

研究论文

克服甘薯组 (Section Batatas) 种间杂交不亲和性研究初报

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摘要 本试验以蒜苗组A群二倍体野生种和B群四倍本野生种及六倍体栽培种为材料, 通过植物激素处理, 克服A群与B群种间的杂交不亲和性, 经激素处理的种间杂种进行胚胎培养, 克服杂种胚胎发育的不协调, 以探索利用A群基因资源的有效途径。主要结果为: 1) 甘薯组A群野生种*I.triloba*、*I.lacunosa*和B群之间杂交不亲和性是完全存在的。2) 用植物激素2, 4-D和BA处理种间杂交组合母本的花器, 可以延长花器寿命, 克服种间杂交的不亲和性, 提高结实率。3) 选用A群野生种*I.triloba*为母本, 对克服A群与B群种间杂交不亲和性有积极意义。4) 研究确定授粉后经激素处理11天以后的种间杂种进行胚胎培养, 成苗率高。BA在杂种胚胎培养中起重要作用。5) 在不亲和种间杂种组合*I.triloba*(2n=2x=30)×*I.littoralis* 2n=2x=60) 中获得体细胞染色体数2n=45的种间杂种, 实现了甘薯组A群与B群有关种间的基因交流。

关键词 [甘薯, 杂交不亲和性, 植物激素处理, 胚胎培养](#)

分类号

Primary Report of Studies on Overcoming the Interspecific Incompatibility and Hybrid Abortion between Series A and B in the Section Batatas of Genus *Ipomoea*

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Abstract This investigation was carried out to search for the methods of overcoming cross-incompatibility and hybrid unseeding between Series A and B in the Section batatas by using plant hormone treatment and hybrid ovule culture. The major results of the study may be summarized as follows: (1)The percentage of seed setting is zero in the mating combination between series A and B, because of inter-specific incompatibility in natural condition. This result indicated that the cross-incompatibility existed between Series A and B. (2)Application of plant hormone(30 ppm-50ppm 2,4-D and 11.3ppm 6-BA) could prolong the life of flowers. This methods could overcome the cross-incompatibility in some inter-specific mating combinations and increase the percentage of seed setting. (3)It is possible to overcome cross-incompatibility by selecting species of series A which have less genome as female. (4)Hybrid ovules were cultured in vitro. After 11 days from pollination The ovules were easy to be cultured successfully. BA had the important effect in hybrid ovule culture. (5) The crosses between *I.triloba*(2n=30,series A)×*I.littoralis* (2n=60,series B) produced viable hybrid seed by plant hormone treatment. Cytological analysis of the interspecific hybrid indicated that the somatic chromosome number of root tip was 2n=45. It is the first time to realize the genetic exchange between Series A and B.

Key words [Ipomoea](#) [Cross-incompatibility](#) [Plant hormone treatment](#) [Ovule culture](#)

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