

研究报告

不同温度下斜纹夜蛾感染核型多角体病毒的流行病模型及模拟

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摘要

研究了温度对斜纹夜蛾核型多角体病毒流行的影响. 结果表明, 温度在29℃以上时, 感病幼虫大多在2~3 d开始死亡, 4~5 d达到高峰. 随着温度的升高, 感病幼虫病死率增加, 病死速度加快. 在试验温度范围内, 未发现该病毒的热抑制温度, 但感病幼虫死亡速率存在恒定温区, 在29~35℃之间. 感病幼虫的每日病死率可用互补重对数模型较好地拟合, 累计病死时间分布可用Gompertz模型拟合, 生物物理模型经改进后可很好地描述幼虫病死速率与温度的关系, 可用于模拟分析不同温度下的幼虫病死时间分布和幼虫病死速率.

关键词

[斜纹夜蛾](#) [核型多角体病毒流行病](#) [生物物理模型](#) [互补重对数模型](#) [Gompertz模型](#) [温度](#)

分类号

Modeling of *Spodoptera litura* nuclear polyhedral virus epidemic at different temperatures

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Abstract

The study on the nuclear polyhedral virus epidemic of *Spodoptera litura* under effects of temperature showed that at above 29℃, *S. litura* larvae started to die 2~3 d after virus-inoculation, and reached the peak 4~5 d after the inoculation. The mortality and death velocity of virus infected host larvae were increased with increasing incubation temperature. No thermo-inhibition temperature for the virus was observed in the test temperature range, while there existed a constant temperature range, *i.e.*, 29~35℃, for the highest mortality of infected host larvae. Complementary log-log regression model could well simulate the daily distribution of host larvae mortality, and the cumulative disease death time could be described by Gompertz model. The revised biophysical model could well simulate the relationship between *S. litura* larvae mortality and temperature, and be applied to virus epidemic forecasting.

Key words

[Spodoptera litura](#) [Nuclear polyhedral virus epidemic](#) [Biophysical model](#)

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