

CF Obi^{1*}; MI Okpala¹; DC Anyogu¹; GE Aneru¹; A Onyeabor²; IO Ezeh¹; RC Ezeokonkwo¹

¹University of Nigeria, Nsukka, Enugu State, Nigeria; ²Michael Okpara University of Agriculture, Umudike, Abia State, Nigeria

*Corresponding Author: Chukwunonso.obi@unn.edu.ng; drfrancis.obi@gmail.com; +2348063707096.

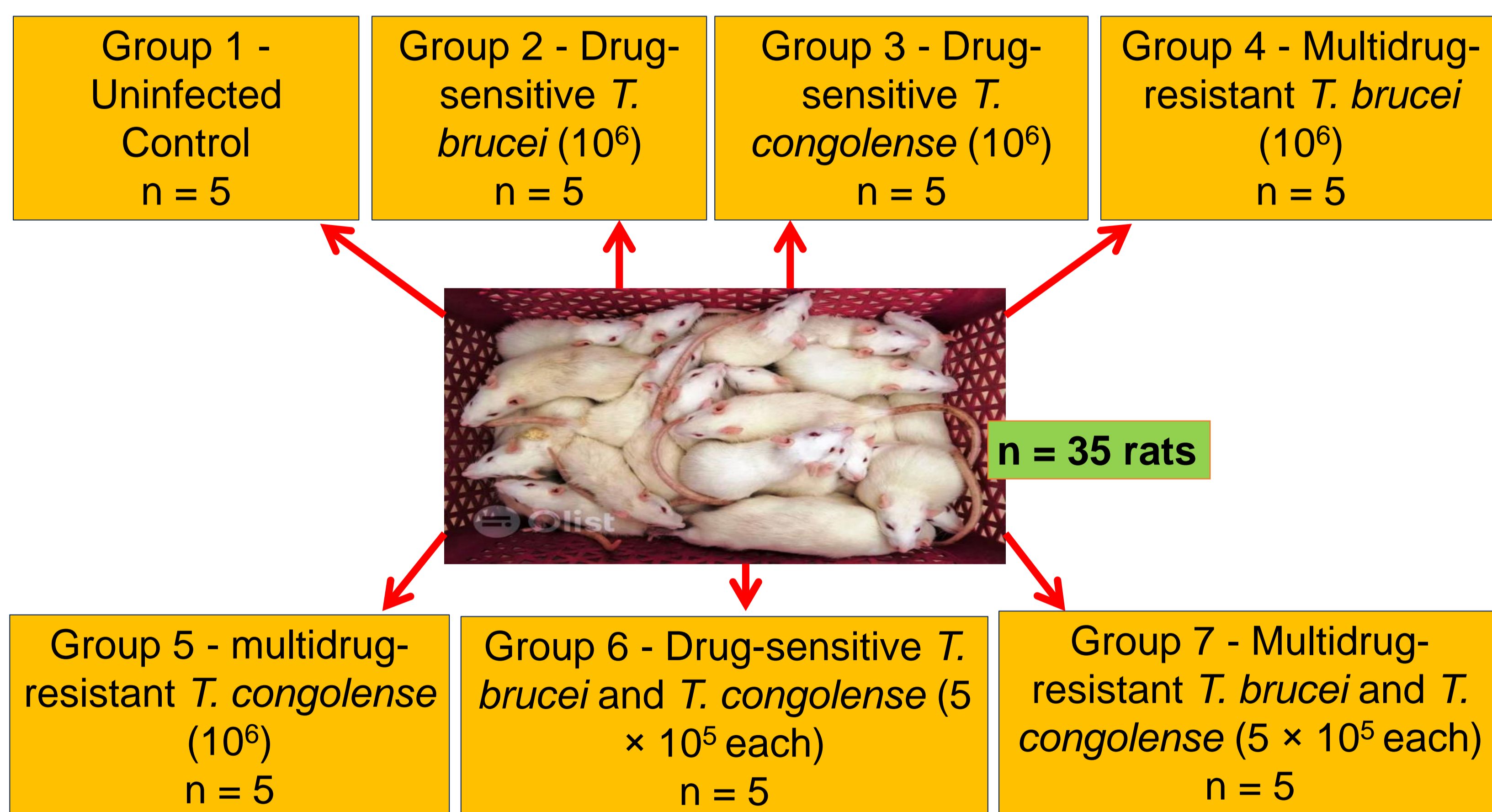
Background

Drug-resistant African trypanosomes are widespread in the sub-Saharan Africa and in conjunction with the drug-sensitive phenotypes cause an important wasting and endemic protozoan disease in humans and animals. The pathogenicity of single and mixed drug-resistant trypanosomes is not clear with scanty information available.

Objectives

To establish the nature of pathogenicity of drug-resistant trypanosomes and to compare the pathogenicity of the single and mixed drug-resistant *Trypanosoma brucei* and *Trypanosoma congolense* infections in rats.

Methodology



Following infection, pre-patent period (PPP), parasitaemia period (PP) first peak parasitaemia, days to first peak parasitaemia (DTFPP), level of parasitaemia (LOP), clinical signs, body weight, rectal temperature, packed cell volume, haemoglobin concentration, red blood cell count, mean corpuscular volume, mean corpuscular haemoglobin, mean corpuscular haemoglobin concentration, total leucocyte count and survivability, gross and histopathological changes in the spleen were assessed.

Results

Parasitaemia occurred in all the infected groups between days 3 and 9 post infection. Groups 4 and 7 rats had longer ($p < 0.05$) PPP, DTFPP, survival time and lower ($p < 0.05$) LOP than groups 2 and 6 rats while for groups 3 and 5 rats, these parameter were comparable (Figures 1 - 3). Anaemia was observed in the infected groups but the severity did not vary amongst the infected groups. Severe clinical signs and splenic lesions were observed in drug-sensitive trypanosome species infected groups of rats compared to the multidrug-resistant species.

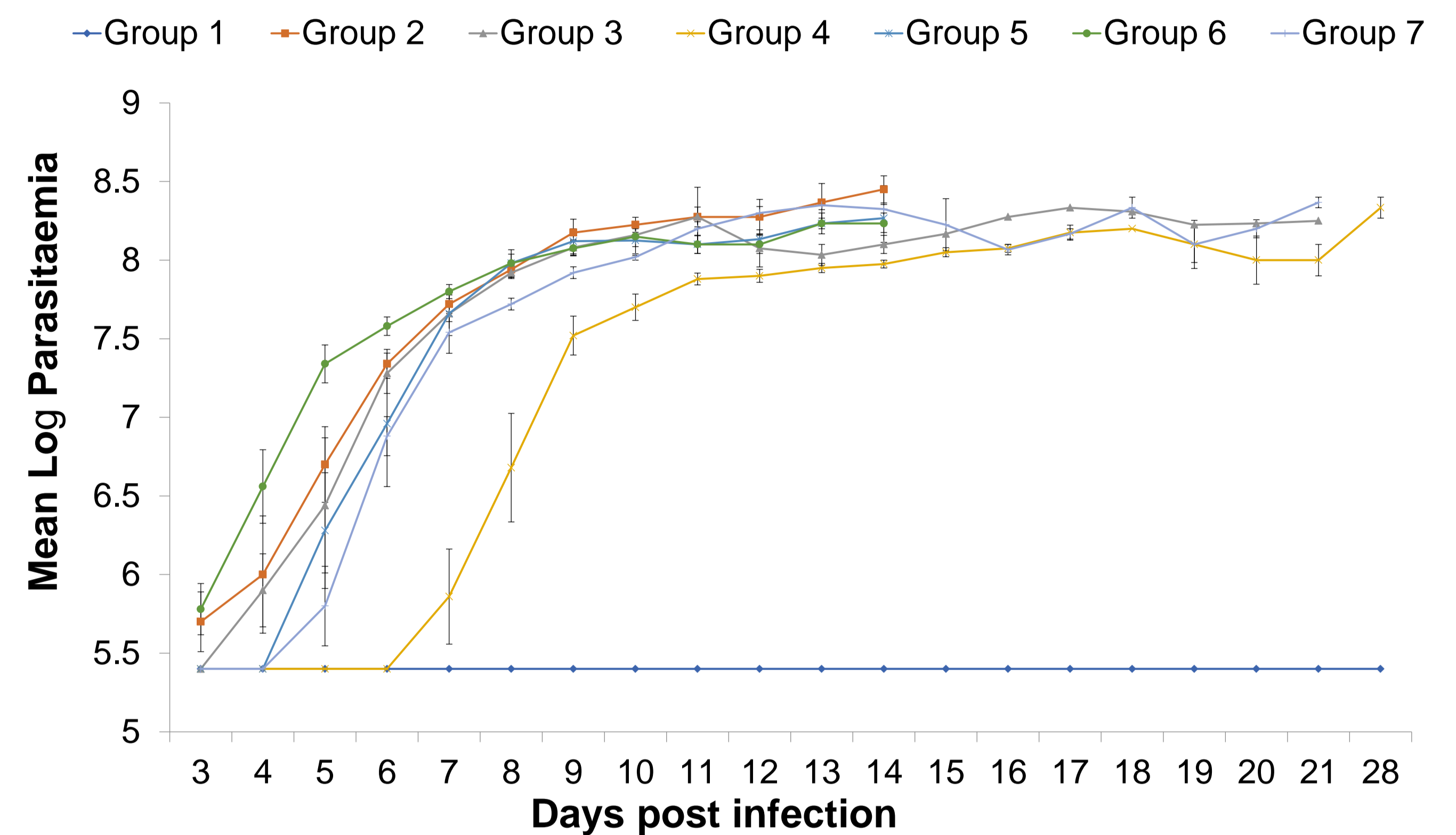


Figure 1: Mean level of parasitaemia of rats infected with either single or combinations of drug-sensitive or multidrug-resistant *Trypanosoma brucei* and/or *Trypanosoma congolense*.

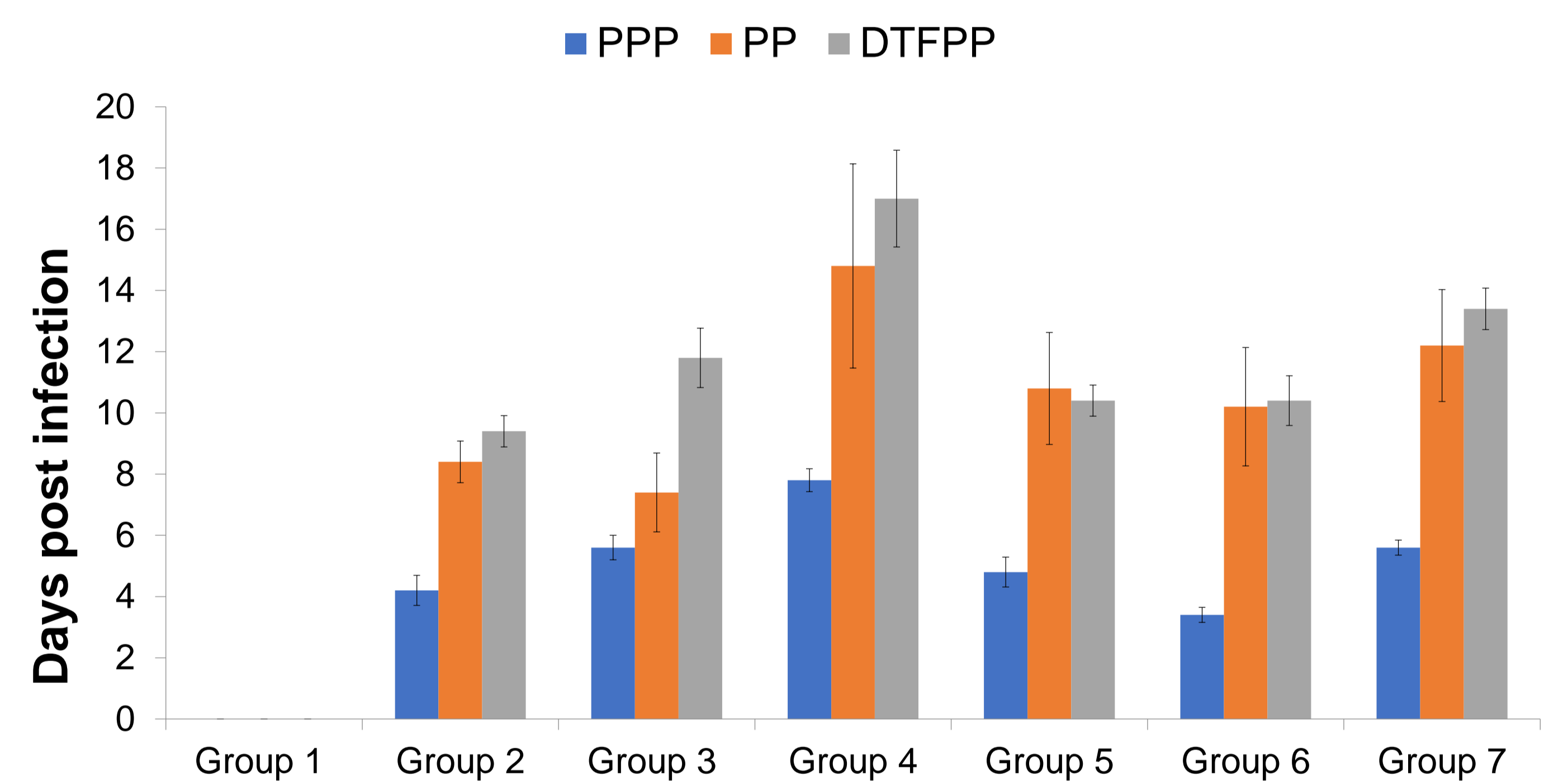


Figure 2: Mean PPP, PP and DTFPP of either single or combinations of drug-sensitive or multidrug-resistant *Trypanosoma brucei* and/or *Trypanosoma congolense*.

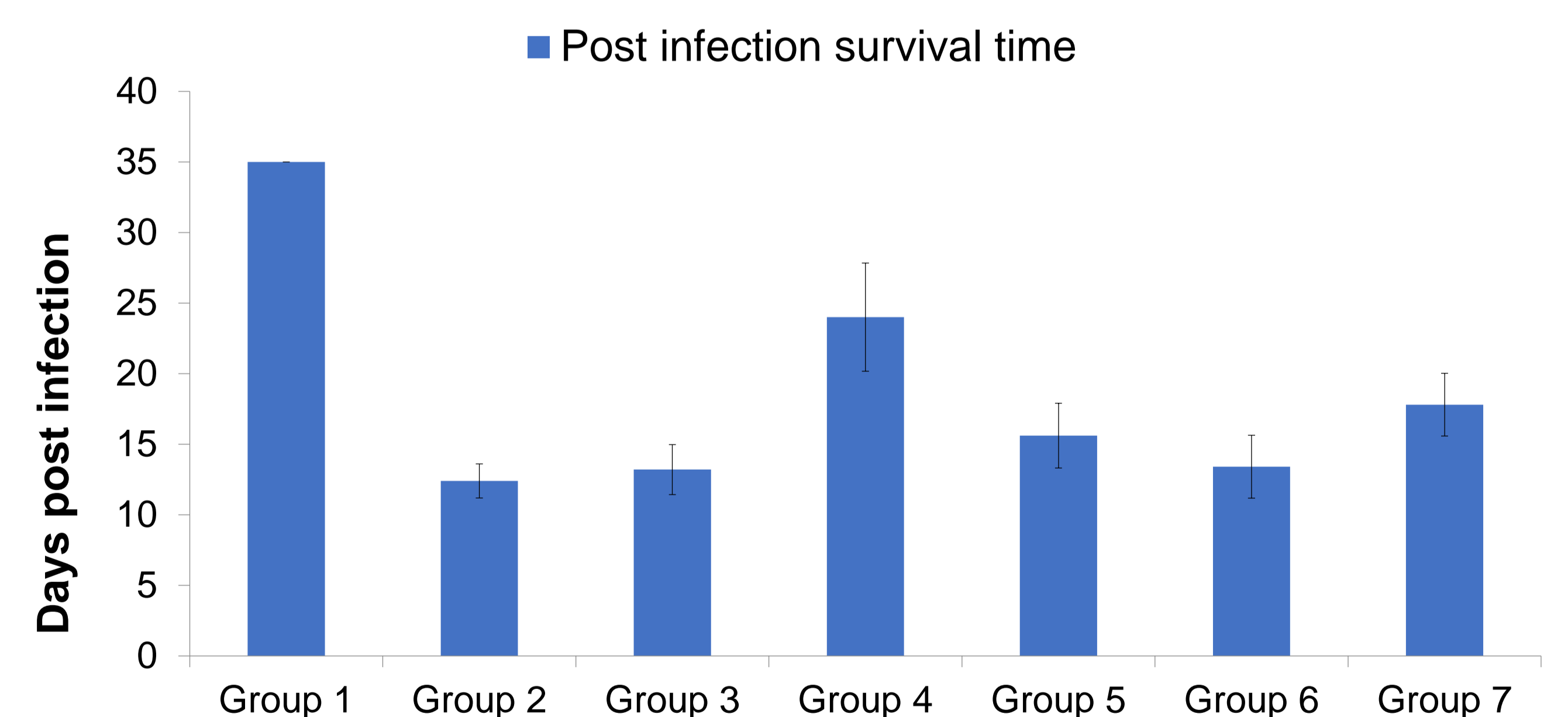


Figure 3: Post infection survival time of rats infected with either single or combinations of drug-sensitive or multidrug-resistant *Trypanosoma brucei* and/or *Trypanosoma congolense*.

Conclusion

The trypanosome isolates were pathogenic. However, drug-sensitive *T. brucei* and mixed drug-sensitive *T. brucei* and *T. congolense* infections were more pathogenic than their multidrug-resistant counterparts.