

研究报告

花粉介导的转 *Bt* 基因棉花田间基因流监测

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摘要 采用花粉粒染色法对转 *Bt* 基因棉的花粉漂移距离和强度进行了观测, 并应用PCR法检测转 *Bt* 基因棉的基因流频率. 花粉粒染色法监测结果表明: 同株异花间的花粉散布频率显著高于异株异花间 ($P < 0.01$); 靠近转 *Bt* 基因棉花染色区 1 m 处的平均花粉散布频率, 在东、南、西、北 4 个方向分别为 44.8%、48.9%、57.1% 和 21.5%, 但随着距转基因棉田距离的增大, 4 个方向的平均花粉散布频率都呈下降趋势. PCR 结果的统计分析表明, 在 25 m 内, 花粉散布距离和方向对基因流频率有极显著影响 ($P < 0.01$), 随着距转基因棉田距离的增大, 基因流频率呈下降趋势, 最远距离为 25 m 时的最高基因流频率为 2.0%.

关键词 [转 *Bt* 基因棉花](#) [基因流](#) [花粉漂移](#) [花粉粒染色法](#) [监测](#)

分类号

Monitoring of pollen-mediated gene flow from transgenic *Bt* cotton.

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Abstract

By the methods of pollen grain dyeing and PCR analysis, this paper measured the distance and intensity of pollen dispersal, and determined the frequency of gene flow (FGF) of transgenic *Bt* cotton. The results showed that the frequency of pollen dispersal (FPD) among flowers was significantly higher on the same cotton plant than on different ones ($P < 0.01$). The average FPD at a distance of 1 m from the dyed *Bt* cotton plot to its east, south, west and north was estimated to be 44.8%, 48.9%, 57.1% and 21.5%, respectively, and declined with increasing distance in the four directions. Within the range of 25 m, the distance and direction of pollen dispersal could affect FGF significantly ($P < 0.01$), and FGF generally tended to decrease with increasing distance from the *Bt* cotton plot, with a frequency of 2.0% at the farthest distance of 25m.

Key words [transgenic *Bt* cotton](#) [gene flow](#) [pollen dispersal](#) [pollen grain dyeing](#) [monitoring](#)

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