

研究论文

冬小麦PPO活性的主基因+多基因混合遗传分析

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摘要 应用植物数量性状主基因+多基因混合遗传模型对冬小麦品种中优9507(高PPO活性)与品种CA9632(低PPO活性)杂交组合的DH群体进行了PPO活性的遗传分析。结果表明, 中优9507×CA9632的PPO活性受2对独立主基因控制遗传, 主基因遗传率为88.83%, 环境影响较小, 环境方差占总方差的11.17%。控制PPO活性的2对主基因效应不等, 第1对主基因da的基因效应为2.432, 而第2对主基因db的基因效应为1.084, 相当于第1对主基因效应的44.60%。因此, 用低PPO活性的亲本配制杂交组合, 并且在育种的早期阶段进行较严格的选择, 淘汰PPO活性高的单株或家系, 将有可能选育出PPO活性接近零的冬小麦品种。

关键词 [普通小麦](#) [颜色](#) [多酚氧化酶 \(PPO\)](#) [主基因+多基因混合遗传模型](#)

分类号 [S512](#)

The Mixed Inheritance Analysis of Polyphenol Oxidase Activities in Winter Wheat

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Abstract Inheritance of PPO activity in 71 DH lines from the cross of ZhongYou 9507×CA9632 was investigated by the mixed major gene plus poly-gene inheritance model of quantitative traits. The results showed that PPO activity in the cross was controlled by two major genes (the B-1-2 model). Heritability value of the major genes was estimated as 88.83%, while variance of environment was 11.17% in total variance. The estimated additive effects of the two major genes, da and db, were 2.432 and 1.084, respectively. The effect of db was only about 44.60% of da, indicating that the contributions to PPO activity of the two major genes was not equal in the cross. It is possible to breed new wheat cultivars with low PPO activity by choosing parents and handling segregating generation.

Key words [T. aestivum](#); [Color](#); [Polyphenol oxidase](#); [Major genes plus polygene](#); [Inheritance](#)

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