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 (1) :18-26 DOI: 1002-7807(2012)01-0018-09

新疆北部地区转Bt基因棉外源杀虫蛋白表达时空动态研究

王冬梅，李海强，丁瑞丰，汪 飞，李号宾，徐 遥，阿克旦·吾外士，刘 建*

新疆农业科学院植物保护研究所/农业部西北荒漠绿洲作物有害生物综合治理重点实验室，乌鲁木齐 830091

Spatio-temporal Expression of Foreign Bt Insecticidal Protein in Transgenic Bt Cotton Varieties in Northern Xinjiang Province, China

WANG Dong-mei, LI Hai-qiang, DING Rui-feng, WANG Fei, LI Hao-bin, XU Yao, AHTAM Uwayis, LIU Jian**

The Institute of Plant Protection, Xinjiang Academy of Agricultural Sciences/Key Laboratory of Integrated Pest Management on Crop in Northwestern Oasis, Ministry of Agriculture P. R. China, Urumqi 830091, *China*

摘要 参考文献 相关文章

Download: PDF (820KB) HTML 1KB Export: BibTeX or EndNote (RIS) Supporting Info

摘要 为研究新疆北部地区转Bt基因棉外源杀虫蛋白时空表达规律，2009年和2010年以中棉所43、GK62、GK19和sGK321等4个转Bt基因抗虫棉为试验材料，利用ELISA技术对其不同器官的Bt杀虫蛋白进行测定。结果表明：年度间不同转基因抗虫棉品种Bt 杀虫蛋白时空变化趋势基本一致，只是2年的Bt杀虫蛋白表达量不同，有些品种年度间差异明显；Bt杀虫蛋白含量因棉花器官的不同和棉花生育期的变化差异较大。各品种中Bt杀虫蛋白含量随棉花生育期的推进呈逐渐下降的趋势，以子叶期的子叶中的含量最高，子叶期、3叶期和7叶期的顶叶中的Bt杀虫蛋白含量明显高于现蕾期、开花期、结铃期和吐絮期的顶叶、蕾、花瓣和幼铃；棉蕾在现蕾期的Bt杀虫蛋白含量高于开花期和结铃期；花瓣在开花期的Bt杀虫蛋白含量高于结铃期。在现蕾期，顶叶中的Bt杀虫蛋白高于棉蕾；在开花期，棉蕾中的Bt杀虫蛋白含量高于顶叶，后者又高于花瓣；在结铃期，嫩叶与棉蕾中的Bt杀虫蛋白含量高于花瓣与幼铃。研究结果说明转Bt基因棉花Bt杀虫蛋白的表达水平受棉花器官种类、棉花生育期、棉花品种和种植年份的影响。

关键词： 新疆 转Bt基因棉花 Bt杀虫蛋白 时空动态 ELISA

Abstract： To study the spatial and temporal expression of Bt insecticidal protein in transgenic Bt cotton planted in northern Xinjiang Province, Bt insecticidal protein levels in four transgenic Bt cotton varieties (CCRI 43, GK62, GK19, sGK321), were quantitatively tested and compared during different developmental periods in 2009 and 2010, using the ELISA method. Trends in the spatio-temporal expression of Bt insecticidal protein were basically consistent between 2009 and 2010, although the expression amount was different, and some varieties had significant differentiation. Bt insecticidal protein levels varied with organs and developmental periods. The Bt insecticidal protein content gradually decreased with cotton development. The Bt insecticidal protein content of the cotyledon was the highest, and levels in the tender leaves during the cotyledon period, the three-leaf period, and the seven-leaf period were higher than those in the tender leaves, squares, petals and young bolls during the squaring period, flowering period, bolling period, respectivesly. Bt insecticidal protein levels in squares during the squaring period were higher than those in the flowering period and bolling period, and the levels in petals during the flowering period were higher than those during the bolling period. In the squaring period, the tender leaves had more Bt insecticidal protein than the squares; but in the flowering period, the squares had more Bt insecticidal protein than the tender leaves or the petals. In the bolling period, Bt insecticidal protein levels in tender leaves and squares were higher than those in petals and young bolls. The expression level of Bt insecticidal protein in transgenic Bt cotton can thus be influenced by the kind of organ, the developmental period, variety, and planting season.

Keywords： Xinjiang Province Bt cotton Bt insecticidal protein spatio-temporal expression ELISA

Received 2011-05-25;

Fund:

农业部转基因生物新品种培育重大专项（2011ZX08011-002，2011ZX08012-004，2008ZX08011-002-03， 2008ZX08012-004）

Corresponding Authors: xjliujian1965@sina.com

About author: 王冬梅（1969-），女，硕士，副研究员，wdm872@sina.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
王冬梅
李海强
丁瑞丰
汪 飞
李号宾
徐 遥
阿克旦·吾外士
刘 建

引用本文:

王冬梅, 李海强, 丁瑞丰, 汪 飞, 李号宾, 徐 遥, 阿克旦·吾外士, 刘 建.新疆北部地区转Bt基因棉外源杀虫蛋白表达时空动态研究[J] 棉花学报, 2012,V24(1): 18-26

WANG Dong-Mei, LI Hai-Qiang, DING Rui-Feng, WANG Fei, LI Hao-Bin, XU Yao, AHTAM Uwayis, LIU Jian.Spatio-temporal Expression of Foreign Bt Insecticidal Protein in Transgenic Bt Cotton Varieties in Northern Xinjiang Province, China[J] Cotton Science, 2012,V24(1): 18-26

链接本文:

http://journal.cricaas.com.cn:8082/mhxb/CN/1002-7807(2012)01-0018-09 或 http://journal.cricaas.com.cn:8082/mhxb/CN/Y2012/V24/I1/18