

Abstract

Understanding the within-plant diurnal migration and distribution of the Red spider mite, *Tetranychus evansi* Baker and Pritchard, in the presence of the predatory mite *Phytoseiulus longipes* Evans, on African nightshade, *S. scabrum*, is critical in developing an Integrated Pest Management (IPM) strategy for the pest. The *T. evansi* density, day and night cycles, and presence of *P. longipes*, on the within-plant migration and distribution of *T. evansi* on African nightshade were hence investigated. The results indicated that *T. evansi* does not exhibit a circadian migratory movement pattern on *S. scabrum* at lower densities (50 and 100 mites). However, *T. evansi* was observed to have a density-dependent collective displacement and distribution to the top of the plant, as densities increased (300 and 600 mites). The presence of *P. longipes* on the plant enhanced the within-plant migration of *T. evansi*, even at low densities (50 and 100 mites). However, there was no apparent pattern of migration and movement that was observed within the plant. The increased within-plant movement of *T. evansi* in presence of the predatory mites and collective displacement of *T. evansi* at higher densities indicate a potential for developing an IPM strategy using the acaricide treated net, which is discussed further.