

用DH群体研究光敏核不育水稻雄性不育性的遗传

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摘要 以平均自然结实率为指标,对N5047S/T8340和N5047S/02428两个DH群体在1992和1993年长短日下的育性表现进行了分析。结果表明,在长日下两个DH群体的育性均表现为明显分离,呈连续的双峰曲线分布。Kolmogrov-Smirnov检验表明,同一群体两年的育性分布一致。X²检验,不育花培系比可育花培系符合1:3的分离比,说明光敏核不育水稻雄性不育性受两对独立的隐性主效基因控制。且这两对基因在育性表达的强度上存在差异。在短日下,各个花培系都为可育,花培不育系育性能稳定地转换。通过对同一DH群体一年多次多点种植或数年种植,理论上每个光敏核不育花培系的不育基因都能得到很好的表达,并可避免F₂群体杂合体的显性及与显性有关的基因互作影响,所以用DH群体研究光敏核不育水稻雄性不育性的遗传有其独特的优点。

关键词 [水稻](#) [Oryza sativa L.](#) [花药培养](#) [DH群体](#) [光敏核雄性不育性](#) [遗传](#)

分类号

Studies on Inheritance of Photoperiod Sensitive Genic Male Sterility in Two Doubled Haploid Populations of Rice (*Oryza sativa* L.)

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Abstract

Fertilities of two DH populations derived from N5047S/ T8340 and N5047S/ 02428 were studied using spikelet fertility as an indicator under long and short days in 1992 and 1993. The results indicated that the fertility distributions were continuous and the segregation curves showed two peaks in both populations under long days Kolmogrov-Smirnov test showed that the fertility distributions were consistent in the same DH population in different years. Further more, Chi-Square tests revealed that sterile lines vs fertile lines fitted a 1 : 3 ratio in both populations , suggesting that the photoperiod sensitive genic male sterility be controlled by two pairs of recessive major genes. The fertility expressions of the genes were not in the same intensity. Under short days, all the anther-derived lines of the two populations were fertile, indicating a stable fertility-restoring transformation, It can be expected in theory that the male sterile genes of every anther-derived photoperiod sensitive genic male sterile line would be well expressed by planting DH populations many times at different locations in one or more years, and dominance related epistatic effects are absent in DH populations . These distinctive advantages can be used in studies on the inheritance of photoperiod sensitive genic male sterility and also were confirmed by the fact that the results were similar in 1992 and 1993.

Key words [Rice \(*Oryza sativa* L.\)](#) [Anther culture](#) [Doubled haploid \(DH\) population](#) [Photoperiod sensitive genic male sterility](#) [Inheritance](#)

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