

Comparative Studies on the Influence of Bulgarian *Nosema* Isolates on the Gypsy Moth, *Lymantria dispar* L.

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Abstract

During an outbreak in 1995 to 1997, two microsporidian isolates were recovered from gypsy moth (*Lymantria dispar* L.; GM) populations in the vicinities of Veslec and Levishte in northern Bulgaria. Preliminary studies have confirmed that both isolates are morphologically very similar and belong to the genus *Nosema*. In this investigation, we studied the influence of both isolates on the development and performance of the host in laboratory bioassays.

The two isolates were fed to GM third instar larvae at 5 different dosages ranging from 2×10^2 to 5×10^4 spores/ μ l. Larvae were reared individually on standard artificial diet and the following parameters were recorded every second day: larval mortality, larval stage and weight, day of pupation, pupal weight, and day of adult eclosion.

Both isolates were highly infective to GM larvae. Control mortality was below 3%. The isolate from Veslec caused higher mortality than the isolate from Levishte (89-98% vs. 79-93% respect.) Dosage did not have a significant influence on the mortality rates of either isolate. The stage-specific mortality caused by the two isolates was very different: the Veslec isolate acted faster and killed infected individuals as larval instars, while the Levishte isolate caused mortality mainly during the prepupal and pupal stages.

The isolate from Veslec did not have an effect on the development time, however, the time from infection to pupation of male larvae infected with the isolate from Levishte was significantly prolonged by 2 to 3 days. Neither isolate had an effect on the weights of female pupae, however, infected male pupae were significantly heavier than uninfected male pupae.

Our results indicate that both isolates have a different impact on individual larvae and therefore, might have a different influence on the population dynamics of gypsy moth in the field.