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52-5 - Entwicklung farbiger Klebefallen zum Monitoring des Birnblattsaugers *Cacopsylla pyri*

Development of coloured sticky traps for monitoring of pear leaf sucker Cacopsylla pyri

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Phytophagous insects rely on visual and olfactory cues for orientation and successful host selection. Understanding the role of cues that insects use to select their hosts is essential to the development of sustainable control strategies, particularly for plant disease vectors. Pear psyllids (*Cacopsylla pyri*) are vectors of the bacterial pathogen, *Candidatus Phytoplasma pyri* that causes the pear decline disease. Several studies demonstrated how yellow traps can be used for monitoring pest insects in the field, but they are generalistic and capture a wide range of beneficial insects, too. Evaluation of color wavelengths, laboratory and field tests with the target methods can help to develop more specific traps. The use of light emitting diodes (LEDs) is a promising approach to evaluate the attractiveness, specificity and adaptability of visual traps. Moreover, with the use of LEDs it is possible to study the visual behaviour and colour processing of insects. On the background of improving visual traps, the aim of this research was to investigate the colour choice behaviour of *C. pyri*. Our first approach was to screen the insect color preferences performing choice assays with different LED colours in a small-scale choice arena under controlled conditions in the lab. The experiment was conducted with six color traps (Dark green, Light green, Dark red, Light red, Yellow and Orange). All LEDs were adjusted to the intensity of the LED yellow and ten consecutive replicates were performed, respectively. The result showed a strong significant preference of *C. pyri* for Dark-green (532 nm) followed by Light green (549 nm). All other wavelengths attracted less psyllids compared to the Dark green ($p < 0,01$). Orange, Yellow, Light red, and Dark red were similar in attractiveness. Subsequently, trapping of pear psyllids was tested under field conditions using new developed colorless/transparent traps produced by IS Insect Service GmbH (Berlin). To reproduce the tested green colors, transparente PVC sheets with the approximate wavelength of the most attractive greens were used to cover the surface of the traps. Complementarily, red and completely transparent traps were combined with the green ones in randomized blocks in a pear orchard. Field results revealed that green traps attracted significantly more pear psyllids than red and transparent ones ($p < 0,01$). The addition of green non-reflecting color to sticky traps seems promising for improving psyllids trapping, even at low population densities especially during early infestation. Thus, visual cues should be considered and integrated into psyllid monitoring as part of integrated pest management.

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