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研究论文

马协不育花药药隔ATPase超微结构定位

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摘要 马协可育花药单核期和二核期药隔维管束薄壁细胞核、 筛分子质膜、 胞间连丝及其转运物、 药隔薄壁细胞液泡膜、 胞间隙及淀粉粒表面具有ATPase活性。 马协不育花药单核期维管束薄壁细胞核变形， 核内有弥散的异染色质， 随后异染色质团转移到核边缘， 并表现出减少的趋势； ATPase主要定位于核异染色质、 线粒体、 液泡、 质膜以及药隔薄壁细胞胞间隙。 不育花药维管束缺乏胞间连丝， 药隔内无淀粉， 二核期许多维管束薄壁细胞仅存空腔。 基于以上研究结果， 我们认为可育花药维管束营养物质卸出主要取共质体途径。 不育花药维管束营养物质卸出存在障碍； 论文还探讨了不育花药维管束薄壁细胞解体的可能机制。

关键词 水稻 雄性不育 药隔 ATPase定位

分类号

Ultrastructural Localization of ATPase in Connective of Maxie Cytoplasmic Male Sterile(CMS) Anther(Oryza sativa L.)

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Abstract It was shown that nuclei of parenchymatous cells, plasma membrane of sieve elements and plasmodesmata together with lts transmitted materials have ATPase activity in vascular bundle of fertile anther both at uni-and binucleate stages. While in connective, ATPase were localized in tonoplast, intercellular space and starch grains′ surface. In sterile anther at uninucleate stage, nuclei of parenchymatous cells in vascalar bundle were deformed, and heterochromatin were scattered in the nulclei, then heterochromatic bodies transported to the periphery and tend to disappear. At the same stage in vascular bundle, ATPase were localized in heterochromatic bodies, mitochondria, vacuole and plasma membrane. While in connective, ATPase were localized in the intercellular space. Furthermore, neither plasmodesmata in vascular bundle nor starch grain in connective was observed. At binucleate stage, a lot of parenchymatous cells in vascular bundle were empty. Based on the above results, we suggested that nutrients unloaded from vascular bundle via symplasmic pathway in fertile anther, and there was some obstacle at nutrient unloading in sterile anther. At the end of paper, the mechnism was also discussed about the degeneration of parenchymatous cells in the vascular bundle of sterile anther.

Key words Rice(Oryza sativa L.) CMS Connective ATPase Localization

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