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*"Towards securing human welfare through management of insect diversity in a changing world"*

*"Vers une amélioration du bien-être humain grâce à la gestion de la diversité des insectes dans un monde en mutation"*

*"نحو تأمين الرفاهية البشرية من خلال إدارة تنوع الحشرات في عالم متغير"*



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“TOWARDS SECURING HUMAN WELFARE THROUGH MANAGEMENT OF  
INSECT DIVERSITY IN A CHANGING WORLD”

“VERS UNE AMÉLIORATION DU BIEN-ÊTRE HUMAIN GRÂCE À LA GESTION  
DE LA DIVERSITÉ DES INSECTES DANS UN MONDE EN MUTATION”

“نحو تأمين الرفاهية البشرية من خلال إدارة تنوع الحشرات في عالم متغير”



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### ST-8.13. Integrating Biocontrol and Low Cost Nethouse for Management of Tomato Leafminer in Tanzania.

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#### Abstract

*Tuta absoluta* (Meyrick) is a devastating horticultural pest leading to 100% loss of tomato in fields in Sub Saharan Africa including Tanzania. Current study was conducted to evaluate efficacy of net house and fungal based biocontrol, *Metarhizium anisopliae* on management of *T. absoluta* by drenching method. The experiment was conducted from February to June 2017, where three villages were used as replicates. Water formulation of *M. anisopliae* was prepared by suspending spores into sterile distilled water at concentration of  $1 \times 10^8$  spores/ml. Three weeks old tomato seedlings, variety Tengeru 2007 were dipped into drenching basin for 48hrs to ensure maximum inoculation rate and thereafter transplanted into nethouse and open field conditions. Two weeks after transplanting; height, number of leaves and number of *T. absoluta* mines per plant were counted on weekly basis for eight weeks consecutively. Results showed that tomato treated with *M. anisopliae* in nethouse performed better than untreated in open fields with an average height of  $67.21 \pm 1.4$ cm and  $17.06 \pm 0.29$  leaves and  $52.06 \pm 2.3$ cm and  $13.17 \pm 2.04$  leaves in nethouse and open field respectively. High percentage of *T. absoluta* damage was observed untreated tomato in open fields with 62.5% loss of total harvest in four weeks whereas 0.5% of *T. absoluta* damage was recorded in nethouse treated with *M. anisopliae*. Integration of net house and biological control has a synergic effect on promotion of tomato growth and control of *T. absoluta*; hence application of eco-friendly technology is effective in management of *T. absoluta* in Tanzania and would be potential for other parts invaded by tomato borer in Sub Saharan Africa.

**Keywords:** Tomato borer, biological control, nethouse, Tanzania, entomopathogens

### ST-8.14. Allomonal Effects of Ripe Coffee Berries Odors in Antestia Bugs, *Antestiopsis thunbergii* (Heteroptera: Pentatomidae): Implication for the Pest Management

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#### Abstract

Antestia bug, *Antestiopsis thunbergii* Gmelin (Heteroptera: Pentatomidae) is a major pest of *Coffea arabica* in eastern Africa. The pest damages both the vegetative and reproductive parts of the coffee plant but requires green (unripe) berries for nymphal development and adult reproduction. Consequently, the pest strongly prefers to feed on green berries in the field than any other coffee parts. In nature, insects often use their olfactory system to recognize and locate suitable hosts and avoid non suitable hosts. The identification of plant volatiles that act as pest kairomones (attractants) or allomones (defence/ repellent) can potentially lead to development of environmentally friendly pest management options. Our study compared the chemical profiles of unripe and ripe coffee berries. In addition, electrophysiological and behavioural responses of the pest to compounds unique to ripe berries were studied. Our findings on the olfactory cues used by the pest to avoid ripe berries (a non preferred host) and the implication in Antestia bug management in a “push- pull” system will be discussed.

Key words: GC-MS, GC/EAD, olfaction, allomones, pest management