

研究论文

水稻Wx基因与稻米AC、GC和GT的遗传关系

孙业盈, 吕彦, 董春林, 王平荣, 黄晓群, 邓晓建

四川农业大学水稻研究所, 四川成都 611130

收稿日期 2004-9-20 修回日期 2004-11-25 网络版发布日期 接受日期

摘要 以60个籼稻品种(或品系)和57个(G46B/D香1B) B3F5株系为材料, 通过检测Wx基因型, 同时测定AC、GC和GT, 探讨了水稻Wx基因与稻米AC、GC和GT的遗传关系。结果AC与GC极显著负相关, 且二者均与Wx基因型密切相关, Wx基因的GG型材料具有较高的AC和较硬的GC, 而TT型材料具有中等的AC和较软的GC, 在全部57个B3F5代株系中AC的高低和GC的硬软与Wx基因型同步分离, 表明AC主要由Wx基因控制, GC也由Wx基因或与其紧密连锁的基因位点控制。此外, 在60个品种中GT与AC和Wx基因型均无明显相关性, 推断控制GT的基因位点不是Wx基因位点。

关键词 [水稻](#) [Wx基因](#) [直链淀粉含量](#) [胶稠度](#) [糊化温度](#)

分类号 [S511](#)

Genetic Relationship among Wx Gene, AC, GC and GT of Rice

SUN Ye-Ying, LÜ, Yan, DONG Chun-Ling, WANG Ping-Rong, HUANG Xiao-Qun, DENG Xiao-Jian

Rice Research Institute, Sichuan Agricultural University, Chengdu 611130, Sichuan

Abstract By testing Wx genotype and measuring amylose content (AC), gel consistency (GC) and gelatinization temperature (GT) of 60 indica cultivars (or lines) and 57 B3F5 breeding lines of G46B/D Xiang 1B, the genetic relationship among Wx gene, AC, GC, and GT of rice was explored. The results showed that there were significant negative correlations between AC and GC, with -0.836 and -0.906 of correlation coefficients in the two material groups, respectively. Moreover, both of AC and GC were closely related to Wx genotypes, i.e. the materials with GG-type of Wx gene had higher AC and harder GC, however, the materials with TT-type of Wx gene had moderate AC and softer GC. Among 57 B3F5 lines, AC ranged from 20.4% to 27.0% with the mean value of 24.9% and GC from 25 mm to 31 mm with the mean value of 27 mm in 26 lines with GG-type of Wx gene, however, AC ranged from 10.8% to 13.4% with the mean value of 11.8% and GC from 46 mm to 77 mm with the mean value of 57 mm in 31 lines with TT-type of Wx gene. So the GG-type of lines always had high AC and hard GC, the TT-type of lines always had moderate AC and soft GC, and no recombinant lines were found. In other words high or low AC and hard or soft GC were synchro-segregated with Wx genotypes. It was suggested that AC was mainly controlled by Wx gene and GC by Wx gene or one locus tightly linked to it. On the other hand, GT was not significantly correlated to AC and Wx genotype in 60 indica cultivars. For the cultivars that had different AC or Wx genotypes, the range of GT was the same on the whole. GT of 21 cultivars with GG-type of Wx gene ranged from 3.3 to 7.0 with the mean value of 4.9, however, GT of 39 cultivars with TT-type of Wx gene ranged from 3.0 to 7.0 with the mean value of 5.2. So it was inferred that the locus controlling GT was not Wx locus.

Key words [Rice](#) [Wx gene](#) [Amylose content](#) [Gel consistency](#) [Gelatinization temperature](#)

DOI:

通讯作者 邓晓建 dengxj@mail.sc.cninfo.net

扩展功能	
本文信息	
▶	Supporting info
▶	PDF(252KB)
▶	[HTML全文](0KB)
▶	参考文献
服务与反馈	
▶	把本文推荐给朋友
▶	加入我的书架
▶	加入引用管理器
▶	复制索引
▶	Email Alert
▶	文章反馈
▶	浏览反馈信息
相关信息	
▶	本刊中 包含“水稻”的 相关文章
▶ 本文作者相关文章	
·	孙业盈
·	吕彦
·	董春林
·	王平荣
·	黄晓群
·	邓晓建