

研究论文

陆地棉体细胞植株再生及其移栽技术研究

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收稿日期 1991-11-21 修回日期 1992-8-18 网络版发布日期 接受日期

摘要 以7个陆地棉 (*Gossypium hirsutum* L.) 品种为材料, 对体细胞植株再生及移栽技术进行了研究。在含IAA和KT和0.5ppm的MSB培养基上, Coker312、Coker201、鲁棉1024、冀合3016和河南79等5个品种能形成数量不等的胚性愈伤组织, 中棉12和邯郸14的愈伤组织继代后便褐化死亡。胚性愈伤组织振荡培养1个月以上转移到成熟培养基上获得大量直接萌发的胚状体。胚状体的发育不同步, 其萌发开始于接种后20天, 50-55天达到萌发高峰, 70天后仍有少量萌发。萌发胚在成苗培养基上培养2个月可以分化出5-10片真叶。活性炭能显著提高成苗率。0.5ppm IAA和0.5ppm KT与活性炭并用时效果更好。水培能促进幼苗新根产生和生长。水培后试管苗移栽成活率可达100%的IBA和0.5ppm GA₃最有利于新根的诱导和生长。应用此项技术在不同季节移栽都获得成功, 已将Coker201、Coker312、河南79及鲁棉1024等4个品种近百株再生植株移栽成活。

关键词 [陆地棉](#), [体细胞胚胎发生](#), [植株再生](#), [移栽](#)

分类号

Studies on Plant Regeneration form Somatic Cells and Transferring Technique of Plantlets in Upland Cotton

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Abstract Seven varieties of upland cotton (*Gossypium hirsutum* L.) were cultured for plant regeneration form somatic cells. Coker 201, Coker312, Lumian 1024, Henan79, and Jihe 3016 produced different amounts of embryogenic callus after the first subculture, while Zhongmian 12 and Handan 14 failed in reproducing fresh callus. Direct Germination of embryoids on maturation medium was observed after more than one month of suspension culture of the embryogenic callus. The development of the embryoids was asynchronous. Some embryoids began to germinate 20days after the suspensions transferred on to maturation medium. The germination reached the climax in 50-55 days and declined rapidly after the climax. There were still some embryoids germinating after 70 days, but 54.7% of the embryoids germinated in 45-55 days. The green embryoids turned white 7-10 days before germination and turned green again 2-3 days after germination. The germinated embryoids grew up to 5-10 leaves after 2 months of culture on SH medium. Active carbon significantly raised the plant-forming rate. The plant-forming rate declined when 0.5ppm IAA and 0.5ppm KT were added to SH medium but increased greatly when active carbon was used together with IAA and KT. Different plant-forming rates were observed among different varieties. Nutrient liquid culture was capable of promoting the growth of new roots of the young plant. The surviving rates of the plantlets transferred into soil in different seasons reached 100% after the liquid culture. Nearly one hundred regenerated plants including Coker 201, Coker 312, Lumian 1024 and Henan 79 were successfully transferred into soil.

Key words [Upland cotton](#) [Somatic embryogenesis](#) [Plant regeneration transplantation](#)

DOI:

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