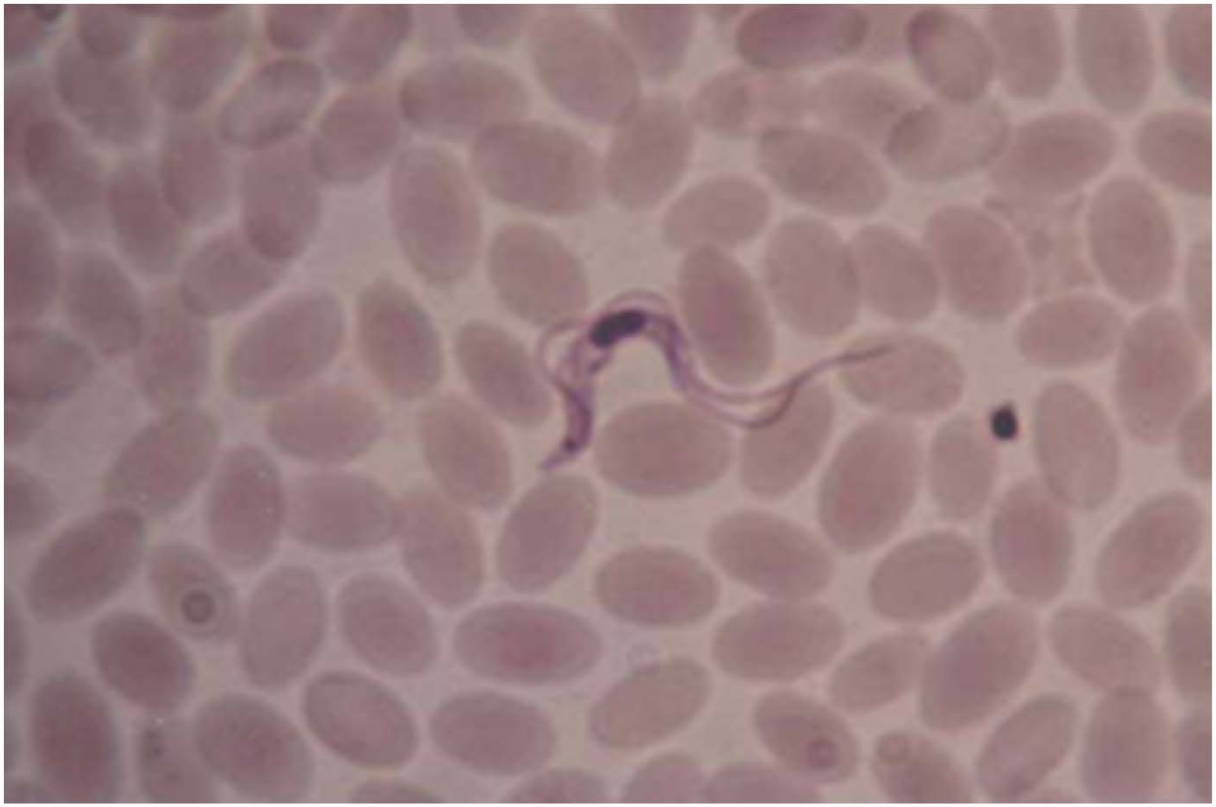
Introduction

Introduction

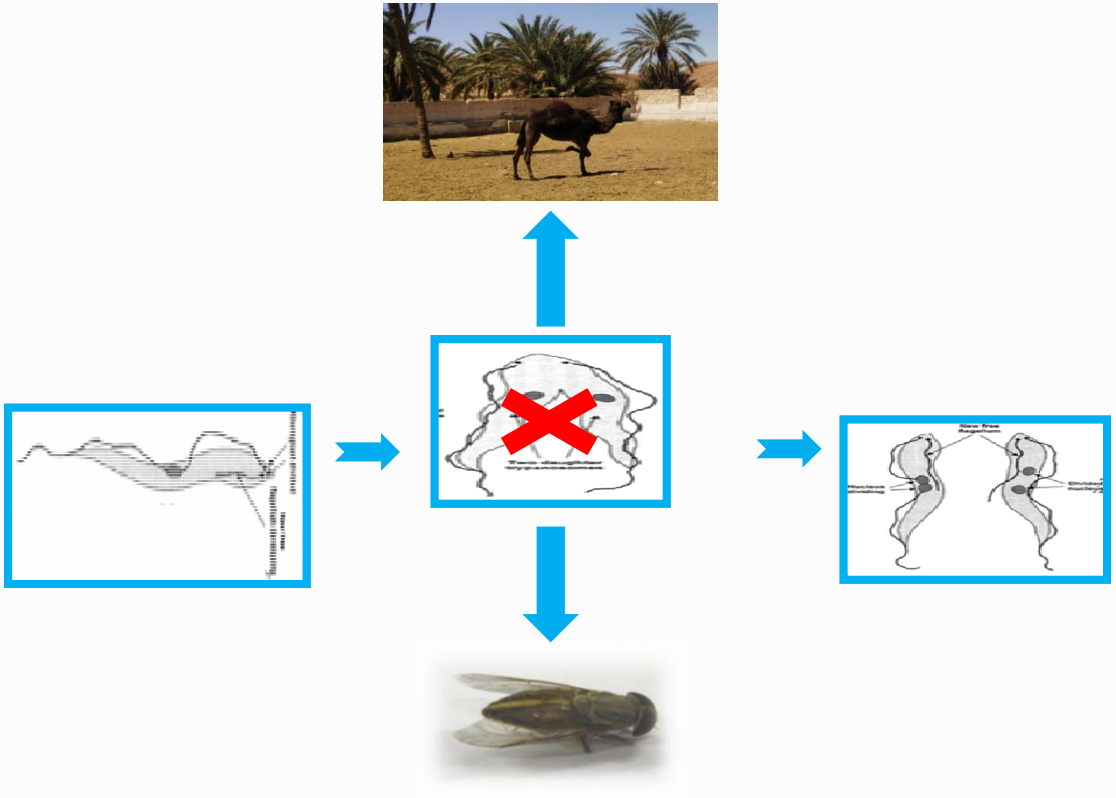
Surra /*Trypanosoma evansi*

- **Vector borne disease, transmitted by mechanical vectors like tabanids**
- **The first identified pathogen of the subgenus *Trypanozoon* in horses and camels, flagellated protozoon**
- **Chronic weight loss, icterus, oedema, anemia and abortions**
- **Wide geographic distribution**

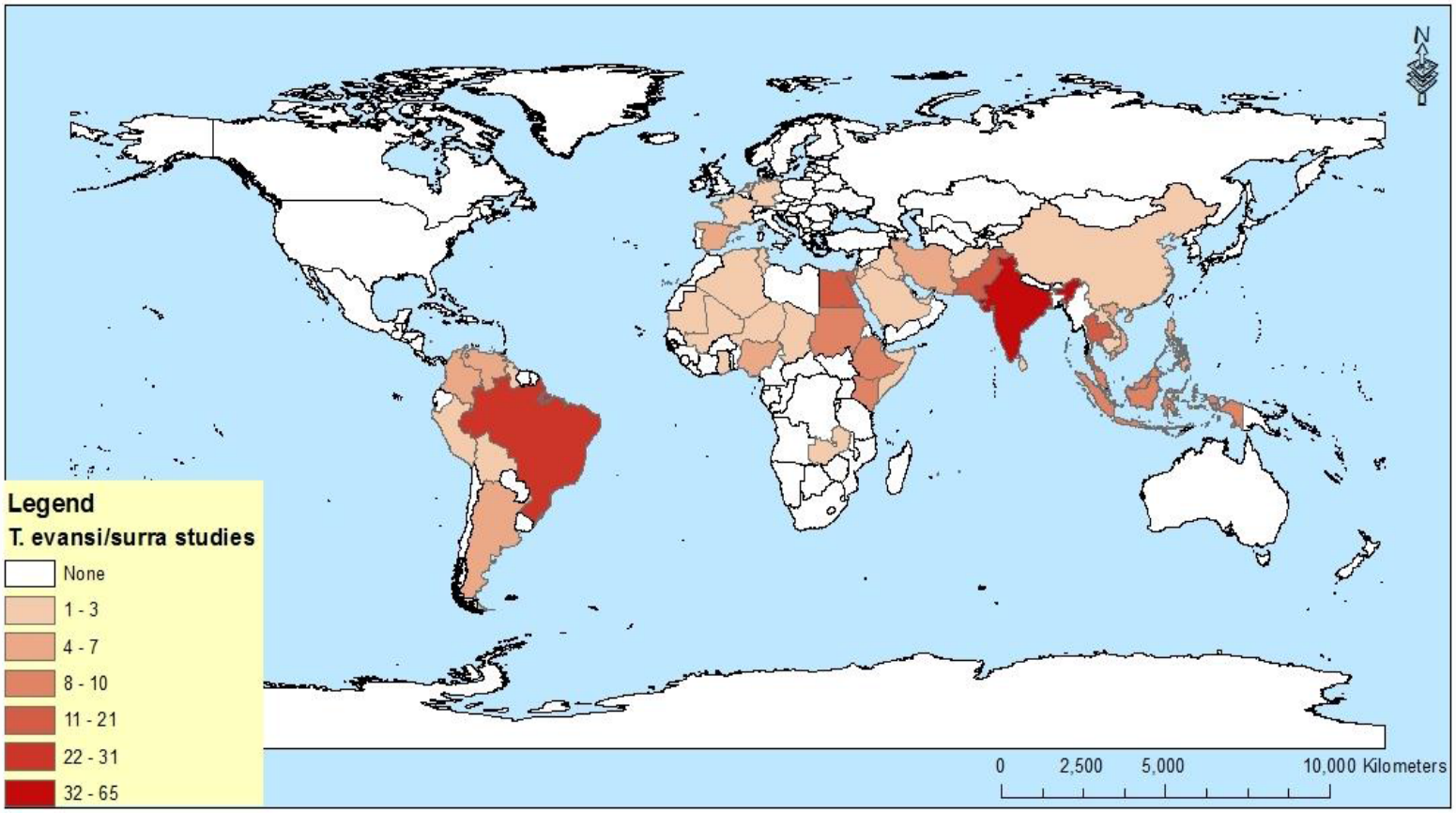
Introduction



Introduction

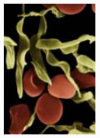


Introduction



Aregawi, W. 2017 The global distribution, host range and prevalence of *Trypanosoma evansi* causing surra: a systematic review and meta-analysis. MSc thesis ITM, Antwerp

Objectives



Objectives

- **Estimate the prevalence of *Trypanosoma evansi* in camels in Ghardaïa district, south Algeria**
- **Compare different methods for diagnosis of *T.evansi* infection**

Materials and methods

Materials and methods

Study site

Study type

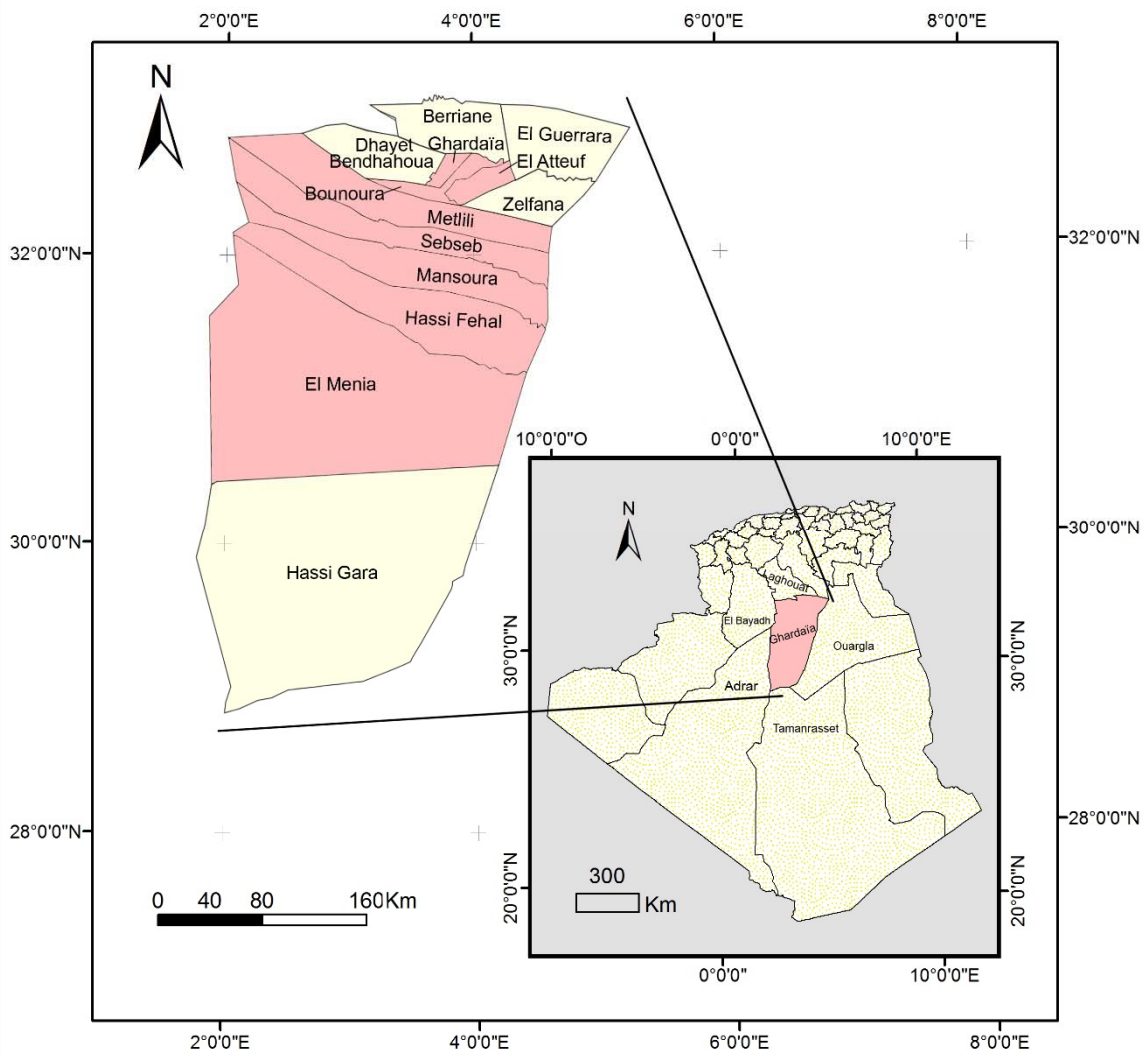
Target population

Data collection

Sample collection

Diagnostic tests

- **Wilaya of Ghardaïa in the south of Algeria**



Materials and methods

Study site

Study type

Target population

Data collection

Sample collection

Diagnostic tests

- **Transversal prevalence study**

Materials and methods

Study site

Study type

Target population

Data collection

Sample collection

Diagnostic tests

- Dromedary camel
- Estimated population
  - 11210 heads
- Included
  - 161 animals

Materials and methods

- Study site
- Study type
- Target population
- **Data collection**
- Sample collection
- Diagnostic tests

FICHE D'ENQUETE

Dr. **MOHAMED-CHERIF Abdellah**
Ecole Nationale Supérieure Vétérinaire
El-Harrach. Alger.

Wilaya : Tiaret
Daïra :
Commune :

PRELEVEMENT

N° du prélèvement :
Date du Prélèvement :
Nature du prélèvement :

PROPRIETAIRE

Nom et prénom :
Adresse :
N° de tel/Fax :
E-mail :

IDENTIFICATION ET ENVIRONNEMENT DE L'ANIMAL

Nom :			
Age :			
Race :			
Sexe :	Male	Femelle	
Origine :			
Activité :	Course	Travail	Plaisance
Habitat :	Urbain	Péri-urbain	Rural
Hygiène :			
Traitement :			

MANIFESTATIONS CLINIQUES

Etat général

Troubles sanguins :

Troubles digestifs :

Troubles oculaires :

Troubles articulaires :

Troubles respiratoires :

Autres :

- **Demographic data**
- **Clinical observation**

Materials and methods

Study site

Study type

Target population

Data collection

Sample collection

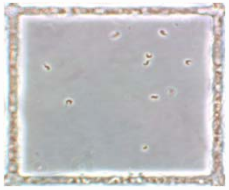
Diagnostic tests

- **Venous blood sample**
  - **Blood for molecular tests**
  - **Plasma for serological tests**

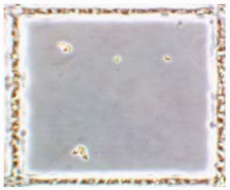
Materials and methods

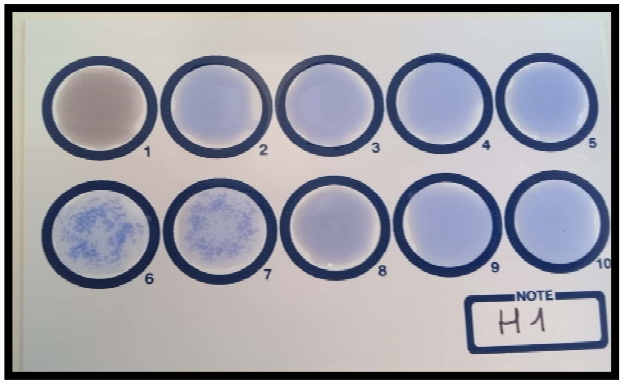
- Study site
- Study type
- Target population
- Data collection
- Sample collection
- **Diagnostic tests**

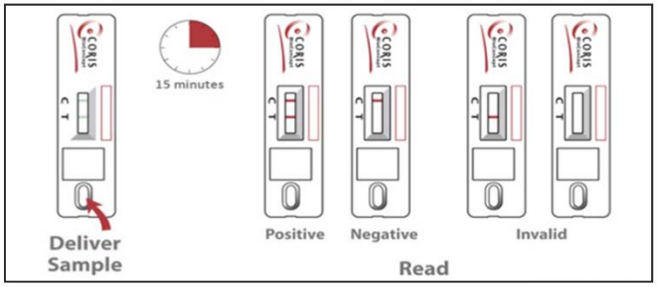
Serological tests
Immune trypanolysis
CATT/*T. evansi*
ELISA/VSG RoTat 1.2
Surra Sero-K-Set



+ VSG specific Ab
+ guinea pig serum

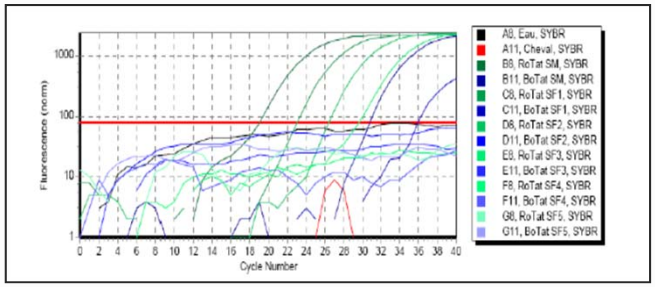




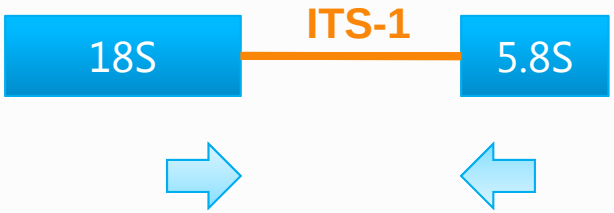


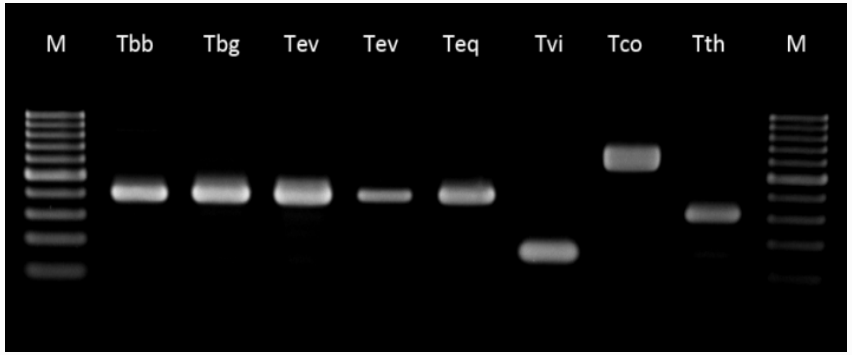
Materials and methods

- Study site
- Study type
- Target population
- Data collection
- Sample collection
- **Diagnostic tests**



Molecular tests
ITS1 PCR
18S qPCR





Results

Results

Serological tests

Molecular tests

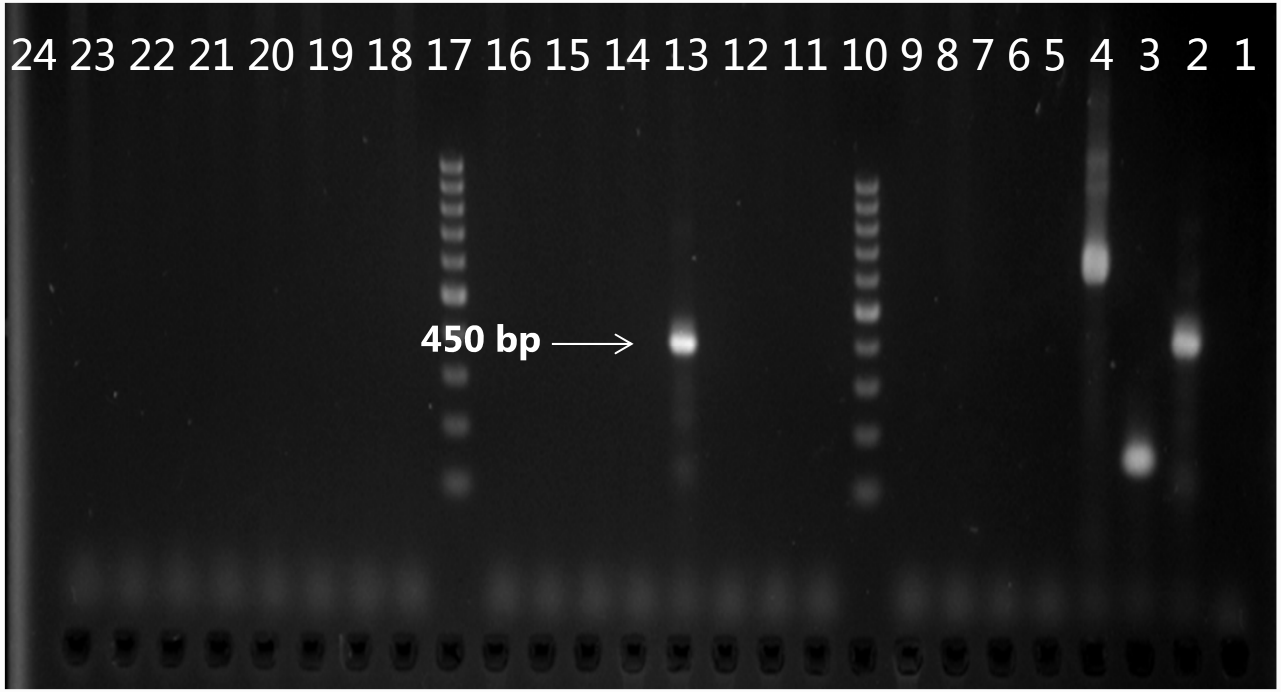
Test	Observed prevalence
Immune trypanolysis	9.3 %
CATT/*T. evansi*	8.1 %
ELISA/VSG RoTat 1.2	9.9 %
Surra Sero-K-Set	8.1 %

Results

Serological tests

Molecular tests

Test	Observed prevalence
ITS1 PCR	6.2 %
18S qPCR	13.0 %

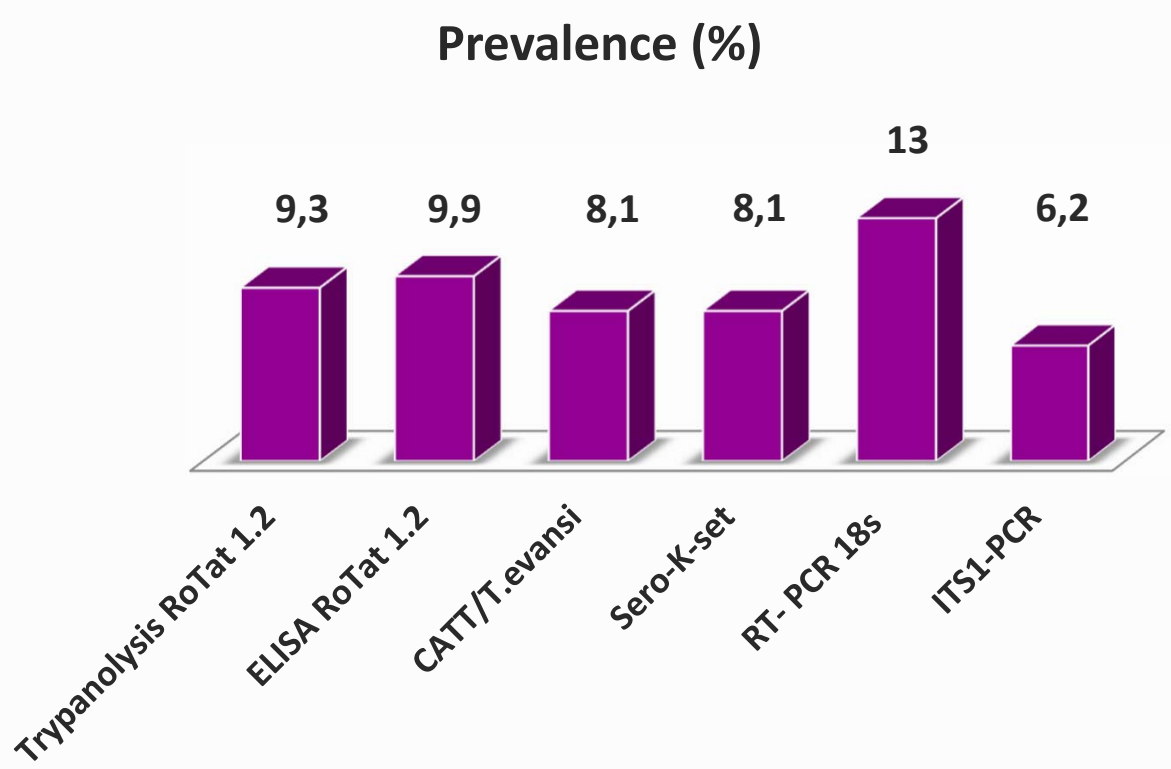


Amplicons in ITS1-PCR according to the species.
Lane 1: negative control, lane 2: *Trypanozoon*, lane 3: *T. vivax*, Lane 4: *T. congolense*, lane 10: 100 bp DNA ladder, lane 13: DNA extract of camel sample

Discussion

Discussion

- **Unexpected high prevalence in 18S qPCR**



Discussion

- **Tehseen et al., 2015: dromedary camel in Pakistan**

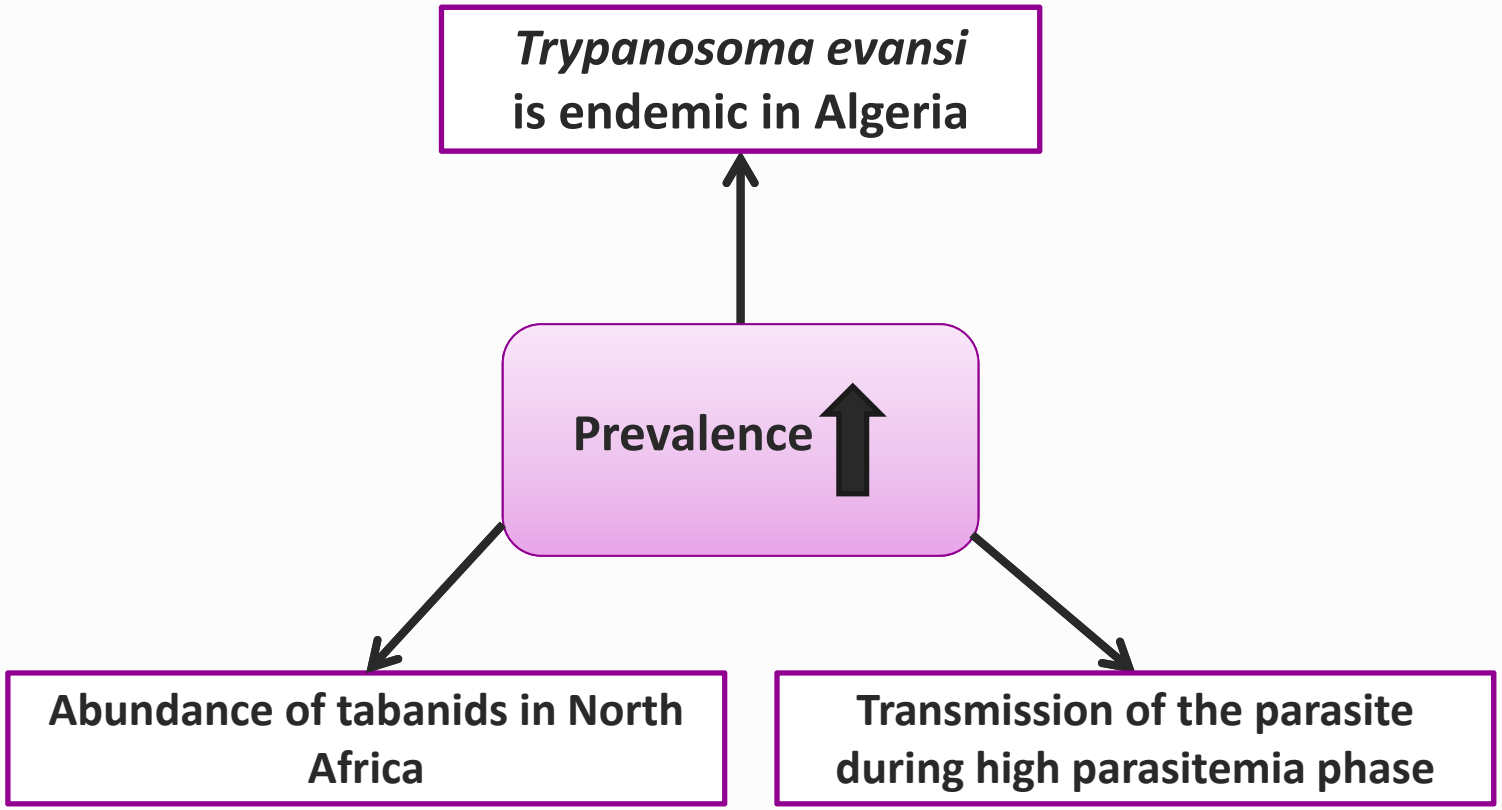
CATT/ *T. evansi*	ELISA/VSG RoTat 1.2	Immune trypanolysis	RoTat 1.2 PCR
47.7 %	44.2 %	39.9 %	30.5 %

Discussion

- **Fikru et al. 2015: dromedary camel in Ethiopia**

CATT/ *T. evansi*	18S PCR	ITS1 PCR	RoTat 1.2 PCR
24.1 %	9.5 %	7.8 %	21.3 %

Discussion


Trypanosoma evansi is endemic in Algeria
Prevalence
Abundance of tabanids in North Africa
Transmission of the parasite during high parasitemia phase

Discussion

High prevalence

Real risks

- **Spread in other areas of the country**
- **Exportation**

Discussion

Reaction needed!

- **Scientific community**
- **Veterinary authorities**

Conclusions

Conclusions

- ***Trypanosoma evansi*** **is present in camels in Ghardaïa district, south Algeria**

Conclusions

Immune trypanolysis 9.3 %	Sero-K-Set 8.1 %
CATT/T. evansi 8.1 %	ITS1 PCR 6.1 %
ELISA/VSG RoTat 1.2 9.9 %	18S qPCR 13 %

Acknowledgements

- National Veterinary High School of Algiers
- Veterinary services of Ghardaïa
- OIE Reference Laboratory for Surra, ITM, Antwerp

Thank you for your attention!