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雷竹体细胞胚诱导的初步研究

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A Preliminary Study of Somatic Embryogenesis of *Phyllostachys violascens In Vitro*

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摘要 以雷竹(*Phyllostachys violascens*)种胚为外植体, 脱分化产生愈伤组织, 愈伤组织诱导产生体细胞胚, 并发育成苗。实验结果表明: 愈伤组织诱导体细胞胚基本培养基为MS无机盐+20 g·L^{-1}葡萄糖(glucose)+10 mg·L^{-1}腺嘌呤(adenine sulfate)+ 0.5 g·L^{-1}麦芽抽提物(malt extract)+0.1 mg·L^{-1} 6-BA+0.01 mg·L^{-1}氨氯吡啶酸(picloram)+10 g·L^{-1}type A agar; 将基本培养基中的氨氯吡啶酸浓度升高至0.1 mg·L^{-1}即为愈伤组织诱导的最佳培养基, 早期子叶胚是愈伤组织诱导的最佳胚体; 愈伤组织在添加0.001 mg·L^{-1}TDZ和0.3 mg·L^{-1}ABA的愈伤组织最佳培养基上光照培养4周后, 去除其中的ABA, 并添加0.1 mg·L^{-1}NAA继续培养1个月, 体细胞胚数量最多可达87.43%, 该培养基是体细胞胚发生的最佳培养基; 将上述体细胞胚发生培养基中的6-BA浓度升高至1 mg·L^{-1}, 继代培养2个月后有小苗出现。组织学观察显示, 体细胞胚细胞核大、质浓且多数呈球形原胚状。

关键词: 愈伤组织 组织学 雷竹 体细胞胚

Abstract: *Phyllostachys violascens* zygotic embryos served as explants in inducing somatic embryo and subsequent plant regeneration. Murashige and Skoog salts with 20 g·L^{-1} glucose, 10 mg·L^{-1} adenine sulfate, 0.5 g·L^{-1} malt extract, 0.1 mg·L^{-1} 6-BA, 0.01 mg·L^{-1} 4-amino-3,5,6-trichloropicolinic acid (picloram) and 10 g·L^{-1} type A agar was selected as the basal medium for inducing somatic embryo. Early cotyledon embryos were used as explants for inducing compact callus formation in basal medium with increased picloram (0.1 mg·L^{-1}). This medium was the best for inducing embryogenic callus. Somatic embryogenesis reached 87.4% when embryogenic callus was transferred to the medium and supplemented with 0.001 mg·L^{-1} thidiazuron and 0.3 mg·L^{-1} abscisic acid for 4 weeks, then abscisic acid removed and 0.1 mg·L^{-1} N-acetyl-aspartate added for 1 month. Small plantlets were finally observed when 6-BA was increased to 1 mg·L^{-1} after 2 months in culture. Histological examination of somatic embryo illustrated large nuclei and dense cytoplasm cells, paired with globular proembryos.

Keywords: callus histology *Phyllostachys violascens* somatic embryo

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