



EFFICACY OF TWO PREDATORY MITE SPECIES TO CONTROL WHITEFLIES INFESTING POINSETTIA PLANTS COMPARED TO THE STANDARD PARASITOID *ENCARSIA FORMOSA*

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INTRODUCTION AND AIM

- » Biological pest control of the greenhouse whitefly *Trialeurodes vaporariorum* in poinsettia with the endoparasitic wasp *Encarsia formosa* is a common system, which is challenged by *Bemisia tabaci* and changing climate strategies.
- » Two predatory phytoseid mite species *Amblydromalus limonicus* and *Transeius* (syn. *Typhlodromips*) *montdorensis* (Acari: Phytoseiidae) were tested as alternative or addition tool to foster biological control. ➤

MATERIAL METHODS

- » Whitefly species included: *T. vaporariorum* (2013) and *B. tabaci* (2014).
Beneficial species included: *E. formosa*, *T. montdorensis* and *A. limonicus*.
- » Greenhouses (500 plants and 500 adult whiteflies each) contained either an untreated control, a chemical control or one beneficial species to exclude interfering effects.
- » In the chemical control plants were sprayed at 6-8 dates with five different registered insecticides (pymetrozine, flonicamide, spirotetramat, acetamiprid, and rape seed oil).
- » To control *T. vaporariorum* in total 3 *E. formosa*, 40 *A. limonicus* and 40 *T. montdorensis* were released per plant.
- » For *B. tabaci*, the number of beneficials had to be increased to 5 *E. formosa*, 50 *A. limonicus* and 50 *T. montdorensis* per plant.
- » Monitoring: Whitefly nymphs and adults as well as parasitized larvae of *E. formosa* were weekly counted on 25 marked plants per treatment. Mite occurrence was checked as plants hosting mites (2013) or number of mites per plant (2014).



RESULTS

» Control of *Trialeurodes vaporariorum*

Efficacy of all beneficials was comparable to the chemical regime.

All treatments provided good pest control without significant differences.

» Control of *Bemisia tabaci*

- ◆ All beneficial species controlled of *B. tabaci* only sufficiently.
- ◆ Efficacy of *E. formosa* and *T. montdorensis* was similar followed by *A. limonicus*.
- ◆ Mites were found on nearly each plant with up to seven mites. Mite numbers decreased after three to four weeks.
- ◆ Larvae parasitized by *E. formosa* were found on 70% of the plants.
- ◆ Releases of all beneficial species should continue until November.



CONCLUSION

- » Both mite species may be a good addition or even alternative to *E. formosa*, since mites are less susceptible to poor weather conditions.
- » All species have the potential for successful control of *B. tabaci* but the numbers have to be considerably increased compared to the number needed for the control of *T. vaporariorum*.
- » Further investigations are needed particularly with pollen as a potential food source to enhance mite propagation and reduce costs.

