

研究论文

影响籼稻成熟胚愈伤组织植株再生频率的几个因素

高三基, 陈如凯, 马宏敏

福建农林大学农业部甘蔗生理生态与遗传改良重点开放实验室, 福建福州350002

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摘要 以优良籼稻品种的成熟胚为材料, 探讨不同浓度ABA、愈伤组织继代次数、培养时间以及干燥处理等因素对籼稻成熟胚愈伤组织再生能力的影响。结果表明: (1) 在分化培养基上添加3.0~5.0 mg/L ABA对促进胚性愈伤组织的形成及胚状体发生, 提高植株再生能力有显著作用。(2) 继代3次、培养20~30 d的成熟胚愈伤组织, 质量较好, 分化率达较高水平。随着继代次数和培养时间的进一步增加, 分化率有明显下降的趋势。(3) 分化前对愈伤组织进行干燥处理, 有利于芽的分化。对于已分化出绿点而难于分化出芽的愈伤组织, 转移至壮苗培养基前, 经过适当干燥处理, 分化率明显提高。(4) 通过优化以上几个影响因素, 明恢81、优99、R527、N175、航1号等5个籼稻品种成熟胚愈伤组织的平均分化率可达87.5%~90.8%。

关键词 [籼稻 \(*Oryza sativa* L.\)](#) [成熟胚](#) [植株再生](#) [分化](#)

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Factors Influencing the Regeneration Frequency of Mature Embryo-derived Callus in Hsien Rice Cultivars (*Oryza sativa* L.)

GAO San-Ji, CHEN Ru-Kai, MA Hong-Min

Key Laboratory of Eco-physiology & Genetic Improving for Sugarcane, Ministry of Agriculture, Fujian Agriculture and Forestry University, Fuzhou 350002, Fujian

Abstract The effects of different ABA concentration, subculture passages, incubation time and partial desiccation of callus on plant regeneration capacity of mature embryo-derived callus in hsien rice cultivars were investigated. The results showed as follows. (1) The addition of 3.0–5.0 mg/L ABA in differentiation medium contributed to embryogenesis and organogenesis, then enhanced significantly the plant regeneration frequency. (2) Superior embryogenic callus after three subculture passages and 20–30 days incubation were with higher plant regeneration frequency. However, with the further increase of subculture passages and incubation time, plant regeneration frequency would be decreased step by step. (3) Embryogenic callus partially desiccated before transferring to differentiation medium benefited shoot differentiation, and the differentiation frequency of callus with green-spot that could not regenerate into shoot would be increased when the callus had been desiccated properly before transferring to the 1/2 MS medium. (4) Plant regeneration frequency of the five hsien rice cultivars Minghui 81, You 99, R527, N175, and Hang 1 reached from 87.5% to 90.8% by optimizing the measures above.

Key words [Hsien rice \(*Oryza sativa* L.\)](#) [Mature embryos](#) [Plant regeneration](#) [Differentiation](#)

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通讯作者 高三基 gsanji@163.com

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