

The process of strain selection is an important step in the development of insect pathogens for biological control. Bioassays were conducted in the laboratory to evaluate the efficacy of different methods of inoculation using *Rhipicephalus pulchellus* Gerstäcker (Acari: Ixodidae) as a model. Initially, an oil-based formulation of *Metarhizium anisopliae* (Metsch.) Sorok. (Ascomycota: Hypocreales) titred at 10^9 conidia ml⁻¹) was applied to *R. pulchellus* adults using a Burgerjon spray tower or a microapplicator. Inoculation by microapplicator yielded poor results (25.0% tick mortality) compared to Burgerjon's spray tower (52.3% tick mortality), although the mean number of fungal conidia on *R. pulchellus* adults was lower (1.5×10^4 +/- 1.1×10^3 conidia ml⁻¹) after spraying by Burgerjon's spray tower compared to 1×10^6 conidia ml⁻¹) obtained with the microapplicator. Thus, inoculation by Burgerjon's spray tower was selected for further investigations. Different modes of inoculation were tested and included direct spray of inoculum on the tick and substrate (SS), direct spray on the substrate and tick followed by transfer of the tick to clean uncontaminated Petri dish (SP) or indirect inoculation of ticks through substrate (SW). The LC(50) values following contamination of nymphs (LC(50) = 1.4×10^7 conidia ml⁻¹) and adults (LC(50) = 6.7×10^7 conidia ml⁻¹) in SS were significantly lower compared to SP; nymphs (LC(50) = 5.7×10^8 conidia ml⁻¹) and adults (LC(50) = 5.3×10^9 conidia ml⁻¹) and SW; nymphs (LC(50) = 5×10^8 conidia ml⁻¹). Although the LC(50) value in SS was the lowest, it recorded the highest tick mortality among control ticks (24.2% at 2 weeks post-treatment) and (23.3% at 3 weeks post-treatment) in nymphs and adults respectively compared to SP (2.5 and 5.8%, respectively) and SW (0.0 and 0.0). Results show that among the modes of inoculation tested, SP was the most appropriate for inoculating *R. pulchellus* adults. SW and SP were identified as appropriate techniques for infecting the *R. pulchellus* nymphs with conidia formulated in oil.