

农业生物技术科学

水稻种子萌发过程中胚蛋白质差异表达分析

许丽璇, 蔡建秀

泉州儿童发展职业学院, 福建泉州362000

摘要:

采用IEF-SDS-PAGE双向电泳技术,对金稻1号水稻种子未萌发和萌发1-4d胚进行蛋白质分离。发现金稻1号水稻种子未萌发和萌发1-4d胚在PDQuest图像分析软件可识别的蛋白质点约215、201、187、162、132个,其中表达量变化2.5倍以上的蛋白质点有22个。选取表达量变化2.5倍以上的12个差异蛋白质点进行胶内酶解,并进行肽质量指纹图谱及其生物信息分析,初步鉴定出6个蛋白质,分别为硫氧还蛋白; 热休克蛋白; ATP合酶; LEA蛋白12; 核苷二磷酸激酶; 乙二醛酶。对这些蛋白质在水稻种子萌发过程中的作用进行了讨论。

关键词: 肽质量指纹图谱

Differential Proteomic and Mass Spectrometric Analysis of embryo buds During Seed Germination in Rice(*Oryza sativa* L.)

Abstract:

IEF- SDS- PAGE two- dimensional gel electrophoresis (2- DE) technology was used to separated proteins from ungerminated seed and embryo buds of germinated seed at specific stages of 1 d、2d、3d、4d in rice(*Oryza sativa* L.)Jindao 1. The results showed that on the 2-DE gels stained by coomassie brilliant blue, PDQuest image software detected about 215、201、187、162、132 protein spots, of which 22 spots show more than 2.5-fold changes in abundance among ungerminated seed and embryo buds of germinated seed at specific stages of 1 d、2d、3d、4d in rice(*Oryza sativa* L.)Jindao 1. These 12 of 22 protein spots treated by tryptic in-gel digestion were characterized by matrix-assisted laser -desorption / ionization time of flight mass spectrometry (MALD I-TOF -MS) and bioinformatics analysis,peptidemass fingerprints of all were obtained, of which 6 differential proteins were elementarily identified as thioredoxin peroxidase, heat shock protein, ATP synthase, LEA protein 12, nucleoside diphosphate kinase I (NDK I)(NDP kinase I)(NDPK I)and glyoxalase I respectively. The potential functions of these proteins during seed germination were discussed.

Keywords: peptidemass fingerprints

收稿日期 2009-11-02 修回日期 2009-12-02 网络版发布日期 2010-03-20

DOI:

基金项目:

福建省教育厅项目“水稻穗上发芽的生理生化及分子机理研究”

通讯作者: 许丽璇

作者简介:

作者Email: xlx.1962@hotmail.com

参考文献:

本刊中的类似文章

扩展功能

本文信息

- Supporting info
- PDF(1198KB)
- [HTML全文]
- 参考文献[PDF]
- 参考文献

服务与反馈

- 把本文推荐给朋友
- 加入我的书架
- 加入引用管理器
- 引用本文
- Email Alert
- 文章反馈
- 浏览反馈信息

本文关键词相关文章

- 肽质量指纹图谱

本文作者相关文章

- 许丽璇

PubMed

- Article by Xu,L.X