

Persistence of the entomopathogenic fungus *Lecanicillium muscarium* ZARE, GAMS under ambient conditions in the field

Sandra Lerche, Helga Serman, Carmen Büttner
E-Mail: lerche74@hotmail.com

Introduction

Positive results from laboratory trials, to proof the effectiveness of the entomopathogenic fungus (EPF) *L. muscarium* against larvae of horse chestnut leafminer moth *Cameraria ohridella* DESCHKA & DIMIC, led to following outdoor trials within the tritrophic system. Among other aspects, the persistence of *L. muscarium*, which was used as commercial product Mycotal® (Koppert, NL) and as strain V24 from the department Phytomedicine, should be determined. These results are presented here.



Fig. 1: Seedlings of horse chestnuts during the trial

Material and Methods

The trial took place on horse chestnut seedlings, 3 years old. In different variants, each contained 12 seedlings, were tested several spore concentrations and the influence of an adjuvant (Addit, Koppert, NL) based on vegetable oil and used with Mycotal® (tab. 1). The application period of the EPF lasted from May till September 2008 and was carried out at intervals of 14 days. Examination of persistence took place between 21st of June and 05th of July. The determination followed 1, 7, 14 days past application of suspension (dpa) through the numbers of colony forming units (cfu) after impressing the leaves on agar plates (12 leaflets each treatment and date), and incubation at 20°C. To record the influence of direct or indirect solar radiation, upper and lower surfaces of the leaves were registered in a separate manner. The data of temperature and humidity are from the stand of seedlings of the trial, duration of sunlight and precipitation from weather station in Berlin-Dahlem.

Tab. 1: Different variants of the trial

<i>L. muscarium</i> as:	Concentration of suspension (spores/ml)		Addit:	Name:
	1,5x10 ⁷	1,5x10 ⁸		
Mycotal®	x			My
Mycotal®	x		x	MyA
V24	x			L7
V24	x		x	LA7
V24		x		L8
V24		x	x	LA8

Results

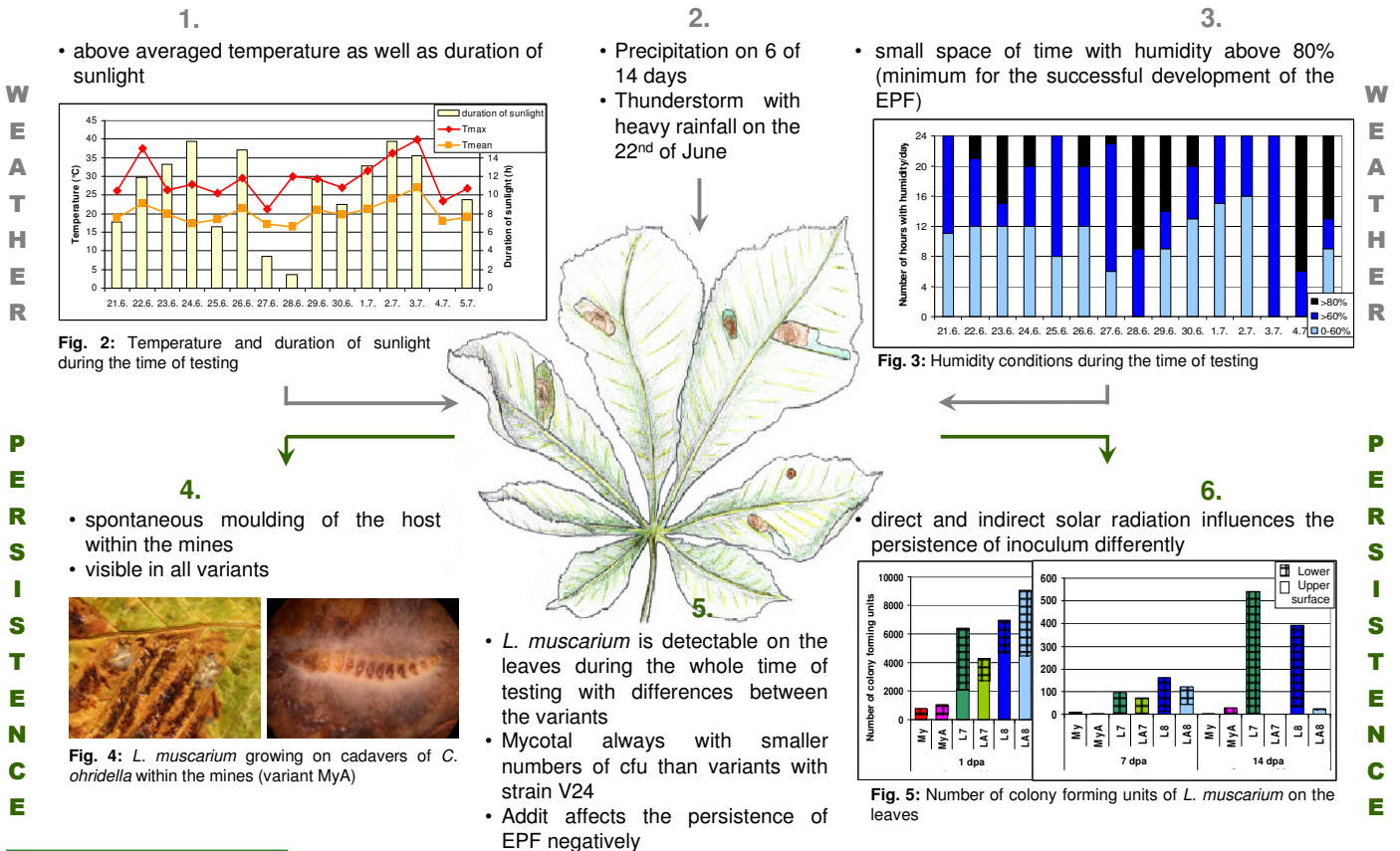


Fig. 2: Temperature and duration of sunlight during the time of testing

Fig. 3: Humidity conditions during the time of testing

Fig. 4: *L. muscarium* growing on cadavers of *C. ohridella* within the mines (variant MyA)

Fig. 5: Number of colony forming units of *L. muscarium* on the leaves

Conclusions

The tolerance of the entomopathogenic fungus against extreme unfavourable weather conditions is remarkable. Differences between strain V24 and Mycotal are possibly attributed to the distribution of spores in the suspensions. Surprisingly, not only the persistence on the plant surfaces could be corroborated. Additionally, the moulding of the hosts within the mines proofs the successful development of *L. muscarium* on the plant surface, despite high solar radiation und low humidity. The fungus appears less susceptible to the environmental conditions, than assumed till now.