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### 禾谷镰刀菌引起的小麦茎腐病抗性主基因+多基因混合遗传分析

### The Mixed Inheritance Analysis of Resistance to Crown Rot Caused by *Fusarium graminearum* in Wheat

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英文关键词: [T.aestivum](#) [Crown rot](#) [Major gene plus polygene](#) [Inheritance of resistance](#)

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中文摘要:

为了解小麦抗茎腐病的遗传特性, 利用数量性状主基因+多基因混合遗传模型分离分析方法, 结合苏麦3号/白免3号重组自交系群体2008、2009两年的茎腐病抗性鉴定数据, 对小麦茎腐病抗性进行了遗传模型分析。结果表明, 此群体的小麦茎腐病抗性是由两对主基因+多基因控制的(E 1 6), 主基因间有加性累加效应, 主基因有加性效应为-7.45 (2008年)和-6.58 (2009年), 两个主基因间的互作效应为11.83 (2008年)和10.4 (2009年), 互作效应大于加性效应。小麦茎腐病抗性的主基因遗传率中等偏上, 为70.88% (2008年)和71.24% (2009年), 多基因遗传率在10%以下。以上结果表明, 小麦茎腐病抗性主要是主基因遗传, 且遗传率较高, 可以通过杂交育种把小麦茎腐病抗性转移到农艺性状优异的品种中去, 但在育种中应关注抗性基因间的互作效应, 以便选育出优于抗性亲本的材料。

英文摘要:

Crown rot(CR), caused by *Fusarium* species, is a serious wheat disease. The disease incidence has increased in many wheat growing regions worldwide in recent years. Unfortunately, the inheritance of resistance to crown rot is still poorly understood. This study was conducted to elucidate the inheritance of resistance to crown rot in a population derived recombinant inbred lines (RILs) from a cross of Sumai 3 (susceptible) × Baimian 3 (resistant) by using the major gene plus polygene mixed inheritance model. The results indicated that two major genes with additive × additive effect plus polygene (Model E 1 6) controlled the inheritance of the resistance to crown rot in the RILs. Additive effect of major genes was -7.45 in 2008, -6.58 in 2009, epistatic effect of the interaction in major genes was 11.84 in 2008 and 10.4 in 2009. The heritability of the major genes was 70.88% in 2008, 71.24% in 2009, respectively. The heritability of the polygene was lower than 10%. The result suggested that the inheritance of resistance to crown rot was mainly controlled by the major gene, and the interaction the more resistant lines could be obtained in the offspring of commercial cultivars by crossing with resistant parent.

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