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## 野生大豆和抗草甘膦转基因大豆杂交后代的适合度分析

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摘要: 野生大豆是大豆遗传改良的重要资源。转基因大豆可能对野生大豆资源存在潜在的农业和生态风险。外源基因从抗草甘膦转基因大豆向野生大豆材料的逃逸不仅需要成功的杂交, 还要依赖于杂交后代的适合度。因此野生大豆和抗草甘膦转基因大豆杂交后代的适合度分析, 对评价抗草甘膦转基因逃逸引起的生态风险非常必要。在网室条件下, 4个野生大豆材料和抗草甘膦转基因大豆RR能够杂交结实, 获得有抗草甘膦基因杂交后代群体F<sub>1</sub>和F<sub>2</sub>(江浦野生豆-5×RR)。对杂交后代及其母本野生大豆材料的7个农艺性状进行调查, 计算适合度并进行t测验分析。结果表明: 在没有草甘膦的选择压力下, 杂交后代在一些性状上的相对适合度高于母本野生大豆材料; 江浦野生豆-5和RR杂交F<sub>2</sub>代敏感株与抗性株在7个农艺性状上相对适合度上均差异不显著

Abstract: Wild soybeans are important resources for soybean genetic improvement. The potential agricultural and ecological risk of transgenic soybeans may pose a threat to wild soybeans. Transgene escape from glyphosate-resistant, transgenic soybeans to wild soybeans also lies on the fitness of hybrid offspring except for successful cross. Therefore, analysis on the fitness of hybrids between wild soybeans and glyphosate-resistant transgenic soybeans is essential to assess environmental consequences caused by glyphosate-resistant transgene escape. In this study, F<sub>1</sub> hybrids carrying the glyphosate resistance gene were obtained from crosses between four wild soybean and the glyphosate-resistant transgenic soybeans RR and reared under the net house conditions. Then, F<sub>2</sub> hybrids were derived from the cross between the wild soybean JPWS-5 and RR. Seven agronomic traits were measured in both hybrids and wild female soybeans. The relative fitness of the hybrids and wild females were analyzed by t-test. In the absence of glyphosate, we found that the hybrids between wild soybeans and RR had the relative fitness advantage of some traits to the wild female soybeans. The analysis on the fitness of F<sub>2</sub> hybrids between JPWS-5 and RR showed that there was no difference in the fitness for the seven agronomic traits between F<sub>2</sub> hybrids carrying the glyphosate resistance gene (F<sub>2</sub><sup>r</sup>) and F<sub>2</sub> hybrids without the glyphosate resistance gene (F<sub>2</sub><sup>w</sup>). The results can provide scientific experimental data and theoretical support for safety assessment of transgenic soybeans and the protection of wild soybeans.

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