Two African fruit flies (Diptera: Tephritidae) produce and respond to similar host marking pheromones

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INTRODUCTION

Fruit flies pose a major constraint to large-scale production of fruits in Africa. To combat fruit fly infestation, complementary control tools are required. One such tool is use of host marking pheromones (HMPs) that some gravid female insects employ to mark oviposition substrates to deter conspecifics (and at times heterospecifics) from exploiting the same resource for egg laying. It is known that fruit flies that mark their oviposition substrates do so by producing a marking pheromone, either in the head region and deposited by mouthparts, or in the midgut and stored, then released through the female dragging the protracted ovipositor following egg laying, and thus contaminating the faecal matter with HMPs. In the present work, we isolate, identify, and evaluate HMPs of *Ceratitis rosa* and *Ceratitis fasciventris* in the lab, with the aim of exploiting them for pest management.

OBJECTIVES

1. To isolate and identify the potential host-marking pheromone in *C. rosa* and *C. fasciventris.*
2. To evaluate the efficacy of synthetic compound of the female-specific compound.

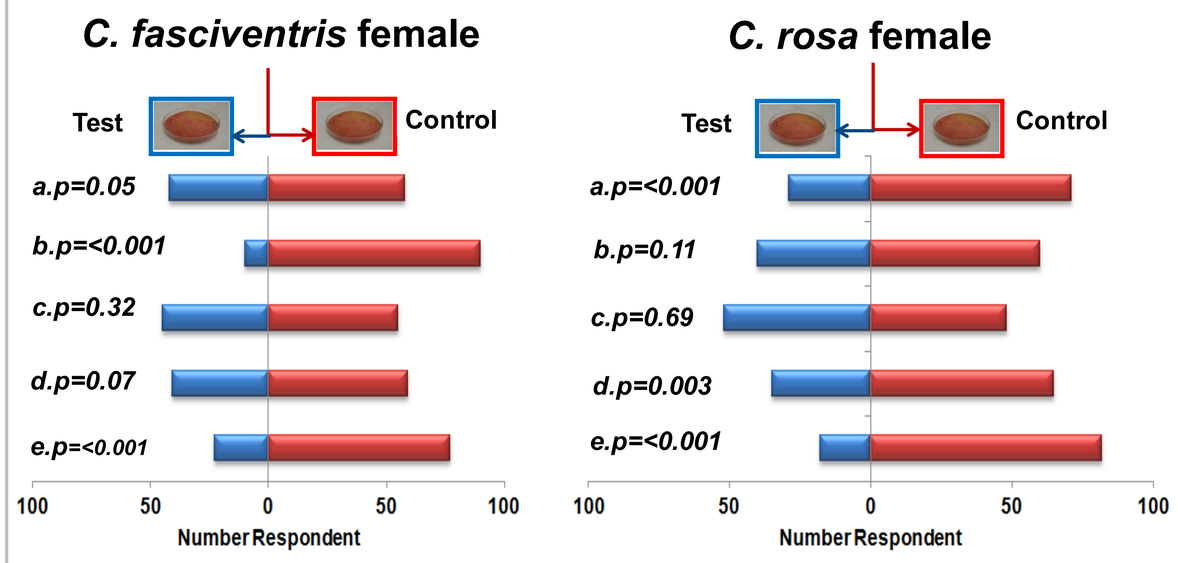
METHODS

Ceratitis rosa

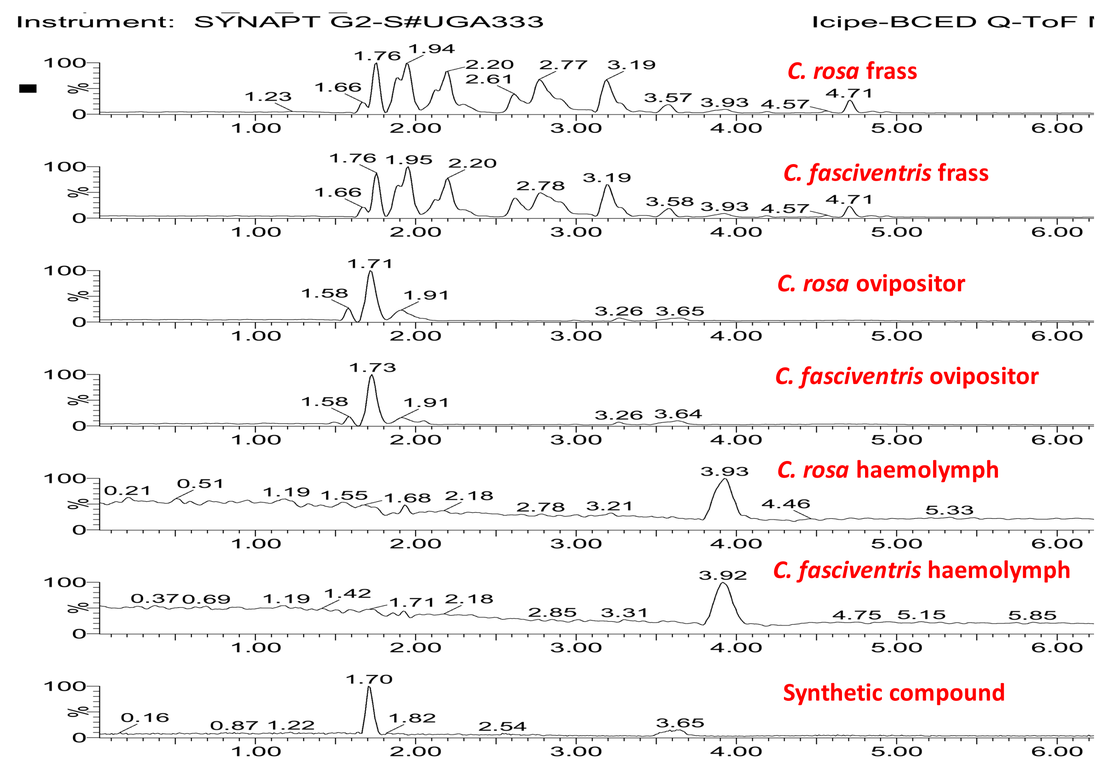
Ceratitis fasciventris

Laboratory evaluation of crude frass and synthetic compound

RESULTS



Oviposition deterrence bioassay treatments a-e. Crude frass (10 mg/ml) from: a) *C. rosa,* b) *C. fasciventris*, synthetic compound at 3 doses, c) 1 mg/ml, d) 5 mg/ml, and e) 10 mg/ml. In all experiments, the control was 1 ml distilled water (n=100)



LC-Qtof-MS profile showing overlaid total ion chromatogram with HMP at retention 1.70 min

CONCLUSIONS

- *C. rosa* and *C. fasciventris* frass contain similar host marking pheromones.
- We identified the key component of the pheromone blend as a nitrogenous compound.
- Future work will focus on testing the pheromone in the field.

REFERENCES

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