

## ANNEX XXI

### Performance of Serological and Parasite Detection Tests for *Trypanosoma evansi* in Experimentally Inoculated Goats

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*Trypanosoma evansi* was diagnosed for the first time in the Canary Islands (Spain) in 1997 in a dromedary camel presenting the chronic and terminal stage of the disease. The animal had been imported from the neighbouring West African area, where *T. evansi* is highly prevalent. Seroprevalences of 4.8% up to 9% were observed in camels on the Canary Islands between 1997 and 1999. Affected animals were treated but dissemination of the disease in other hosts is not excluded. Particularly goats could play an important role in the epidemiology of *T. evansi* in the Canary Islands. Thus, the objective of this work was to assess the performance of simple and rapid serological antibody and parasite detection tests in experimentally inoculated goats. Five adult Canary female goats were inoculated intravenously with, at least,  $1 \times 10^5$  *T. evansi* isolated from a dromedary camel. The animals were kept for 8 months and monthly checked for the presence of the parasite and of specific antibodies. The serological tests investigated were the direct card agglutination test CATT/*T. evansi* and the indirect card agglutination test LATEX/*T. evansi*. The parasite detection test used was the mini Anion Exchange Centrifugation Technique (mAECT). All tests were developed at the Institute of Tropical Medicine, Antwerpen, Belgium. Also, stained blood smears, buffy coat examination, lymph node aspirate and inoculation in mice were performed in order to detect *T. evansi*. Other indirect parameters of the disease such as packed cell volume (PCV) and serum total proteins were also determined. The inoculated goats showed a subclinical course of the disease and only a few episodes of fever (within the first weeks post inoculation -PI-) and arthritis (6 months PI) were evident. Parasitemia remained very low but was persistent. Drops in PCV (mean values: 29.5% before inoculation (BI), 20% at 4 months PI, 26% at 8 months PI), and total serum protein (mean values: 6.3 g/dL -BI-, 11.2 g/dL at 4 months PI, 8.6 g/dL at 8 months PI) were observed.

**Serology.** All animals became positive in the CATT/*T. evansi* after one month PI and remained positive with minimum end-titer of 1/4. Similar results were obtained with the LATEX/*T. evansi* although at lower end-titers (1/2). We conclude that CATT/*T. evansi* is adequate for assessing infection of Canarian goats by *T. evansi*.

**Parasite detection.** For goat blood, the DEAE gel was equilibrated with phosphate-buffered saline glucose ( $\text{Na}_2\text{HPO}_4$  (anhydrous): 8,088 g/l,  $\text{Na}_2\text{PO}_4 \cdot 2\text{H}_2\text{O}$ : 0.468 g/l, NaCl: 2.55 g/l, glucose: 10 g/l). A volume of 300  $\mu\text{L}$  of fresh heparinized blood was eluted on a 2.5 ml DEAE gel bed volume. After centrifugation of the eluate, *T. evansi* was detected by its mobility under with a microscope at low magnification (10x10). As expected on the basis of blood volume examined, mAECT proved to be more sensitive than blood smear and buffy coat but less sensitive than mouse inoculation. We conclude that in cases of very low parasitemia in goats, mAECT can be performed when other parasite detection tests failed.