



A 'push-pull' strategy in coffee berry borer management

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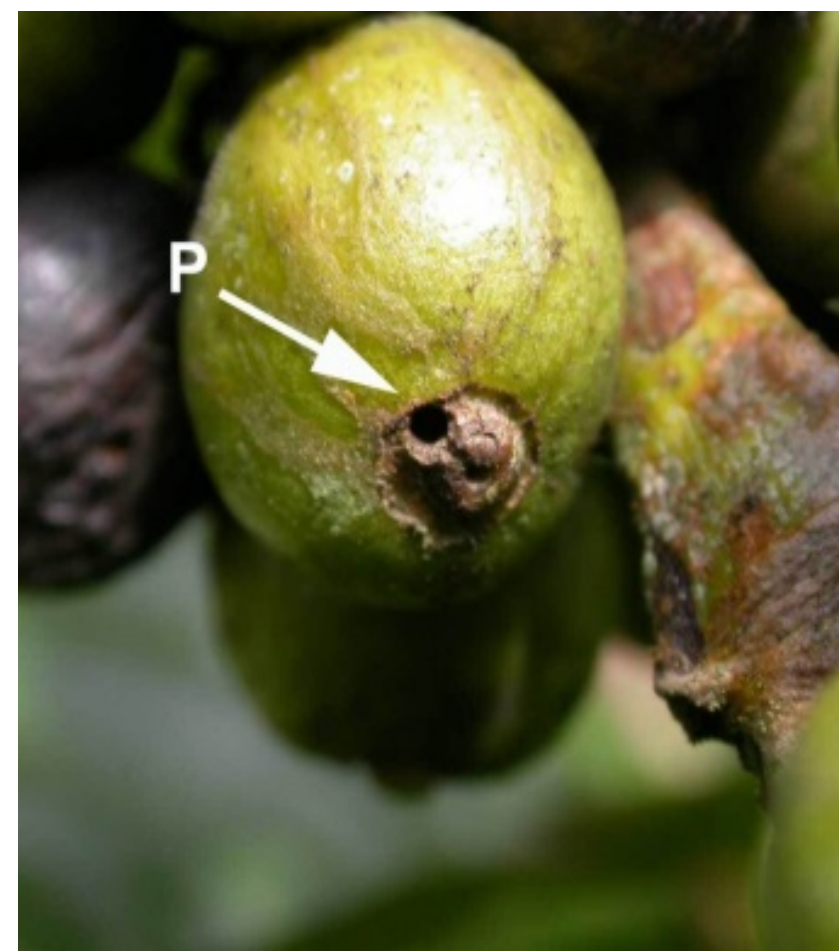
INTRODUCTION

Mass trapping of the coffee berry borer (CBB), *Hypothenemus hampei* Ferrari, using methanol and ethanol mixtures (ME), is the only existing semiochemical-based management strategy for the pest; so it is important to improve or supplement the method. Using laboratory assays and chemical analysis, we identified the sesquiterpene frontalin, an aggregation pheromone of the southern pine beetle from coffee berries, as a potential repellent of *H. hampei*. We, therefore, investigated the effect of mixing frontalin with the commercial lure on *H. hampei* capture rates. We present evidence showing frontalin has the ability to disrupt host location via a 'push' strategy, while the commercial alcohol mixture acts as a 'pull' for *H. hampei*.

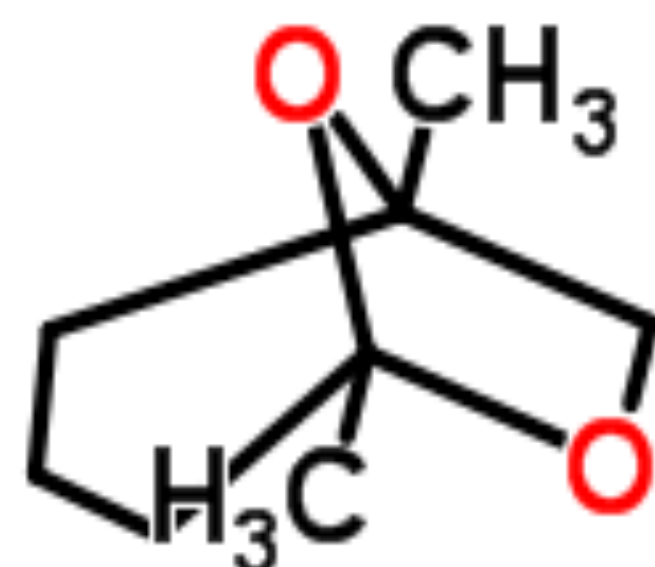
METHODS



H. hampei



CBB damage



Frontalin

(A) Assays with authentic frontalin

We conducted behavioural laboratory experiments with various concentrations of frontalin ranging 40 ng/μl - 320 ng/μl.

(B) Field evaluation of frontalin



Field site



Brocap® trap suspended on a coffee tree

CONCLUSION

- Frontalin repels *H. hampei* and masks its commercial attractant.
- Frontalin is a candidate for *H. hampei* management as a 'push', while existing alcohol commercial attractant could be used as a 'pull'.

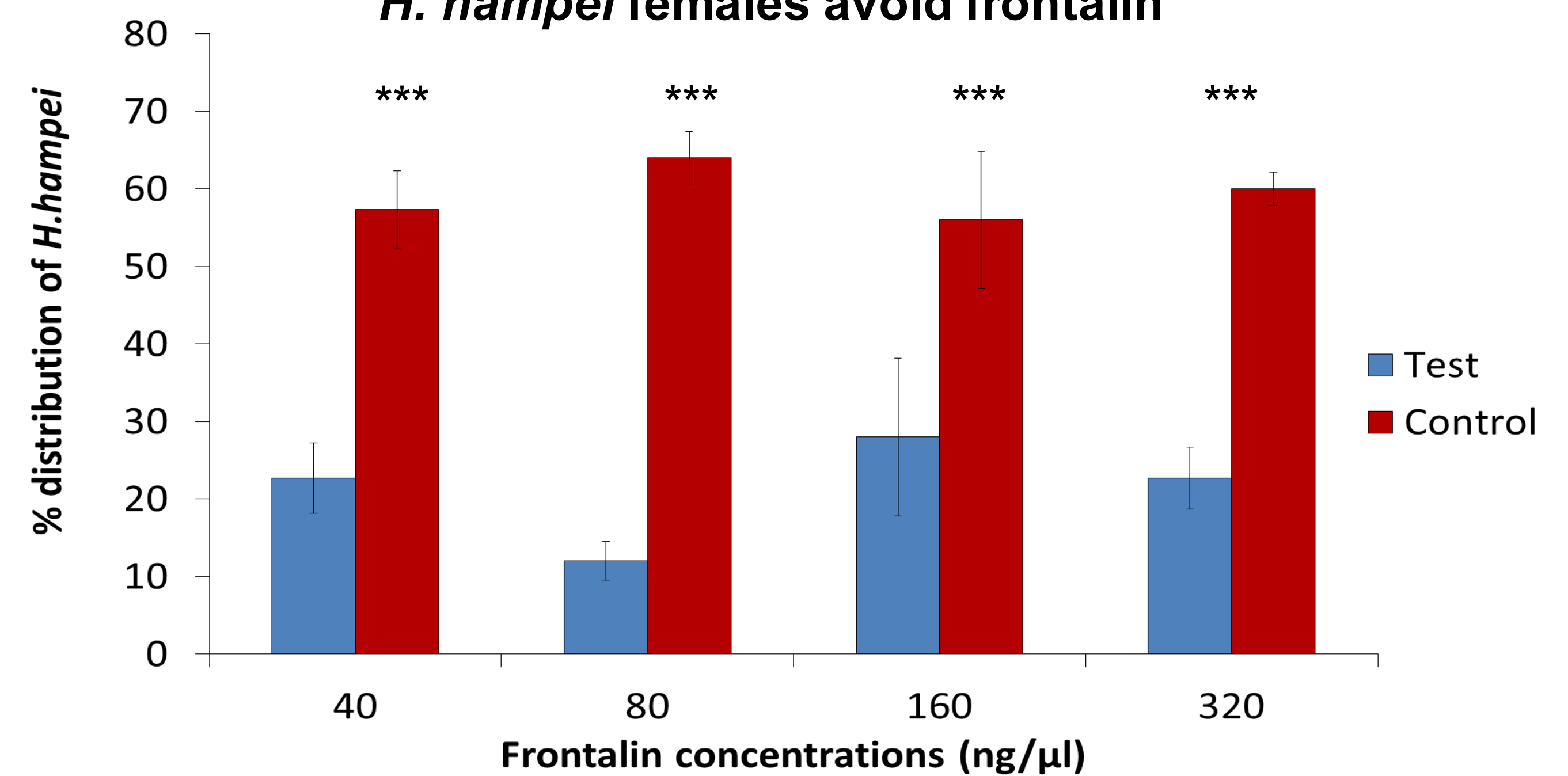
OBJECTIVES

- To identify a repellent for *H. hampei* in the laboratory.
- To evaluate the potential of the repellent for *H. hampei* management in the field.

RESULTS

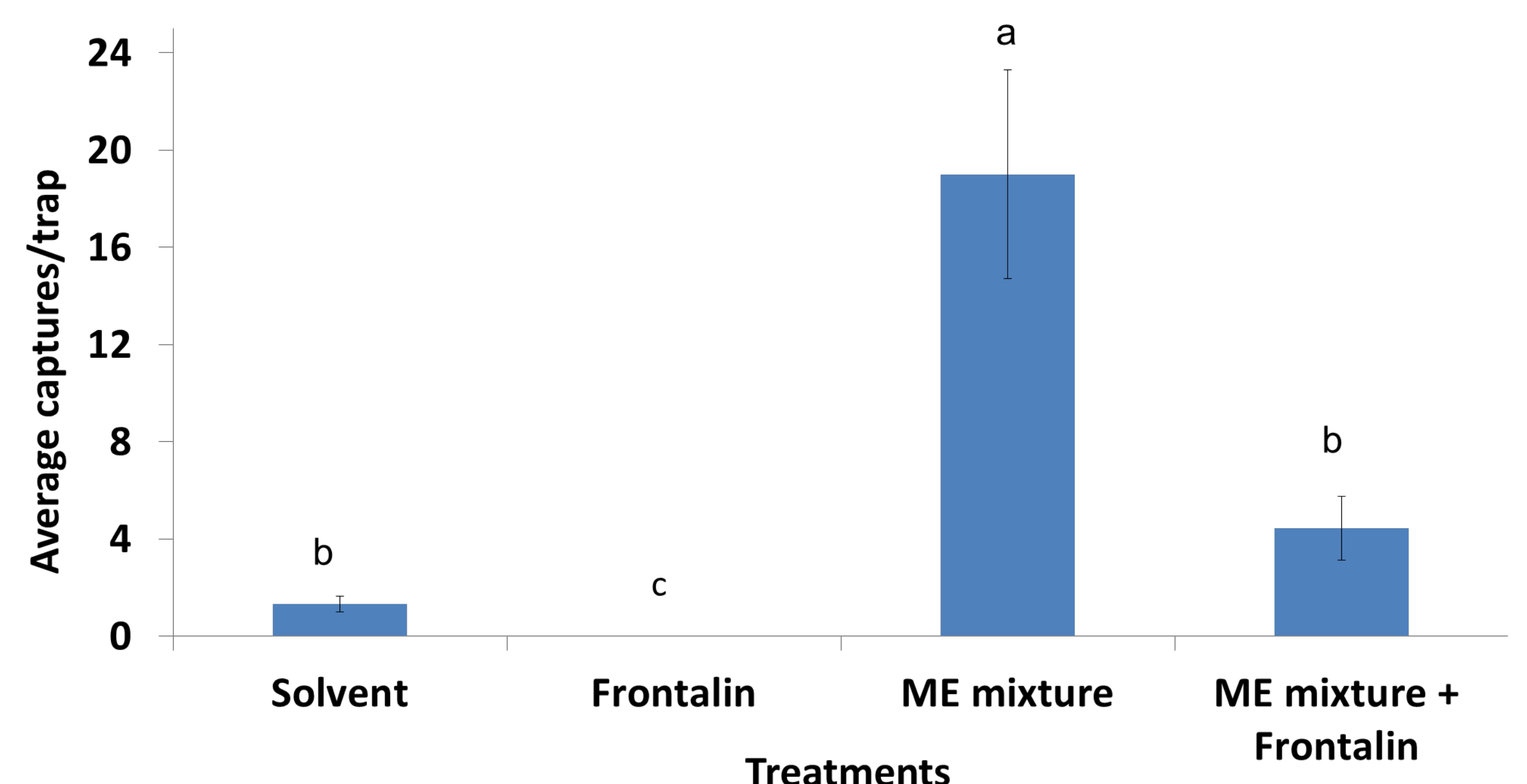
Laboratory dual choice olfactory tests

H. hampei females avoid frontalin



Field evaluation of frontalin

Frontalin masks *H. hampei*'s commercial attractant



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