

研究论文

油菜籽硫代葡萄糖苷含量的胚、细胞质、母体遗传效应分析

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收稿日期 2002-8-5 修回日期 2003-1-13 网络版发布日期 接受日期

摘要 采用双子叶作物种子数量性状遗传模型和统计分析方法, 分析了油菜籽硫代葡萄糖苷(硫苷)含量的胚、细胞质和母体植株等不同遗传体系的基因效应以及环境互作效应。结果发现油菜籽硫苷含量的表现主要受制于母体遗传效应, 其次为细胞质效应, 胚(子叶)效应对其影响较小。不同遗传体系的基因主效应要明显大于环境互作效应。硫苷含量的母体显性互作效应较大, 说明该效应更易受到环境条件变化影响。亲本遗传效应分析的结果表明选用Tower或华双3号亲本有利于降低杂种后代油菜籽的硫苷含量, 提高品质改良的效果。胚杂种优势主要表现为增加油菜籽硫苷的含量, 而母体显性效应引起的杂种优势则有利于降低硫苷的含量。

关键词 [油菜](#) [品质](#) [硫苷](#) [遗传效应](#) [杂种优势](#)

分类号 [S565](#)

Genetic Analysis of Embryo, Cytoplasm and Maternal Plant Effects

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Abstract Effects of embryo, cytoplasm, maternal plant and environment interaction on glucosinolates content (GSL) in rapeseed was analyzed by using a full genetic model for quantitative traits of seed for diploid plant. It was found that GSL in rapeseed was mainly controlled by maternal and cytoplasmic effects, followed by embryo effects. The main effects of different genetic systems on GSL trait was more important than that of environment interaction. The strong dominance interaction effects on GSL from maternal was easy affected by environment condition. Based on the predicated genetic effects, Tower and Huashuang 3 were better than other parents for reducing GSL in progeny and improving the quality of rapeseed. The maternal heterosis could decrease GSL in rapeseed, and the embryo heterosis was on the contrary.

Key words [Rapeseed](#) [Quality](#) [Glucosinolates](#) [Genetic effect](#) [Heterosis](#)

DOI:

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