

DANIEL L. MUTISYA, E. M. EL BANHAWY CHARLES W KARIUKI, CANNUTE P, M. KHAMALA *Typhlodromalus aripo* de leon (Acari: Phytoseiidae) development and reproduction on major cassava pests at different temperatures and humidities: an indication of enhanced mite resilience. *Acarologia* 54(4): 395-407

### **Abstract**

Both prey type and biotic conditions limit performance of phytoseiid predators. The exotic predatory mite, *Typhlodromalus aripo* developed and produced when maintained on eggs and active stages of the cassava green mite (CGM) *Mononychellus progresivus* at three different temperatures. At the highest temperature of 33<sup>0</sup>C and the lowest at 12<sup>0</sup>C, mite survival was less than 15% over a period of ten days with low fecundity. At 12<sup>0</sup>C, immature took longer to reach maturity, while at 33<sup>0</sup>C high mortality (>80%) occurred. The best performance was recorded at 27<sup>0</sup>C and 75% relative humidity. *Typhlodromalus aripo* was able to feed, develop and reproduce on the crawlers' stage of the whitefly, *Bemisia tabaci* and the nymphal stage of the mealybug, *Phenacoccus manihoti*., though a low survival rate (<10%) was observed for the stages of protonymph, deutonymph and adults. Normal life stage development and egg hatchability were recorded at 27<sup>0</sup>C and 75%RH. The egg stage exhibited high drought tolerance (70% hatching at 40% RH). *Typhlodromalus aripo* females consumed less than 3 crawlers and produced less than one egg/day when fed with *B. tabaci* and *P. manihoti* at 75% RH. The study indicated that for successful utilization of *T. aripo* in biological control of CGM, it would be important to introduce the predator at low prey density whether in absence or presence of alternative prey on cassava. In conclusion, results revealed *T. aripo* to have drought resilient survival attributes which enhances this phytoseiid as an effective biological control agent