

快速
检索

GO
高级检索

肉桂酸降解真菌的筛选及其降解液对黄瓜种子发芽的影响

孙 秀1, 王秀峰1, 魏 珉1, 王 芳2, 史庆华1,* , 周 波2,3,*

(1山东农业大学园艺科学与工程学院, 作物生物学国家重点实验室, 山东泰安 271018; 2山东农业大学生命科学学院, 山东泰安 271018; 3土壤资源高效利用国家工程实验室, 山东泰安 271018)

Screening and Identification of Cinnamic Acid-degrading Fungis and the Effect of Degradation Liquid on the Cucumber Germination

SUN Xiu1, WANG Xiu-feng1, WEI Min1, WANG Fang2, SHI Qing-hua1,* , and ZHOU Bo2,3,*

(1College of Horticulture Science and Engineering, Shandong Agricultural University, Tai'an, Shandong 271018, China; 2College of Life Science, Shandong Agricultural University, Tai'an, Shandong 271018, China; 3National Engineering Laboratory of High-efficiency Utilization in Soil and Fertilizer Resources, Tai'an, Shandong 271018, China)

- 摘要
- 参考文献
- 相关文章

Download: [PDF \(421KB\)](#) [HTML \(1KB\)](#) Export: [BibTeX](#) or [EndNote \(RIS\)](#) [Supporting Info](#)

摘要 利用富集驯化培养和、稀释涂布的方法, 从连作黄瓜根际土壤中分离得到1株能降解肉桂酸的真菌2-4。该菌能够在以肉桂酸为唯一碳源的无机盐培养基上生长; 经形态学、生理生化及分子等分类方法鉴定其为黑曲霉 (*Aspergillus niger*)。该菌不同培养时间的肉桂酸降解液对黄瓜种子发芽试验表明, 该菌可有效降解肉桂酸, 从而缓解对黄瓜发芽的抑制作用, 72 h降解液处理的种子发芽率、发芽指数和活力指数可分别达到对照的100%、92.06%和91.49%; 胚根长、根表面积和根尖数达到对照的84.19%、87.55%和82.64%, 而胚轴长、鲜质量差异不显著。

关键词: 黄瓜 肉桂酸 降解作用 黑曲霉 发芽

Abstract: A fungi which is able to degrade cinnamic acid efficiently was isolated from cucumber rhizosphere soil by using enrichment and dilution separation methods. This strain could use cinnamic acid as the sole carbon source and was identified as *Aspergillus niger* by the morphological, biochemical characteristics and molecule analysis. Seed germination treated with degradation liquid of different time indicated that, this fungi could efficiently degrade cinnamic acid and alleviate the inhibition of cinnamic acid on cucumber germination. Seed germination rate, germination index and vigor index could separately reach 100%, 92.06% and 91.49% compared with the controls in treatment with degradation liquid of 72 h. Radicle length, radicle area and root tip number also reached 84.19%, 87.55% and 82.64%, hypocotyl length and fresh weight is not significant compared with the control.

Keywords: cucumber, cinnamic acid, degradation, *Aspergillus niger*, germination

收稿日期: 2013-12-17; 出版日期: 2014-02-06

引用本文:

刘书林1, 顾兴芳1, 苗等. 肉桂酸降解真菌的筛选及其降解液对黄瓜种子发芽的影响[J] 园艺学报, 2014, V41(4): 765-772

LIU Shu-Lin-1, GU Xing-Fang-1, MIAO etc. Screening and Identification of Cinnamic Acid-degrading Fungis and the Effect of Degradation Liquid on the Cucumber Germination[J] ACTA HORTICULTURAE SINICA, 2014, V41(4): 765-772

链接本文:

http://www.ahs.ac.cn/CN/ 或 http://www.ahs.ac.cn/CN/Y2014/V41/I4/765

Service

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ Email Alert
- ▶ RSS

作者相关文章

- ▶ 刘书林1
- ▶ 顾兴芳1
- ▶ 苗
- ▶ 晗1
- ▶ 王
- ▶ 敏1
- ▶ 王
- ▶ 焯1
- ▶ Todd C. Wehner2
- ▶ 张圣平1
- ▶ *

- [1] 梁肇均, 周向阳, 林毓娥, 马海峰, 黄河勋, 欧继喜, 王瑞. 黄瓜新品种‘粤青 1 号’ [J]. 园艺学报, 2014,41(5): 1033-1034
- [2] 刘小凤, 安静波, 张立新, 王文娇, 徐冲, 任华中. 黄瓜调控蜡质合成相关基因CsCER7的克隆与表达分析 [J]. 园艺学报, 2014,41(4): 661-671
- [3] 张慧敏, 张雷, 马永硕, 尚轶, 王深浩, 杨清, 黄三文. 调控黄瓜苦味基因Bi的AP2/ERF家族转录因子 [J]. 园艺学报, 2014,41(4): 672-680
- [4] 陈璐, 石延霞, 谢学文, 柴阿丽, 李宝聚. 黄瓜棒孢叶斑病菌PCR检测方法的建立 [J]. 园艺学报, 2014,41(3): 585-592
- [5] 刘书林¹, 顾兴芳¹, 苗晗¹, 王敏¹, 王焯¹, Todd C. Wehner², 张圣平¹, *. 成熟黄瓜果皮红色性状的遗传分析及其基因定位 [J]. 园艺学报, 2014,41(2): 259-267
- [6] 龚浩, 罗剑宁, 罗少波, 郑晓明, 何晓莉, 吴海滨*. 黄瓜与甜瓜的性别决定分子机制研究进展 [J]. 园艺学报, 2014,41(2): 382-388
- [7] 张守才¹*, 李磊¹, 秦玉红¹, 王波¹, 王琰², 王珍青¹. 春提早栽培华南型黄瓜新品种‘青研黄瓜2号’ [J]. 园艺学报, 2014,41(2): 395-396
- [8] 王敏, 苗晗, 张圣平, 刘书林, 董邵云, 王焯, 顾兴芳. 黄瓜种子大小遗传分析与QTL定位 [J]. 园艺学报, 2014,41(1): 63-72
- [9] 王敏, 董邵云, 张圣平, 苗晗, 王焯, 顾兴芳. 黄瓜果实质性状遗传及相关基因分子标记研究进展 [J]. 园艺学报, 2013,40(9): 1752-1766
- [10] 孟晶晶, 秦智伟, 周秀艳, 辛明. 黄瓜功能基因研究进展 [J]. 园艺学报, 2013,40(9): 1767-1778
- [11] 苗兵兵¹*, 莫伟钦¹, 毛丰伟², 刘远星¹, 吴代应¹, 罗诗¹. 黄瓜新品种‘莞绿1号小黄瓜’ [J]. 园艺学报, 2013,40(8): 1615-1616
- [12] 姚娟, 李衍素, 郭允娜, 贺超兴, 闫妍, 于贤昌. 短期亚适宜温光对黄瓜氮吸收运转相关酶活性和基因表达的影响 [J]. 园艺学报, 2013,40(7): 1289-1297
- [13] 任国良, 杨绪勤, 何欢乐, 蔡润, 潘俊松. 黄瓜无侧枝基因*n1b*的初步定位 [J]. 园艺学报, 2013,40(7): 1375-1381
- [14] 郭勤卫, 李季, 崔利, 张停林, Kere George Mbiru, 陈劲枫*. 黄瓜生长素响应因子*CsARF10*亚家族3个基因的克隆与表达分析 [J]. 园艺学报, 2013,40(6): 1071-
- [15] 徐圆, 秦智伟, 周秀艳. 黄瓜果实质弯曲相关基因*Cs14-3-3*的克隆及表达分析 [J]. 园艺学报, 2013,40(5): 896-