Semi-field experiments with the entomopathogenic fungus *Isaria fumosorosea* (Isolate Pfr4) for control of various fruit moth species

Dünnes, D.[1], Vogt, H.[2], Leclerque, A.[1], Stephan, D.[1]
[1] Julius Kühn-Institute, Institute for Biological Control, Heinrichstrasse 243, 64287 Darmstadt
[2] Julius Kühn-Institute, Institute for Plant Protection in Fruit Crops and Viticulture, Schwabenheimer Str. 101, 69221 Dossenheim
Email of corresponding author: s.duennes.uni@freenet.de

Several fruit moth species cause serious damage in fruit plantations. Especially in organic agriculture only limited control strategies are available. Within a national funded project on biological control of the plum fruit moth in organic agriculture we investigated the integration of entomopathogenic fungi in a biocontrol strategy.

The efficacy of the entomopathogenic fungus *Isaria fumosorosea*, isolate Pfr4, was tested in various semi-field experiments in a plum orchard of the JKI, Institute for Plant Protection in Fruit Crops and Viticulture (Dossenheim). Therefore, submerged spores of Pfr4 were produced in liquid culture by using a modified medium described by Samsinakova (1966). After filtration and centrifugation, the spore suspension was sprayed with a backpack sprayer on the stem and on the soil or on bark mulch as artificial hideout under the plum fruit trees. For the evaluation of the natural population of the plum fruit moth *Cydia funebrana* trapeze tents and for artificially released vine moth *Eupoecilia ambiguella* photoeclectors were used for collecting emerged moths. In both experiments it was not possible to catch the moths back.

Pfr4 can be produced in different production systems by formation of different types of spores. To select the most suitable production system experiments on the persistence and storability were carried out with aerial conidia produced on solid substrates and submerged spores produced in liquid culture. To get aerial conidia we float them off agar plates. Experiments on the persistence on bark mulch were evaluated over three months under semi-field conditions. Every second week bark mulch samples were taken and L_5-larvae of fruit moths were added to test whether the fungus is still able to infest them. Despite intensive UV radiation and heavy rainfall a long persistence over the whole experimental time of both aerial conidia and submerged spores was noticed. For comparison of the storability aerial conidia and submerged spores of Pfr4 were freeze-dried and samples were incubated at temperatures between 5° and 80°C for 6 days. After that the germination rate was investigated. The results will be presented.

Whether the isolate Pfr4 could be evidenced by using PCR will be discussed.