

ZHOU Li-Jun^{1,3} AO Guang-Hui² XIAO Yi³ WU Xian-Jun³ LI Shi-Gui³

(1Yibin Vocational & Technical College, Yibin 644007, China; 2Neijiang Normal College, Neijiang 641112, China; 3 Rice Research Institute, Sichuan Agricultural University, Wenjiang 611130, China)

摘要: The mechanism of early generation stability (EGS) in rice was studied via genetic analysis. Three types of crosses were made, namely between EGS varieties, EGS and conventional rice variety, and conventional rice varieties. The genetic analysis was based on the stable lines in F2 population. The stable lines may appear from some combinations of EGS rice crossing with each other and EGS rice crossing with conventional varieties at different frequencies, but stable lines didn't appear in conventional varieties crossing with conventional varieties. Genetic analysis results indicated that the EGS phenomena should just exist in special rice materials, and the frequency of stable lines was closely related to the EGS traits of parents. The EGS traits were neither qualitative nor quantitative traits, and they were controlled by neither dominant genes nor recessive genes. The EGS traits might be inherited by F1 single plant, and the traits of F3 and F4 were corresponded to those of F2 population, i.e. F3 and F4 lines derived from non-segregating F2 showed uniform agronomic traits, and those from segregating F2 did not. The agronomic traits of EGS lines were consistent with those of F1 single plant. On the other hand, when EGS lines occurred, the segregating lines in Mendelian manner were also observed in all F2 population of the same combination. It was suggested that the reason why the stable strains occurred might be a special factor to control (open/close) gene at the beginning of cell division in zygote, resulting in closing mitosis and opening somatic reduction. The somatic reduction of zygote resulted in recombination and homozygosity forming in F1 single plant, and some lines with uniform agronomic traits were observed in some lines of F2 population.

关键词: rice (*Oryza sativa*); early generation stability; stable line; genetic analysis

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