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In vitro titration of **Theileria** *parva* tick derived stabilates

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Abstract

Immunization against the protozoan *Theileria parva* by infection and treatment has proved to be very efficient for the control of East Coast fever, an acute and often-fatal lymphoproliferative tick-borne disease of cattle in Eastern, Central and Southern Africa. The immunizing dose of live *T. parva* sporozoites used in this method is usually determined by *in vivo* titration. An alternative *in vitro* method of quantification of sporozoites in whole tick-derived stabilates is proposed. The method consists of incubating serially diluted *T. parva* stabilates with bovine peripheral blood lymphocytes, the host cell that is infected naturally. Allowing the cultures to incubate undisturbed for the full cultivation period (10 days) reduced the variability among replicate titrations. Fungal contaminations were avoided by centrifuging stabilates at 400 **g** prior to the incubation, which did not precipitate sporozoites significantly. Fungistatics, Nystatin and Flucytosine, did not appear to interfere with the *in vitro* development of *T. parva* but their effect on fungal growth was limited. *In vitro* titration data were compared to *in vivo* infection data for 2 stabilates. *In vitro* titration of *T. parva* sporozoites should allow more ethical and efficient research on the preparation and storage of *T. parva* tick-derived stabilates.

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Key Words: [Theileria parva](#); [immunization](#); [titration](#); [in vitro](#).

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