棉花学报
Cotton Science
主管：中国科学技术协会
主办：中国农学会
承办：中国农业科学院棉花研究所

棉花学报 » 2012, Vol. 24 » Issue (6) :481-487 DOI: 1002-7807（2012）06-0481-07

*Bt*棉对棉叶螨发生的影响及与次生代谢物质的关系

马 惠，赵 鸣，夏晓明，王红艳，董合忠*

山东省农业科学院棉花研究中心，济南250100

Effects of *Bt* Transgenic Cotton on Occurrence of Cotton Spider Mites in Relation to the Secondary Metabolites in Cotton

MA Hui, ZHAO Ming, XIA Xiao-ming, WANG Hong-yan, DONG He-zhong**

Cotton Research Centre, *Shandong Academy of Agricultural Sciences*, *Jinan* 250100, *China*

摘要 参考文献 相关文章

Download: PDF (702KB) HTML 1KB Export: BibTeX or EndNote (RIS) Supporting Info

摘要 为明确*Bt*棉对棉叶螨发生的影响及其与棉株次生代谢物质的关系，以4个*Bt*棉品种为材料，以不携带*Bt*基因的常规棉为对照，在大田和温室中调查了棉叶螨的发生趋势，室内观察了棉叶螨的发育历期，测定了不同品种棉花叶片的棉酚和单宁含量，以及取食不同棉花品种的棉叶螨羧酸酯酶的比活力。结果表明，棉叶螨在4个Bt棉品种上的发生显著重于非*Bt*棉中棉所12，取食4个*Bt*棉品种的棉叶螨发育历期均明显短于取食中棉所12的棉叶螨的发育历期。4个抗虫棉品种间棉酚和单宁含量虽有差异，但均显著低于中棉所12，而取食中棉所12的棉叶螨的羧酸酯酶比活力也显著低于4个*Bt*棉品种。*Bt*棉本身次生代谢物质含量的改变可能影响了棉叶螨的发生。

关键词： *Bt*棉 棉叶螨 次生代谢物质 棉酚 单宁 羧酸酯酶

Abstract： We sought to determine the effects of *Bt* transgenic cotton on occurrence of cotton spider mites, and the relationship with the secondary metabolites in cotton plants. Using four *Bt* cotton varieties and a non-*Bt* cotton, CCRI 12, as the control, the abundance and developmental duration of cotton spider mites, and also the activity of their carboxylesterase(CarE) were determined, as well as the gossypol and tannin levels in cotton leaves, both in the field and in the greenhouse. Cotton spider mites were more abundant on four *Bt* cotton varieties than on the common cotton variety CCRI 12. The development period of cotton spider mites fed on four *Bt* cotton varieties was shorter than on CCRI 12. The gossypol and tannin levels in four *Bt* cotton varieties were significantly lower than in CCRI 12, although these also varied greatly among the *Bt* cotton varieties. The activity of CarE in mites fed on CCRI 12 was significantly lower than in those fed on the four *Bt* varieties. In general it appears that changes in secondary metabolite levels affect the occurrence of cotton spider mites in Bt cotton.

Keywords： *Bt* cotton cotton spider mites secondary metabolites gossypol tannin carboxylesterase

Received 2011-12-26;

Fund:

山东省农业科学院青年基金课题（2007YQN034）；山东省农业良种工程重大课题（2010LZ005-04）；农业部转基因生物新品种培育重大专项（2011ZX08011-002）

Corresponding Authors: 董合忠（1965-），男，博士，研究员，donghz@saas.ac.cn

About author: 马 惠（1981-），女，硕士，助理研究员，mahui8.18@163.com

Service
把本文推荐给朋友
加入我的书架
加入引用管理器
Email Alert
RSS
作者相关文章
马 惠
赵 鸣
夏晓明
王红艳
董合忠

引用本文:
马 惠, 赵 鸣, 夏晓明, 王红艳, 董合忠.*Bt*棉对棉叶螨发生的影响及与次生代谢物质的关系[J] 棉花学报, 2012,V24(6): 481-487

MA Hui, ZHAO Ming, XIA Xiao-Ming, WANG Hong-Yan, DONG He-Zhong.Effects of *Bt* Transgenic Cotton on Occurrence of Cotton Spider Mites in Relation to the Secondary Metabolites in Cotton[J] Cotton Science, 2012,V24(6): 481-487

链接本文:
http://journal.cricaas.com.cn:8082/mhxb/CN/1002-7807（2012）06-0481-07 或 http://journal.cricaas.com.cn:8082/mhxb/CN/Y2012/V24/I6/481