应用生态学报 2005 16 (04): 763-767 ISSN: 1001-9332 CN: 21-1253/Q

研究报告

香茅天然挥发物的化感作用及其化学成分分析

黎华寿[1]；黄京华[1，2]；张修玉[1]；陈玉芬[1]；杨军[1]；黑亮[1]

[1] 华南农业大学热带亚热带生态研究所，广州 510642；[2] 广西大学农学院，南宁 530005

收稿日期 2004-3-9 修回日期 2004-7-11 网络版发布日期 接受日期

摘要

在野外香茅草丛地表和密闭容器中进行了香茅天然挥发物对玉米和稗草种子萌发和幼苗生长影响的试验,并采用固相微萃取和气相色谱 质谱联用技术，对香茅挥发物化学成分进行了分析.生物测定表明，野外香茅草丛和密闭容器中香茅挥发物对玉米和稗草种子萌发率影响不显著，但对玉米和稗草幼苗的生物量、根长及苗高均产生显著抑制影响，表明香茅挥发物中存在潜在的化感物质.对挥发物的分析结果表明，根挥发物有10种成分，主要成分是长叶松烯，含量为56.67%，其次为芹子烯内酯（20.03%），其余成分含量都在10%以下.茎叶挥发物有12种成分，主要成分是柠檬醛，含量达53.98%，其次是z-柠檬醛，含量为34.40%，其余成分含量都在4%以下.研究表明，在香茅挥发物中存在较多的萜类化合物，茎叶挥发物中有2个单萜，9个倍半萜，根挥发物全部为倍半萜.因此,种植香茅时不应忽视它的化感作用.

关键词 香茅；挥发物；气-质联用；化感作用

分类号

Allelopathic effects of *Cymbopogon citratu* volatile and its chemical components

LI Huashou[1],HUANG Jinghua[1,2],ZHANG Xiuyu[1],CHEN Yufen[1],YANG Jun[1],HEI Liang[1]

[1]Institute of Tropical and Subtropical Ecology,South China Agricultural University,Guangzhou 510642,China;[2]Agricultural College,Guangxi University，Nanning 530005,China

Abstract

This paper studied the allelopathic effects of *Cymbopogon citratus* volatile on the seed germination and seedling growth of corn and barnyard grass (*Echinochloa crusgalli*) in field and in obturator,and analyzed the chemical components of the volatile with SPME and GC-MS. The results of bio assay indicated that the germination rate of corn or barnyard grass intercropped with *C.citrate* or enclosed in obturator with fresh *C.citratus* had no significant difference from the control,but the seedling growth of corn and barnyard grass was significantly inhibited.The volatile from *C.citratus* roots contained 10 components.The main component was longifolene (V4),occupying 56.67% of the total,the second component was selina 6 en 4 ol (20.03%),while the others were under 10%.There were 12 components in the volatile from *C.citratus* shoots.The main component was citral (53.98%), the second was z-citral (34.40%),and the others were under 4%.There were 2 monoterpenes and 9 sesquiterpenes in the volatile from shoots,and all the terpenes in the volatile from roots were sesquiterpenes.Therefore,the allelopathy of *C.citratus* should not be ignored when planted it with other crops.

Key words *Cymbopogon citratus* Volatile GC-MS Allelopathy

扩展功能

本文信息

Supporting info

PDF(461KB)

[HTML全文](0KB)

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

复制索引

Email Alert

文章反馈

浏览反馈信息

相关信息

本刊中 包含“香茅；挥发物；气-质联用；化感作用”的 相关文章

本文作者相关文章

- 黎华寿
- 黄京华
-
- 张修玉
- 陈玉芬
- 杨军
- 黑亮

DOI:

通讯作者