

研究论文

转Bt+GNA双价基因抗虫棉花中抗虫基因及其抗虫性的遗传稳定性

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摘要 采用PCR和PCR-Southern跟踪检测, Bt和GNA两个抗虫基因在转Bt+GNA双价基因抗虫棉花TL1的3个连续世代均稳定存在, 完全连锁遗传; 室内棉铃虫生物测定表明, 该转基因植株的3个世代都高抗棉铃虫, 各世代之间抗性水平一致, 没有显著性差异; 温室蚜虫抗性试验显示3个世代均对蚜虫具有较好的抑制作用, 且抑制效果相当。因而, 两个抗虫基因在转Bt+GNA双价基因抗虫棉花TL1中能稳定地遗传和表达。

关键词 [转Bt+GNA双价基因抗虫棉花](#) [抗虫基因](#) [抗虫性](#) [遗传和表达](#) [稳定性](#)

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Stable Inheritance and Expression of Bt and GNA Resistance Genes in Transgenic Cotton Line

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Abstract Elite cotton cultivar Sumian16 was transformed with p7RPSBK-mGNA-npt II containing Bt [CryIA(c)], Galanthus nivalis agglutinin (GNA) resistance genes and npt II selection gene via the pollen tube pathway method, and two fertile transgenic Bt+GNA plants were obtained. The integration and expression of the Bt and GNA genes were confirmed by Southern blotting and insect bioassays. In the present study, we found that the Bt and GNA genes were co-segregated and stably inherited in TL1 transgenic Bt+GNA cotton line monitored by PCR and PCR-Southern analyses for three successive generations. Bollworm bioassays in the laboratory showed no statistical difference in resistant level among the three generations of the transgenic line which showed high resistance against bollworm larvae (*Helicoverpa armigera*), and all the plants during the seedling stage had approximately inhibition effect on the development of aphid populations identified by aphid bioassays in the greenhouse.

Key words [Transgenic Bt+GNA cotton line](#) [Resistance genes](#) [Insect resistance](#) [Inheritance and expression](#) [Stability](#)

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