

Distribution, abundance and natural enemies of the invasive tomato leafminer, *Tuta absoluta* (Meyrick) in Kenya

G Kinyanjui ^{1,2}, F M Khamis ¹, F L O Ombura ¹, E U Kenya ², S Ekesi ¹, S A Mohamed ¹

PMID: 33998427 DOI: 10.1017/S0007485321000304

Abstract

Tuta absoluta (Meyrick) has become a serious menace to sustainable production of tomato in Kenya. A survey was conducted between April 2015 and June 2016 to determine its distribution, abundance, infestation, and damage levels on tomato, and associated natural enemies. Trap counts of *T. absoluta* moths were recorded in all surveyed 29 counties, which indicated its nationwide distribution irrespective of altitude. *Tuta absoluta* was present in both open fields and greenhouses. The highest moth/trap/day was 115.38 ± 15.90 . Highest leaf infestation was 92.22% and the highest number of mines and larvae per leaf were 3.71 ± 0.28 and 2.16 ± 0.45 , respectively. Trap captures in terms of moth/trap/day were linearly and positively related to leaf infestations in open fields ($R^2 = 0.81$) and greenhouses ($R^2 = 0.61$). Highest fruits' infestation and damage were 60.00 and 59.61%, respectively, while the highest number of mines per fruit was 7.50 ± 0.50 . *Nesidiocoris tenuis* (Reuter) and *Macrolophus pygmaeus* (Rambur) were identified as predators of *T. absoluta* larvae. Nine species of larval parasitoids were recovered from infested foliage, with a combined parasitism of $7.26 \pm 0.65\%$. *Hockeria* species was the most dominant (31.25%) and accounted for $12.88 \pm 1.47\%$ parasitism. Two species of larval parasitoids, *Hockeria* and *Necremnus* were obtained from sentinel plants with an average parasitism of 1.13 ± 0.25 . The overall abundance and parasitism rates of recovered natural enemies were low to effectively control the field populations of *T. absoluta*. These findings form the basis of researching and developing effective and sustainable management strategies for the pest.

Keywords: Abundance; *Tuta absoluta*; distribution; indigenous natural enemies; infestation and damage levels; tomato.