



中文标题 检索 药刊检索

1株选择性降解茅苍术挥发油内生真菌的筛选与鉴定

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作者中文名	作者英文名	单位中文名	单位英文名	E-Mail
李雷	LI Lei	南京师范大学 生命科学学院 江苏省微生物与功能基因组学 重点实验室 江苏省微生物资 源产业化工程技术研究中心, 江苏 南京210046	Jiangsu Engineering and Technology Research Center for Industrialization of Microbial Resources, Jiangsu Key Laboratory for Microbes and Functional Genomics, College of Life Science, Nanjing Normal University, Nanjing 210046, China	
刘付燕	LIU Fu-yan	南京师范大学 生命科学学院 江苏省微生物与功能基因组学 重点实验室 江苏省微生物资 源产业化工程技术研究中心, 江苏 南京210046	Jiangsu Engineering and Technology Research Center for Industrialization of Microbial Resources, Jiangsu Key Laboratory for Microbes and Functional Genomics, College of Life Science, Nanjing Normal University, Nanjing 210046, China	
任承钢	REN Cheng-gang	南京师范大学 生命科学学院 江苏省微生物与功能基因组学 重点实验室 江苏省微生物资 源产业化工程技术研究中心, 江苏 南京210046	Jiangsu Engineering and Technology Research Center for Industrialization of Microbial Resources, Jiangsu Key Laboratory for Microbes and Functional Genomics, College of Life Science, Nanjing Normal University, Nanjing 210046, China	
戴传超	DAI Chuan-chao	南京师范大学 生命科学学院 江苏省微生物与功能基因组学 重点实验室 江苏省微生物资 源产业化工程技术研究中心, 江苏 南京210046	Jiangsu Engineering and Technology Research Center for Industrialization of Microbial Resources, Jiangsu Key Laboratory for Microbes and Functional Genomics, College of Life Science, Nanjing Normal University, Nanjing 210046, China	daichuanhao@njnu.edu.cn

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中文摘要:目的:从茅苍术*Atractylodes lancea*根中分离内生真菌,筛选能选择性降解转化茅苍术挥发油的菌株,实现内生真菌对茅苍术挥发油主要成分的转化作用。方法:利用微生物体外转化方法,通过气相色谱追踪挥发油变化,筛选出能选择性利用挥发油的内生真菌。通过单因素试验研究碳源、转速、装液量、初始pH和植物组织添加对内生真菌降解的影响,并选取对降解影响较大的因素进行正交试验。结果:筛选到的内生真菌ALG-13可以选择性利用挥发油,改变了挥发油主要成分相对百分比。总体表现为苍术酮和苍术素增加,β-桉叶醇和桉术醇含量减少。经过真菌选择性降解后,挥发油组分更加接近道地茅苍术的挥发油组成。ALG-13基于形态特征、ITS序列系统学分析,确定为生赤壳属真菌*Bionectria ochroleuca*。最优降解条件为200 r·min⁻¹, pH 4.5, 250 mL装液量为50 mL、蔗糖为碳源。结论:内生真菌ALG-13可以以选择性降解挥发油,使挥发油组分接近道地药材。

中文关键词:茅苍术 内生真菌 挥发油 选择性利用 生赤壳属

Screening and identification of an endophytic fungus from *Atractylodes lancea* which utilizes volatile oil selectively

Abstract:In order to transform main active ingredient of volatile oil, endophytic fungi were screened from the root of *Atractylodes lancea*. Transformation method was used *in vitro*. The changes of volatile oil were traced by gas chromatography. One endophytic fungus (strain ALG-13) which could utilize volatile oil selectively was screened. Single factor experiment were conducted for exploring the effects of various factors that including kinds of carbon source, speed, liquid volume, pH and concentration of plant tissue on degradation by this strain. Subsequently, the main affecting factors carbon source, speed, pH and liquid volume were optimized using orthogonal array design. Results showed that endophytic fungus ALG-13 selectively used the volatile oil, change the relative percentage of the main components of volatile oil. Atractylon and Atractylidin were increased. While, β-eudesmol and Atractylol decreased. After selectively degradation by fungus, volatile oil components percentage were closer to the geo-herbs. Strain ALG-13 was identified as *Bionectria ochroleuca* according to its morphological characteristics and systematic analysis of ITS sequence. The optimal conditions were as follows: sucrose used as carbon source, rotating speed was 200 r·min⁻¹, initial pH for medium was 4.5, 50 mL liquid was added in 250 mL flask. The endophytic fungus ALG-13 could degrade the volatile oil selectively, which was benefit for forming geo-herbs *A. lancea* volatile oil composition.

keywords:*Atractylodes lancea* endophytic fungi volatile oil selectively use *Bionectria ochroleuca*

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