

BIOL 4473: PARASITOLOGY AND LABORATORY

Name of student

Institution of affiliation

Date

The FIRST ARTICLE: **THE SUBSPECIFIC TAXONOMY OF TRYPANOSOMA**
BY J.R BAKER

Summary

Trypanosoma brucei was first observed by David Bruce in 1894, in South Africa from the blood of a cow, and in 1899 it was named in his honor. Trypanosomes observed in Englishman blood in 1901 in Gambia were named *T. gambiense* in 1902. While in 1909; trypanosomes seen from the Englishman's blood from Zambia were named *T. rhodesiense*. Since then a raging debate has been on concerning the interrelationships of these three "species." The studies of these trypanosomes molecular biology chiefly examines of their deoxyribonucleic acid and isoenzymes, now seem to have revealed that *T. brucei* cannot be differentiated from *T. "rhodesiense"* by any consistent and valid criterion; while *T. "gambiense"* perhaps does not entail a valid *T. brucei* subspecies. Still, there is doubt whether *T. brucei* populations are predominantly sexual or clonal. However, while some genetic form exchange, without doubt, can happen in this species, its frequency and nature are not known, and there is proof that the population structure of *T. brucei* is significantly clonal.

THE SECOND ARTICLE: **DOMESTIC ANIMALS AS POTENTIAL RESERVOIR HOSTS OF *TRYPANOSOMA BRUCEI GAMBIENSE* IN SLEEPING SICKNESS FOCI IN CAMEROON BY SIMO G, NJITCHOUANG G.R, HERDER S, NIMPAYE H, CUNY G, AND NJIOKOU F.**

Summary

An explanation of the endemic resurgence and nature of the Human African Trypanosomiasis (HAT) in foci history in Central and West Africa might be the presence of an animal reservoir. In some HAT foci, the swine were discovered to be infected by *Trypanosoma brucei gambiense*, but the other animals' implication was not quite evaluated. The aim of the study is to establish the prevalence of *T. b gambiense* in domestic animals such as goat, pig, dog, and sheep mainly found in the active four foci in Cameroon (Fontem, Campo, Bipindi, and Doume). Blood samples were gathered from 264 goats, 307 pigs, 37 dogs, and 267 sheep and utilized for immunological (LiTat 1.3 CATT), molecular (PCR), and parasitological (QBC) analyses. QBC showed that 3.88% of the domestic animals had trypanosomes while 22.7% were seropositive with LiTat 1.3 CATT tests. Out of the 875 animals examined, 174 harbored *T. brucei*. Also, the PCR indicated *T. b gambiense* in 27 domestic animals. The rate of infections differed significantly between the localities and interrelationship with the degree of HAT transmission in the foci.

THE THIRD ARTICLE: **Molecular evidence of a *Trypanosoma brucei gambiense* sylvatic cycle in the human African trypanosomiasis foci of Equatorial Guinea by Yasmin Fermin, Miguel Navarro, Pilar Aparicio, Jorge Cano, Carlo Cordon-Obras and Jean-Mathieu Bart.**

Summary

Gambiense trypanosomiasis is viewed as an anthroponotic disease. Subsequently, control programs are usually aimed at ceasing the transmission of *Trypanosoma brucei gambiense* by identifying and treating human cases. Nonetheless, the numerous foci persistence in spite of efforts directed at eliminating this disease questions the strategy as a distinct tool to pursue removal. The role of domestic animals as potential reservoirs of *T. b. gambiense* is still contentious but partly could explain the infection maintenance at hypo-endemic levels. In the present study, the presence of *T. b. gambiense* was evaluated in Equatorial Guinea in wild animals. The rate of infection varied from 0.8% in the insular Luba focus to more than 12% in Mbini, an area of attention with a continuous trickle of human cases. The parasite was identified in a variety of animal species including four species that had not been previously described as putative reservoirs. The study emanates to support the hypothesis that animals might play an essential role in the persistent transmission of *T. b. gambiense*, being in particular relevant in low spread settings. Under these situations the combination of medical interventions and integration of control sustained vector.

REFERENCES

Baker, J. R. 1995. The subspecific taxonomy of *Trypanosoma brucei*. *Parasite* **2(1): 3-12.**

Njiokou, F., Nimpaye, H., Simo, G., Njitchouang, G. R., Asonganyi, T., Cuny, G., & Herder, S. 2010. Domestic animals as potential reservoir hosts of *Trypanosoma brucei gambiense* in sleeping sickness foci in Cameroon. *Parasite* **17(1): 61-66.**

Cordon-Obras, C., Rodriguez, Y. F., Fernandez-Martinez, A., Cano, J., Ndong-Mabale, N., Ncogo-Ada, P., & Bart, J. M. 2015. Molecular evidence of a *Trypanosoma brucei gambiense* sylvatic cycle in the human African trypanosomiasis foci of Equatorial Guinea. *Frontiers in Microbiology* **6:765.**