

Behavior of *Cacopsylla picta* on phytoplasma infected apple trees – Oviposition and feeding affected by changes in host plants' phloem composition

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Introduction

The phloem feeding insect *Cacopsylla picta* Foerster (Hemiptera: Psyllidae) vectors the bacterium '*Candidatus Phytoplasma mali*' causing apple proliferation disease (AP) in apple trees. In spring, the psyllids remigrate from their overwintering sites into fruit orchards. On their host plant apple, reproduction takes place. As previous no-choice studies demonstrate, *C. picta* females oviposit higher numbers of eggs on healthy plants [1]. Oviposition choice and feeding behavior on healthy vs. phytoplasma infected plants were assessed in order to better understand the interaction between phytoplasma, its vector and their common host plant.

Material and Methods

Plants:

Apple cultivar Golden Delicious was grafted on M9 in 2012/2013.

Phytoplasma:

The phytoplasma infected plants were inoculated with the virulent strain AP 3/6 [2] and infestation verified by PCR.

Oviposition choice:

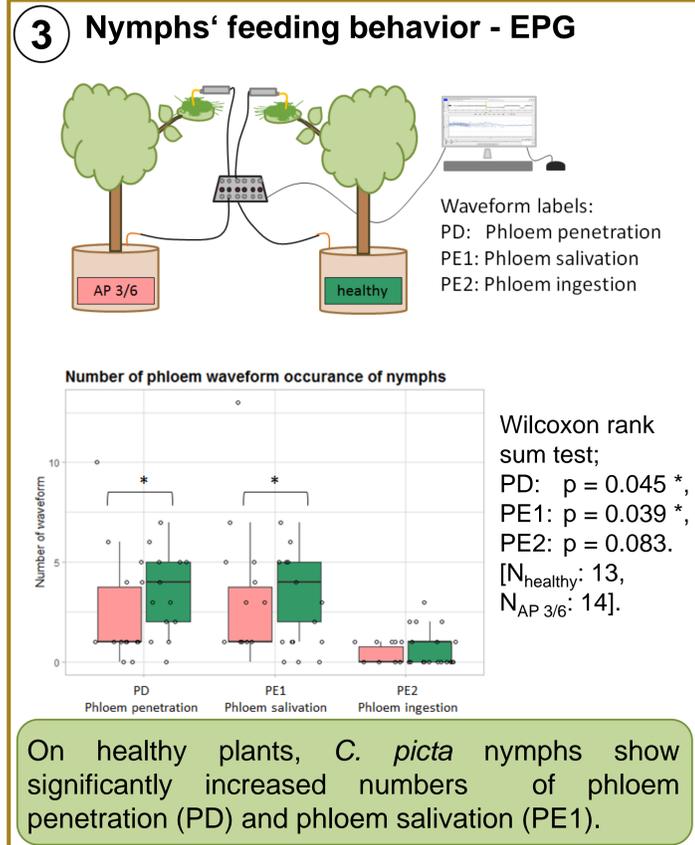
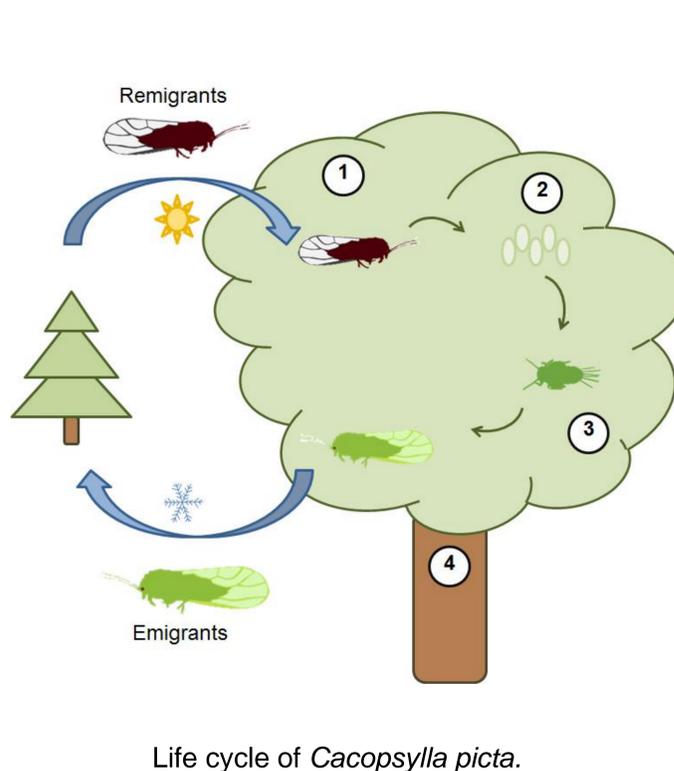
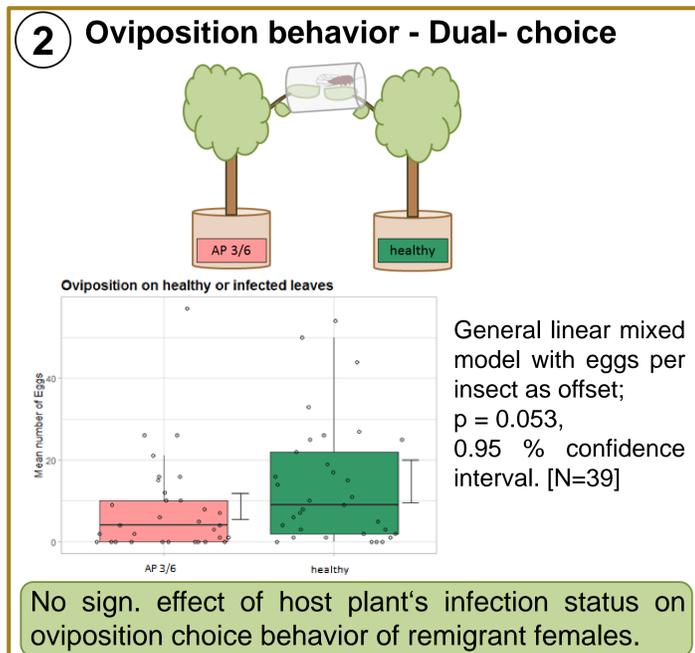
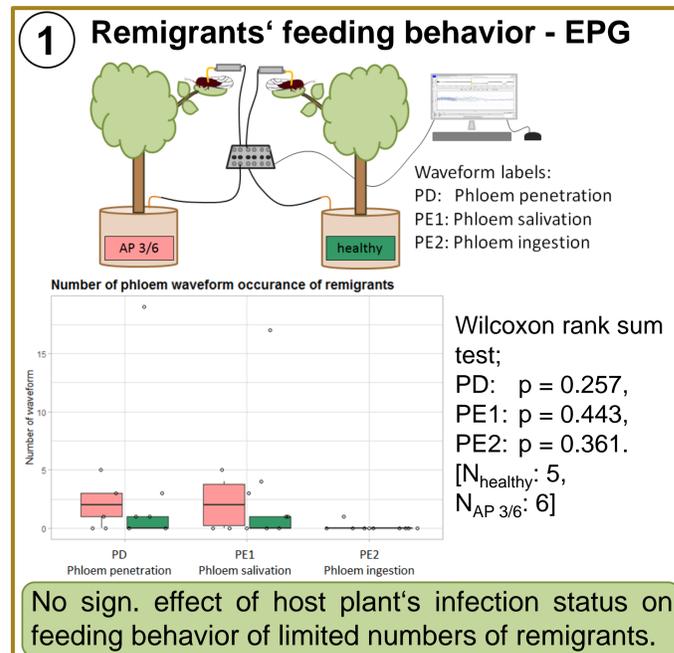
Female *C. picta* remigrants were caged in small gauze tubes with dual choice opportunity. Number of eggs on each leaf were counted after 96 h.

EPG:

The first 8 hours of recordings from female *C. picta* remigrants or nymphs were analysed, respectively. Waveform interpretation was done according to [3].

Phloem analysis:

Composition will be assessed from phloem sap collected via centrifugation technique [modified after 4], derivatization and GC-MS analysis [5].



Discussion and next steps

C. picta tends to oviposit more eggs on healthy plants, but the difference is not statistically significant. With an increase in phloem penetration (PD) and formation of salivary stylet sheaths (PE1) the probability to transmit phytoplasmas to healthy plants could increase accordingly. The next question now is whether phytoplasma infection qualitatively or quantitatively renders the phloem composition. Thus, alterations in host suitability could explain changes of *C. picta*'s behavior on healthy or infected plants.

References

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