

作物氮、磷、钾利用相关性状的QTL定位研究进展

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Advancement of QTL analysis for traits associated to N, P and K utilization

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摘要 选择和培育养分高效的作物品种, 结合合理的耕作方式是解决土壤养分缺乏、肥料资源短缺和农业生态恶化等问题的有效途径。作物养分吸收利用等相关性状受微效多基因控制, 易于产生基因与基因, 基因与环境的互作, 难以通过传统的育种手段提高作物养分的吸收和利用效率。然而, 数量性状座位(Quantitative Traits Loci, QTL)的定位分析为作物的养分效率的数量性状遗传学研究和高效品种的选育提供了有效的手段和途径。本文主要对近年来国内外利用分子标记对作物养分吸收利用相关性状进行QTL定位的研究结果进行综述。

关键词: 氮 磷 钾 作物 养分效率 QTL分析

Abstract: Nitrogen(N), Phosphorus(P) and Potassium(K) are the three main nutrition elements and play an important role in the process of crop growth. But nutrition deficiency in soil is becoming a global problem caused significant reduction in crop yields. To this effect, excessive fertilizer was applied as insurance so that nutrients will not limit yields in the past few years, however, these high fertilizer application rates are not necessarily sound from an environmental perspective. Take a long-term consideration, the cultivation of high nutrition efficiency crop varieties, combined with the reasonable cultivated practices is one of the most efficient and economical approach to solve these problems. Analysis of QTL for crop nutrition absorption and utilization will facilitate crop breeding of high nutrition efficiency utilization. The research progress of QTL analysis for traits associated to N, P and K utilization mainly in rice, maize and wheat was reviewed.

Keywords: nitrogen phosphorus potassium crop; nutrition efficiency; QTL analysis

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