

陆地棉原生质体高频率分裂及植株再生¹⁾

余建明, 吴敬音, 周邗扬

江苏省农业科学院农业生物遗传生理研究所, 南京 210014

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摘要 取陆地棉品种(系)3118、9554和晋棉4号种子无菌苗的下胚轴诱导的愈伤组织, 从中挑选具有分化能力的黄色颗粒状愈伤组织, 建立胚性细胞悬浮培养系。以纤维素酶和离析软化酶组成的混合酶液, 由细胞悬浮培养物游离原生质体。采用含低熔点琼脂糖的K3基本培养基包埋原生质体的培养方式, 获得愈伤组织。以液体—固体—液体轮回培养法改良晋棉4号的细胞悬浮系, 原生质体的植板率从2%左右提高到9%以上。在原生质体再生愈伤组织的继代培养中, 调整培养基中的氮源和激素既有利胚性愈伤组织的增殖生长, 又能保持胚性愈伤组织的分化能力, 供试3个品种(系)均获得了再生植株。

关键词 [陆地棉,原生质体,胚状体,再生植株](#)

分类号

High Frequency of Plating Efficiency and Plant Regeneration from Protoplasts of Cotton (*Gossypium hirsutum* L.)

She Jianming, Wu Jingyin, Zhou Hanyang

Institute of Agrobiological Genetics and Physiology, Jiangsu Academy of Agricultural Sciences, Nanjing 210014

Abstract

The embryogenic cell lines were established from the hypocotyl-derived calli of *Gossypium hirsutum* L. cv. 3118, 9554 and Jinmian 4. The enzymes consisted of 3% (W/V) cellulase Onozuka RS and 0.2% pectolyase Y-23. Protoplasts were embedded in a modified K₃ medium containing 0.5% agarose of low melting point supplemented with 0.5mg/L 2,4-d AND 1.0mg/L KT. The plating efficiency of protoplast (cell colonies/protoplasts) was about 2% in the thin layer culture. By alternating solid and liquid culture pattern regularly and selecting calli of yellow, compact and small pellet, the embryogenic cell lines were improved. The plating efficiency of protoplast was increased from 2.24% to 9.34% in Jinmian 4. MS medium and low concentration of 2,4-D, IAA and ZT were suitable for embryogenic callus growth. A modified MS medium (2×KNO₃, 1/2 NH₄NO₃) and low concentration of ZT and IAA, NAA were useful for embryoid development. The regenerated plantlets occurred from embryoids in all of the three materials.

Key words [Cotton](#) [Protoplast](#) [Embryoid](#) [Regenerated plant](#)

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