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基因型和胚龄对小麦未成熟胚离体培养反应的影响[1)]

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摘要 本文对34种基因型的小麦未成熟胚在离体培养中的反应进行了比较。结果表明，94%的供试 基因型愈伤组织诱导率都可碇以80%以上，若排除供体植株环境条件的不同和接种过程中的 人为因素可能造成的影响，不同基因型的愈伤组织诱导率看来没有根本的差异。愈伤组织分 化率因基因型的不同变动在0-60%之间，平均为32.7%。虽然同一基因型的盾片愈伤组织分化 率在不同年份中有所不同，但是愈伤组织是否具有再生能力?看来是个稳定的遗传性状。因 此小麦未成熟胚对愈伤组织诱导的反应和愈伤组织的再生能力可能具有不同的遗传基础。本 文的结果还表明，虽然最适于培养的未成熟胚的大小为1毫米左右，但小至0.3毫米的未成熟 胚仍能以几乎100%的频率形成愈伤组织，60%左右的愈伤组织能分化出再生植株，只是所需 的时间比1毫米左右的胚较长。

关键词 小麦,未成熟胚,基因型,胚龄,组织培养

分类号

Effect of Genotype and Embryo Age on Wheat Immature Embryo Response in in vitro Culture

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Abstract

Thirty-four genotypes of Triticum aestivum were comparatively examined with rega rd to their immature embryo response in in vitro culture.Callus induction freque ncy of all the genotypes tested varied from 100% to 71% with an average of 92.4% .Since such a moderate variation may be attributed to either environmental facto rs conditioning the physiological state of the donor plants,or artificial factor s imposed during the experimental manipulation,it seems that no substantial diff erences exist among the genotypes in terms of their response to callus induction .In contrast,regenerable or shoot-forming callus frequency varied remarkably wit h genotype,ranging from 60% to 0% with an average of 32.7%.Although,for a given genotype,it also varied from year to year,the presence or absence of the regener ability seems to be a stable genetic attribute.Therefore,response to callus indu ction and regenerability of the callus in culture of immature embryo of wheat ma y be conditioned by different genetic mechanisms. In Spite of the optimal embryo size for in vitro culture seeming to be about 1 mm in length,upon a longer period of time in culture,scutellar callus could e ven be successfully initiated with embryos as small as 0.3mm.Callus induction fr equency and differentiation frequency in the latter case appeared as high as abo ut 100% and 60%,respectively.

Key words Wheat Immature embryo Genotype Embryo size Tissue culture

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