Surveillance of parasitic infections in donkeys and camels in Karamoja sub-region, North-eastern Uganda

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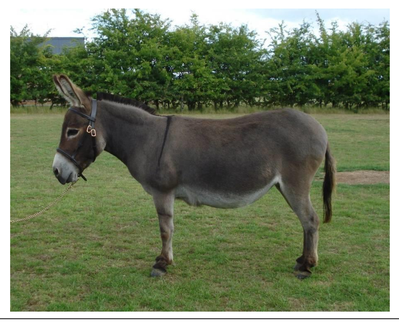
Background

Donkeys (*Ass-Equus-assinus*) and camels (*Camelus dromedarius*) in Uganda are mainly owned by low income earners and peasant farmers, mainly in the semi-arid North-eastern Uganda in Karamoja and Sebei sub-regions. The animals however, seem to receive little or relatively no Veterinary care. Infection by endo-parasites in camels and donkeys are responsible for problems including poor body condition, reduced power output, diarrhea, colic, emaciation, impaired growth, poor reproductive performance, short lifespan and predisposition to other infectious diseases. Equine piroplasmosis sero-prevalence revealed 25/25 (100%) exposure to *Theileria equi* in donkeys, 0% in camels; 0% *Babesia caballi* in both donkeys and camels. NB. Camels are not equine. Surveillance of *Trypanosoma evansi* in camels and donkeys revealed no infection status using parasitological and serological screening methods. Confirmation of endemic status is by molecular methods e.g PCR. African Horse Sickness virus (AHSV) was serologically detected in 16/22 donkeys hence a sero-prevalence of 73%. The present study was therefore designed to generate baseline data on the prevalence and species composition of parasitic infections of donkeys and camels in Uganda. The results of this study intended to provide insights into the health of donkeys and camels in Uganda and provide a way forward to their Veterinary care and management for improved production and productivity.

Karamoja sub-region, North-eastern Uganda



Endo-parasites of donkeys and camels in Karamoja sub-region, North-eastern Uganda

Methods

Faecal samples were collected from Karamoja sub-region in two districts namely: Moroto and Amudat.

The camels and donkeys were classified as: infant, juvenile, sub-adult and adult. Male and female animals were sampled.

Sedimentation and floatation techniques were the utilized parasitological techniques to identify the eggs in faeces and examined microscopically (10× and 40×) for presence of parasite ova based on their morphology.

Quantitative faecal examination was performed by using McMaster technique to determine the number of egg per gram of faeces (EPG).

Faecal culture using Baermann technique to determine lung worm larvae, *Dictyocaulus arnifieldi* and *D. cameli* was also undertaken.

Level of infection was extrapolated from infection severity index where animals are said to have mild, moderate and severe nematode infestation if their faecal egg counts are less than 500, 500-1000 and more than 1000, respectively.

Findings endo-parasites

Parasite/animal (mean EPG count)	No. positive Camel/donkey	Camel (n = 82)	Donkey (n = 26)	Total
Strongyle eggs (EPG)	48/11	1056 (58.5%)	323 (42.3%)	1379
Dictyocaulus arnfieldi	0/4	N/A	0.4 (15.4%)	0.4
Dictyocaulus cameli	24/0	1 (29.3%)	N/A	1
Anoplocephalidae	15/4	74.4 (18.3%)	27 (15.4%)	101.4
Eimeria cameli	9/0	34 (11%)	N/A	34
Eimeria leuckarti	0/1	N/A	11.5 (3.85%)	11.5
Trematodes	5/0	12 (14.6%)	0	12

Acknowledgement

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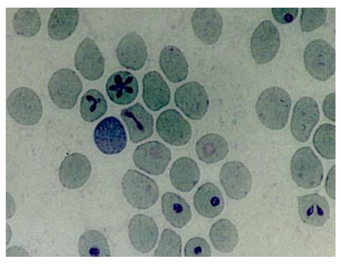
Physical characteristics of the animals

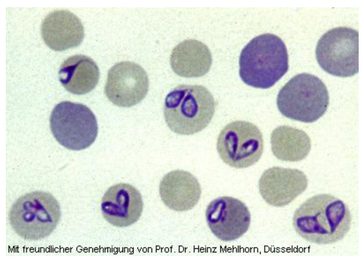
Identity	Camel	Donkey	Total
Sex			
Male	36	1	37
Female	46	25	71
Age			
Infant	9	1	10
Juvenile	29	0	29
Sub-adult	7	1	8
Adult	37	24	61

Theileria equi



Serological prevalence of equine piroplasms in donkeys in Karamoja sub-region, North-eastern Uganda

Animal species	Sample size	*Theileria equi*	*Babesia caballi*	Total
Donkey	25	25 (100%)	0	25
Camel	85	0	0	0
Total	110			



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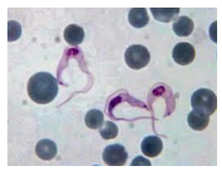
Babesia caballi

Ponies, mules, zebras and donkeys act as natural reservoirs for disease transmission to the horses (Radostitis *et al*., 2008).

Surveillance of *Trypanosoma evansi* in camels and donkeys in Karamoja sub-region, North-eastern Uganda



Study district	No. of samples	CATT/*T. evansi* (%)	HCT (%)	PCR (%) ITS1 rDNA & Rotat 1.2 VSG
Moroto				
-Camels	41	1 (2.4)	0 (0)	
-Donkeys	26	3 (11.5)	0 (0)	
Amudat				
-Camels	43	0 (0)	0 (0)	
-Donkeys	0	0 (0)	0 (0)	
Total	110	4 (3.6)	0 (0)	

In Uganda, *Trypanosoma evansi* is suspected to be distributed in Karamoja sub-region due to the distribution of susceptible host species, the donkeys and camels which are limited to North-eastern Uganda. This region borders with other countries like Kenya and Sudan which have heavy densities of donkeys and camels hence *T. evansi*.

African horse sickness virus sero-prevalence in Karamoja sub-region, North-eastern Uganda

Animal species	Sample size	Sero-prevalence	Total
Donkey	25	16 (64%)	16
Camel	85	0	0
Total	110		

This is the first study of African horse sickness sero-prevalence in donkeys in Uganda. African horse sickness (AHS) is a highly infectious and deadly disease. It commonly affects horses, mules, zebras and donkeys. It is caused by a virus of the genus *Orbivirus* belonging to the family *Reoviridae*. This disease can be caused by any of the nine serotypes of this virus. AHS is not directly contagious, but is known to be spread by insect vectors. The biological vector of the virus is the *Culicoides* (midges) species. However, this disease can also be transmitted by species of mosquitoes including *Culex*, *Anopheles*, and *Aedes*, and species of ticks such as *Hyalomma* and *Rhipicephalus*.