

Efficacy of entomopathogenic fungi against larvae of the horse chestnut leafminer *Cameraria ohridella*

Introduction

Laboratory experiments on chestnut seedlings were performed to test the efficacy of the entomopathogenic fungi *Lecanicillium muscarium* and *Paecilomyces fumosoroseus* to the endophytic larvae of the chestnut leafminer *Cameraria ohridella*.

Material and methods

Per variant were 3 seedlings with 5 to 7 fully grown leaves and fresh ovipositions used. On the leaves of each seedling, 9 ml suspension ($1 \cdot 10^7$ conidia/ml) of *L. muscarium* and *P. fumosoroseus* was applied, using a manual sprayer. The variants were kept in separate plastic cages in an environment-controlled chamber for 28 days with the day/night parameters: light regime: L/D 16/8h, temperature 25/21°C, rel. humidity 90%/98%. On each plant of the untreated control were applied 9 ml water.

Results

In both fungus variants in the first time the development of mines was more slowly than in control. This difference in formation and development of mines was compensated up to the end of experiment again.

Efficacy of both fungi became just evident by opening the mines. Larvae in the mines were died and the mycelia growth on the cadavers was considered. In some cases the mycelia grew out of the mines.

Both entomopathogens were high efficient against the larvae. The mortality in the variant treated with *L. muscarium* was 98%, and 96% in the variant with *P. fumosoroseus* respectively. Only 4% of all larvae pupated themselves successful in both variants. All cadavers, even 2% dead pupae from the variant with *L. muscarium*, were moulded. The natural mortality of the control was 12%. This population contained 91% pupae (dead from that 9%), 5% moths and 4% dead larvae.

Discussion

Both fungal strains showed a high pathogenicity on larvae of *C. ohridella*. Activity of mines shows that the fungi became effective in the end of larval development and inhibited the pupation of larvae successful. Consequently, the fungi are able to grow through the epidermis into the mines and infect the larvae inside them. When the larvae are dead, the fungi grow through the epidermis of the mines on the leaf surface. The present results offer interesting starting points for further experiment, also field experiments.