

玉米花粉胚状体发育过程中DNA、RNA、蛋白质含量及合成动态变化

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摘要 继代培养的玉米花粉胚状体的发育过程可划分为6个时期: 胚性细胞团时期、珠形胚时期、心形胚时期、梨形胚时期、子叶形胚时期以及分化期。我们应用微量生化分析技术以及放射性同位素液体闪烁计数技术研究了玉米花粉胚状体发育过程的DNA、RNA、蛋白质含量及合成动态, 发现DNA、RNA和蛋白质含量在胚性细胞团期较高, 然后下降, 但到了分化期时又有所升高。DNA合成速度在胚性细胞团时期较高, 在以后的各时期降低并保持平衡。RNA和蛋白质的合成动态呈相似的变化规律。这个结果说明DNA、RNA和蛋白质在胚状体发育早期的活跃代谢, 可能与胚性细胞的快速分裂以及胚性结构的形成有关, 而后期的活跃代谢可能与胚状体的分化有关。

关键词 [玉米,胚状体,DNA,RNA,蛋白质](#)

分类号

Changes of Contents and Synthetic Activities of DNA,RNA and Protein During Development of Maize Pollen Embryos

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Abstract

Haploid pollen embryoid of maize on subculture could be divided into six stages: A: masses of embryonic cells; B: globular stage; C: heart-shaped stage; D: pear-shaped stage; E: cotyledon stage; F: differentiation stage. The changes of contents and synthetic activities of DNA, RNA and protein were studied during development of haploid pollen embryoids. The results revealed that contents of DNA, RNA and protein were higher in masses of embryonic cells, then gradually decreased, and increased at differentiation stage. Synthetic activities of DNA were higher at early stages of development and then decreased and had no sharp changes at later stages. Similar changes of synthetic activities of RNA and protein were found: higher at masses of embryonic cells and differentiation stage, lower between those two stages. We suggested that the active metabolisms of DNA, RNA and protein at early stages probably resulted from rapid division of embryonic cells and formation of embryonic structure and those at later stages probably resulted from embryoid differentiation.

Key words [Maize](#) [Embryoid](#) [DNA](#) [RNA](#) [Protein](#)

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