

研究论文

基于F₃种子的胚乳性状QTL区间定位

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摘要

文章提出了包括胚乳效应和母体效应的胚乳性状QTL定位的统计方法, 该方法的实验设计是分子标记基因型信息来自F₂母体植株和F₃种子胚(或植株), 胚乳性状表型值来自F₃单粒种子胚乳, 称之为两步等级设计。同时, 用计算机全面模拟以验证该模型的可行性, 模拟结果表明, 只要群体足够大, 该模型能较有效地进行胚乳性状QTL定位并精确地估计出胚乳QTL的各种遗传效应和母体效应。

关键词 [胚乳](#) [QTL作图](#) [母体效应](#) [两步等级设计](#)

分类号

Interval Mapping of Quantitative Trait Loci Underlying Triploid Endosperm Traits Using F₃ Seeds

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Abstract

<P>A statistical method for mapping quantitative trait loci (QTLs) underlying endosperm traits is proposed. The method is based on a genetic model containing both the direct effects and maternal effects of an endosperm QTL and on an experimental design termed two-stage hierarchical design, in which the trait information is obtained from F₃ endosperms and molecular marker information is obtained from F₂ plants and F₃ embryos (plants). Results of computer simulations indicate that the method can efficiently map endosperm QTLs and precisely estimate both the direct and maternal effects of endosperm QTLs when the sample size is sufficiently large.</P>

Key words [endosperm](#) [QTL mapping](#) [maternal effects](#) [two-stage hierarchical design](#)

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