生防放线菌Fq24代谢产物对朱砂叶螨的生物活性

陈红兵1,马林2,韩巨才3**,刘慧平3,闫彦萍4

1山西农业大学文理学院， 山西太谷 030801；2江苏省农业科学院蔬菜研究所， 南京 210014；3山西农业大学农学院， 山西太谷 030801；4河北威远生物化工股份有限公司， 石家庄 050031

Bioactivity of the metabolites from endophytic actinomycete Fq24 against *Tetranychus cinnabarinus*.

CHEN Hong-bing1, MA Lin2, HAN Ju-cai3, LIU Hui-ping3, YAN Yan-ping4

1College of Arts & Sciences, Shanxi Agricultural University, Taigu 030801, Shanxi, China;2Institute of Vegetable Crops, Jiangsu Academy of Agricultural Sciences, Nanjing 210014, China; 3College of Agriculture, Shanxi Agricultural University, Taigu 030801, Shanxi, China;4Hebei Veyong Bio-chemical Co. Ltd., Shijiazhuang 050031, China

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摘要 菌株Fq24是从健康番茄植株分离得到的一株植物内生放线菌.为了研究它对朱砂叶螨生物活性的影响，通过萃取、柱层析、气相色谱-质谱(GC-MS)等技术对Fq24代谢产物中的杀螨活性物质进行了分离和结构鉴定，并采用玻片浸渍法和叶片残毒法测定了这些代谢产物的生物活性.结果表明：石油醚萃取物对朱砂叶螨具有较强的触杀和产卵忌避作用.触杀作用的LC_{50}为52.57 mg·L^{-1}，产卵忌避作用的ODC_{50}为43.18 mg·L^{-1}.经GC-MS分析，流份S_{11}的主要化学成分为棕榈酸甲酯，分子式为$C_{17}H_{34}O_2$，是代谢产物中的杀螨活性物质之一.质量浓度为5 mg·mL^{-1}的棕榈酸甲酯对雌成螨的24 h校正死亡率为78.3%，对雌成螨24 h产卵驱避率为81.6%.

关键词： 内生放线菌Fq24 朱砂叶螨 生物活性 棕榈酸甲酯

Abstract： An endophytic actinomycete strain Fq24 was isolated from healthy tomato plants. The acaricidal substances in the metabolites from Fq24 were collected and identified by the methods of extraction, column chromatography, and gas chromatography-mass spectrometry (GC-MS), and their bioactivities against *Tetranychus cinnabarinus* were measured with slide-dip and leaf-residue methods. Among the extracts, petroleum ether extract had high bioactivity in contact toxicity and oviposition deterrent against *T. cinnabarinus*. Its lethal concentration of 50% (LC_{50}) was 52.57 mg·L^{-1}, and its oviposition deterrent concentration of 50% (ODC_{50}) was 43.18 mg·L^{-1}. The identification with GC-MS showed that the main chemical component of fraction S_{11} was methyl hexadecanoate, whose molecular formula was $C_{17}H_{34}O_2$, being one of the substances with acaricidal activity in the metabolites from Fq24.The24 h corrected mortality rate of female mite at 5 mg·mL^{-1} of methyl hexadecanoate was 78.3%, and the oviposition deterrent rate was 81.6%.

Key words： endophytic actinomycete Fq24 *Tetranychus cinnabarinus* bioactivity methyl hexadecanoate

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