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研究论文

乙烯与水稻细胞质雄性不育的关系

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摘要 从幼穗发育的IV到VII期，水稻细胞质雄性不育系(珍汕97A)幼穗和叶片的ACC含量和乙烯释放速率均高于其保持系(珍汕97B)。外施乙烯释放剂乙烯利使保持系花粉可育度明显下降;外施ACC合成酶抑制剂AVG引起两系幼穗ACC含量和乙烯释放速率下降，并使不育系花粉育性得以部分恢复，而在外施AVG的同时再施以乙烯利则AVG的恢复作用消失。以上结果说明乙烯的过度释放是水稻细胞质雄性不育产生的原因之一。

关键词 乙烯,ACC,细胞质雄性不育,水稻

分类号

Relationship between Ethylene and the Occurrence of Cytoplasmic Male Sterility in Oryza sativa L.

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Abstract From the stage of stamen and pistil differentiation to that of pollen substance filling，ACC content and ethylene release rate in rice panicle of cytoplasmic male sterile line (Zhenshan97A)were higher than that of its maintainer line(Zhenshan 97B). Exogenous ethrel decreased the percentage of fertile pollen in maintainer line，and exogenous AVG，which is one of the inhibitors of ACC synthase，reduced ACC content and ethylene release rate in both CMS lines and its maintainer line，and restored partially the pollen fertility in CMS line. However，exogenous ethrel counteracted the effect of AVG. These results showed that the excess release of ethylene was one of the reasons which brought about the occurrence of cytoplasmic male sterility in rice.

Key words Ethylene ACC Cytoplasmic male sterility Oryza sativa L.

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