作物学报 2006 32 (9): 1406-1409 ISSN: 0496-3490 CN: 11-1809/S

研究简报

马铃薯class Ⅰ patatin基因在试管块茎形成中的功能

司怀军[1,2],柳俊[1],谢从华[1]

1国家蔬菜改良中心华中分中心/园艺植物生物学教育部重点实验室/华中农业大学，湖北武汉 430070 2甘肃农业大学生命科学技术学院，甘肃兰州730070

收稿日期 2005-9-27 修回日期 网络版发布日期 2006-8-15 接受日期 2006-1-13

摘要 将正反义class Ⅰ patatin基因导入马铃薯品种甘农薯2号中，有2个转正义基因株系试管块茎的可溶性蛋白含量和LAH活性与对照相比有不同程度的增加，有3个转反义基因株系的可溶性蛋白质含量下降，并且所有转反义基因植株的LAH活性都不同程度地降低。试管块茎的诱导结果表明，有1个转正义基因株系的结薯株率和单株结薯数比其对照明显增加，有2个转反义基因株系的结薯株率和单株结薯数比对照明显减少。这些实验结果说明，该class Ⅰ patatin基因参与了马铃薯试管块茎的形成及其调控。

关键词 马铃薯 class Ⅰ patatin基因 转化 块茎形成

分类号 S532

Function of class Ⅰ patatin Gene in Potato Microtuber Formation

SI Huai-Jun[1,2],LIU Jun[1],XIE Cong-Hua[1]

1National Center for Vegetable Improvement (Central China), Key Laboratory of Horticultural Plant Biology (Huazhong Agricultural University), Ministry of Education, Huazhong Agricultural University, Wuhan 430070, Hubei; 2College of Life Science and Technology, Gansu Agricultural University, Lanzhou 730070, Gansu, China

Abstract Sense and antisense class Ⅰ patatin gene were introduced into potato cultivar Gannongshu 2. Two sense lines had a marked higher soluble protein content and LAH activity than the control. Three antisense lines showed a reduction in soluble protein content, but all of antisense lines displayed a decrease in LAH activity. Induction of microtuber demonstrated that one sense line had a significant increase while two antisense lines had a significant reduction in percentage of plantlets formed tubers and number of tubers per plantlet. The results suggested that the class Ⅰ patatin gene is involved in regulating potato tuber formation.

Key words Potato class Ⅰ patatin gene Tansformation Tuberization

DOI:

通讯作者 谢从华 xiech@mail.hzau.edu.cn