



Autodissemination device for the management of bean flower thrips, *Megalurothrips sjostedti* on cowpea

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INTRODUCTION

Bean flower thrips (BFT), *Megalurothrips sjostedti*, is a major pest attacking the reproductive structures of cowpea, resulting in 20–80% yield loss. Control of BFT has relied on the use of synthetic chemical insecticides, which have negative effects on the environment and consumers, and the pests develop resistance to them. Entomopathogenic fungi (EPF) are being considered among the alternatives to synthetic chemical pesticides. EPF are applied through inundative approach, which requires high amount of inocula, yet the effects are short lived, thus increasing the cost. Thrips attractants (such as colour and plant kairomones) can be integrated with EPF in an “attract-and-infect” strategy for the management of thrips. Compatibility between semiochemicals and EPF is a prerequisite for integrating them; therefore, this study focused on identifying the attractants compatible with EPF for thrips management.

OBJECTIVES

To identify thrips attractants that are compatible with *M. anisopliae* and to evaluate their potential in the autodissemination device in the field.

METHODS

Laboratory experiments on screening of compatible attractants were conducted at *icipe* – Duduville, Nairobi. Field experiment was conducted at *icipe* – Mbita, Western Kenya

- *M. anisopliae* isolate ICIZE 69 was used in this study
- Semiochemicals: Lurem-TR[®], methyl anthranilate (MA), and jasmone were used.
- Their compatibility with ICIZE 69 was tested in the lab.
- In the field, treatments consisted of: (i) fungus-treated device with methyl anthranilate [diluted in paraffin oil and placed inside the device (ADD+MA)] (Plate 1A), (ii) fungus-treated device with Lurem-TR placed outside the device (ADD+L) (Plate 1 B), and (iii) fungus-free device as control. Parameters measured included thrips density and conidial persistence, and germ tube length.

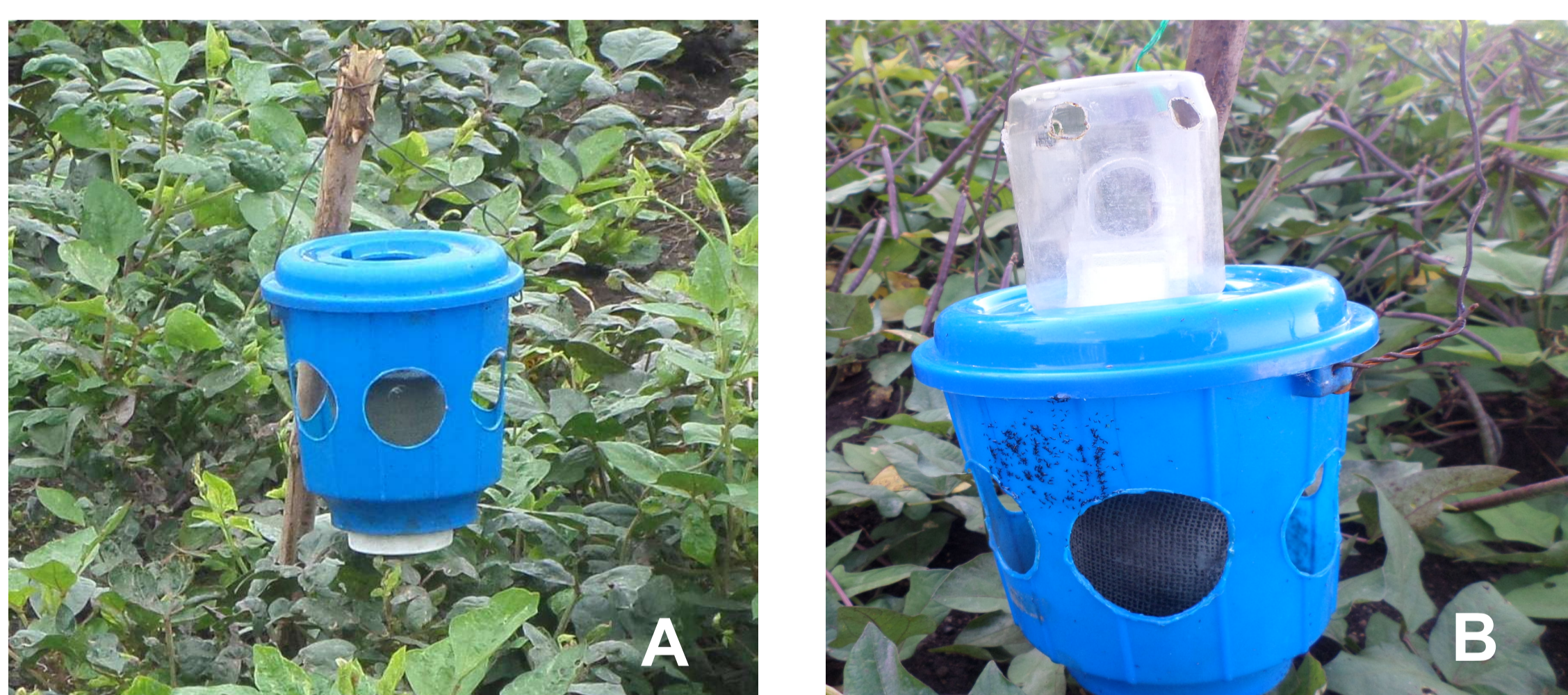


Fig. 1 Autodissemination device baited with MA (A) and Lurem-TR (B)

CONCLUSION

- Methyl anthranilate was efficient with Lurem-TR in attracting BFT, and also, compatible with conidia of *M. anisopliae*.
- Methyl anthranilate can be recommended for use in combination with *M. anisopliae* in autodissemination and spot spray strategies.

RESULTS

Table 1: Effect of thrips attractants on conidial germination of *M. anisopliae* and germ tube length

Attractants	% germination	Tube length ±SE
Control	62.4±3.5a	130.5±10.0a
Methyl anthranilate	53.7±3.5ab	103.8±10.0ab
Cis-jasmone	50.9±3.5ab	93.8±10.0ab
Lurem-TR	24.4±3.5c	37.1±11.7c

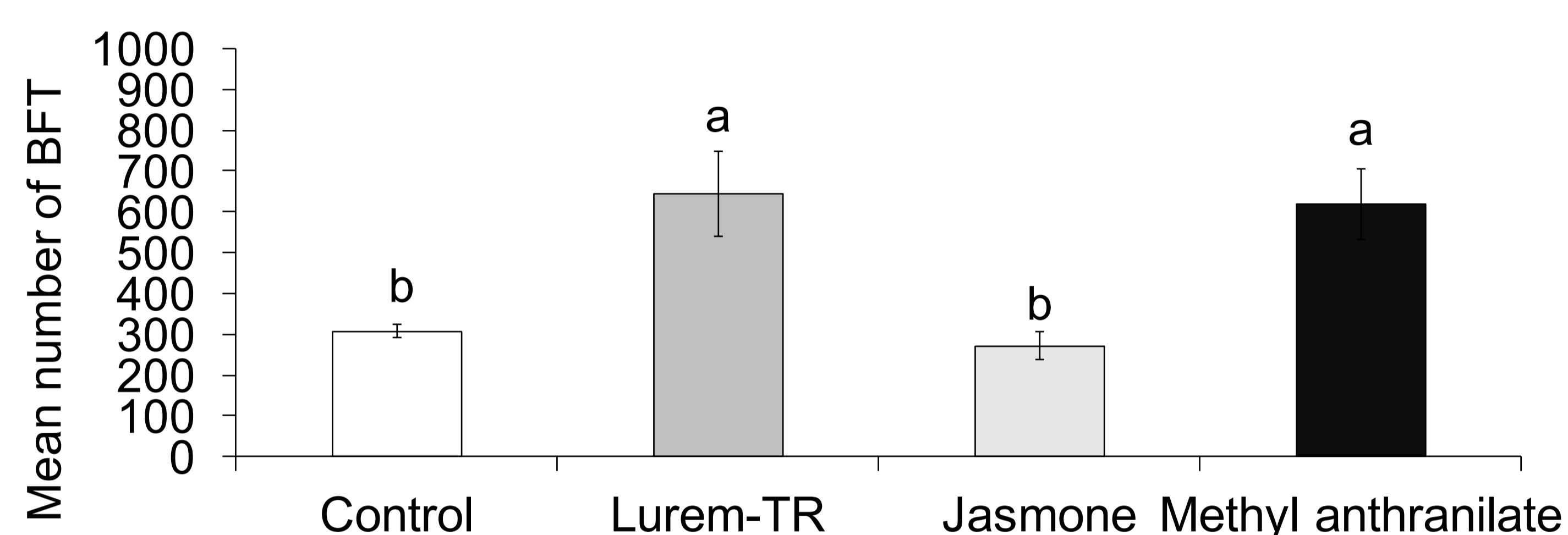


Fig. 2 Mean± SE number of BFT attracted to blue sticky card with methyl anthranilate, *cis*-jasmone, Lurem-TR, and control.

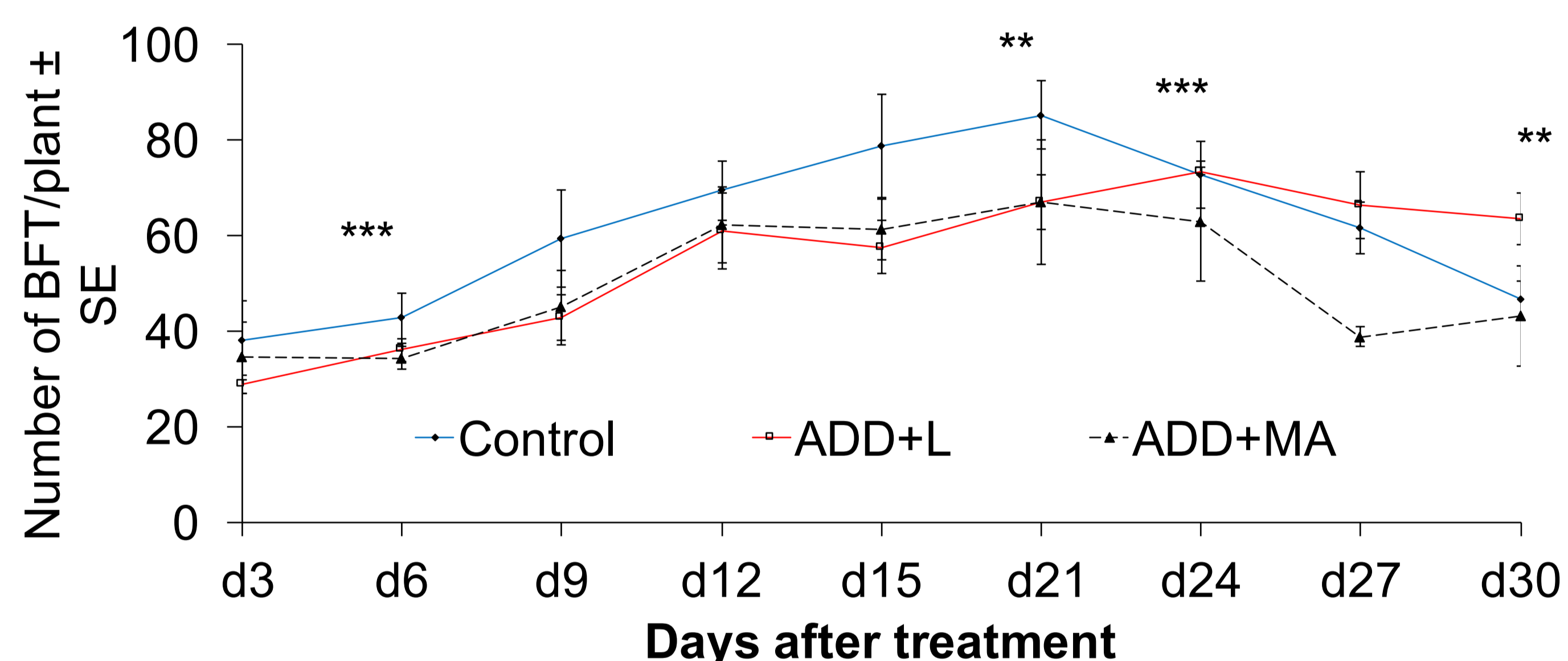


Fig. 3 BFT density per plant in plots treated with autodissemination devices baited with methyl anthranilate (ADD-MA) and Lurem-TR (ADD-L) at flowering and podding stages.

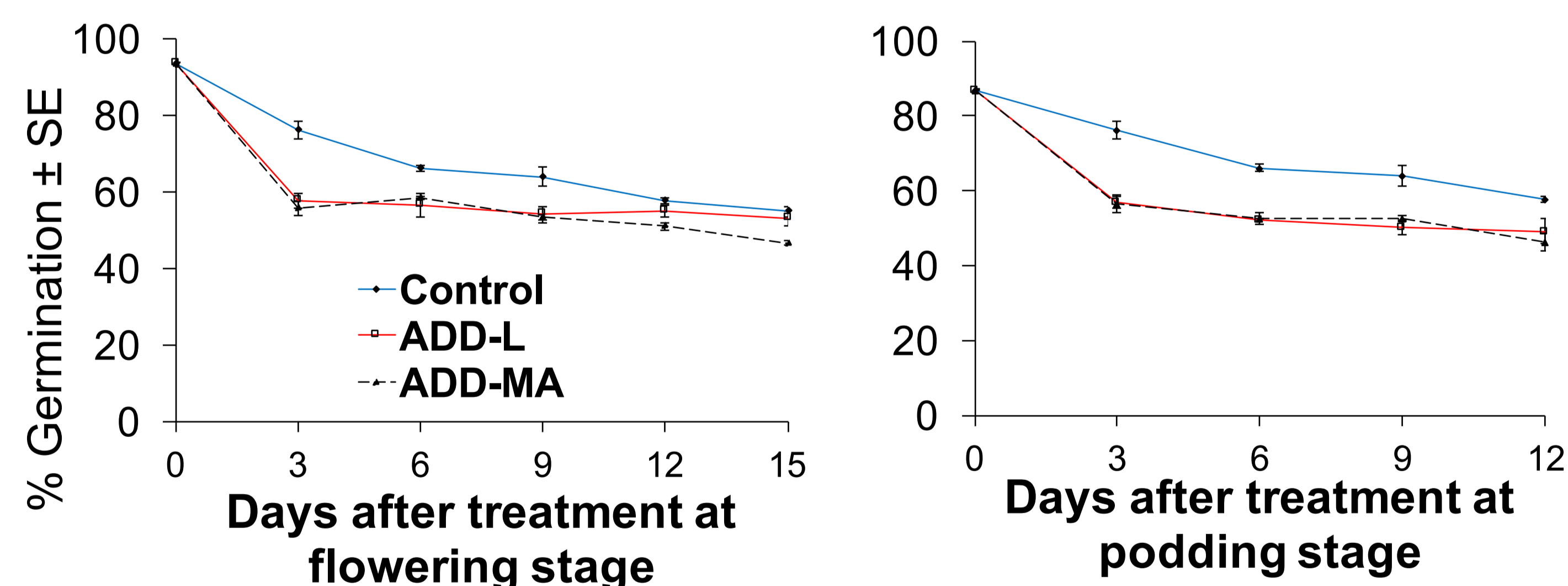


Fig. 4 Conidial persistence of *M. anisopliae* in autodissemination devices baited with methyl anthranilate (ADD-MA) and Lurem-TR (ADD-L) at flowering and podding stages.

REFERENCES

Ekesi S. and Maniania N.K. (2007) *Use of Entomopathogenic Fungi in Biological Pest Management*. Research Signpost, Kerala, India. 333 pp.

Mfuti D.K., Subramanian S., Niassy S., Salifu D., du Plessis H., Ekesi S., and Maniania N.K., Screening for attractants compatible with *Metarhizium anisopliae* for use in thrips management. *Journal of Insect Science*. (Submitted).