B型烟粉虱为害烟草后对斜纹夜蛾成虫产卵和幼虫取食行为的影响

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Adult oviposition and larvae feeding behavior of *Spodoptera litura* (Lepidoptera: Noctuidae) on tobacco plants after infested by B-biotype *Bemisia tabaci* (Homoptera: Aleyrodidae).

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摘要

为明确外来入侵害虫B型烟粉虱取食诱导的烟草防御反应对斜纹夜蛾的影响，探讨其与斜纹夜蛾的种间竞争机制，在室内条件下研究了B型烟粉虱取食后的烟草对斜纹夜蛾成虫产卵选择、幼虫取食选择、拒食作用和其他取食行为指标的影响.结果表明：斜纹夜蛾成虫在B型烟粉虱为害后的植株上的落卵量较对照植株降低了40.9%.B型烟粉虱为害的虫体叶对斜纹夜蛾初孵化幼虫具有明显的驱避作用，而中间叶和系统白脉叶有一定的吸引作用，心叶不影响幼虫对寄主的选择性.B型烟粉虱为害叶片对斜纹夜蛾幼虫具有显著的拒食作用，虫体叶拒食作用明显大于系统白脉叶片.与对照相比，B型烟粉虱为害的虫体叶和系统白脉叶降低了斜纹夜蛾幼虫单位时间取食次数或取食比例，虫体叶还显著延长了幼虫开始取食时间，总取食面积显著减少.表明B型烟粉虱为害烟草对斜纹夜蛾成虫产卵和幼虫取食行为均产生不利影响.研究结果对了解烟田害虫种群变动规律和指导害虫治理具有较大意义.

关键词： B型烟粉虱 烟草 斜纹夜蛾 产卵选择 取食行为

Abstract:

To understand the effects of the defense responses of tobacco plants induced by the infesting of B-biotype *Bemisia tabaci* to *Spodoptera litura*, and to explore the mechanisms of the interspecific interactions between B-biotype *B. tabaci* and *S. litura*, a laboratory experiment was conducted to study the effects of tobacco plants after infested by B-biotype *B. tabaci* on the adult oviposition selection and the larvae feeding, anti-feeding, and other feeding behaviors of *S. litura*. Comparing with that on control plants, the egg number oviposited by adult *S. litura* on the infested plants decreased by 40.9%. The plant leaves infested had great repellent effect to the newly-hatched *S. litura* larvae, while the middle leaves and the leaves with systemic damage symptom (white-vein) had definite attractive effect. Unexpanded terminal leaves had no effects on the host selection of *S. litura* larvae. The *S. litura* larvae had significant anti-feeding behavior on the leaves infested, being more notable than that on the leaves with white-vein. On the leaves infested and with white-vein, the feeding times per unit duration or the feeding percentage of *S. litura* larvae decreased, the time of initiating feeding prolonged, and the total feeding area declined significantly, compared with the control. In conclusion, the tobacco plants after infested by B-biotype *B. tabaci* had negative effects on the adult oviposition and larvae feeding of *S. litura*, and the results of the study would be useful in understanding the population dynamics of tobacco pests and their management.

Key words: B-biotype *Bemisia tabaci* tobacco *Spodoptera litura* oviposition selection feeding behavior

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