

生物技术·遗传育种

群体规模和性状遗传力对F₂设计下QTL定位效果的影响

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摘要 以F₂设计为资源群体,以区间定位分析为QTL定位的方法,通过计算机模拟,系统地比较了不同资源群体规模和性状遗传力下QTL检测效率,QTL位置和效应估计的准确性和精确性,以期揭示出两个因素对QTL定位效果影响的一般性规律。结果表明:适当扩大资源群体的规模,不仅有助于提高QTL的检测效率,而且还可提高QTL位置和效应估计的可靠性;当对高遗传力性状的QTL实施定位时,QTL的检测效率以及QTL位置估计的准确性和精确性相对较高,但QTL效应估计的可靠性则会有所降低。

关键词 [F₂设计](#); [群体规模](#); [性状遗传力](#); [QTL定位](#); [计算机模拟](#)

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Study on the Effects of Population Size and Trait Heritability on the Accuracy of QTL Mapping under F₂ Design

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Abstract

The computer simulation method was used to study the effects of resource population size and trait heritability on the QTL detection power, accuracy of the estimation of QTL position and effects under F₂ design, which interval mapping was adopted in the experiment. The aim of this research was to discover the general rules of the effects of the two factors on the detection power and accuracy of QTL mapping. The results showed that it would improve not only the QTL detection power but also the reliability of QTL position and effects estimation. When mapping QTL for those traits with higher heritability, the detection power and the accuracy of QTL position estimation was relative higher, but the reliability of its effects estimation would decrease somewhat.

Key words [F₂ design](#) [Population size](#) [Trait heritability](#) [QTL mapping](#) [Computer simulation](#)

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