

植物保护—研究报告

瑞香狼毒超临界CO₂萃取物的杀螨毒力及机理初探

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摘要:

为了测定瑞香狼毒超临界CO₂萃取物对朱砂叶螨的触杀毒力, 并了解其作用机理, 笔者采用玻片浸渍法测定瑞香狼毒超临界CO₂萃取物(SCE)对朱砂叶螨的触杀毒力, 观察其对朱砂叶螨的致毒症状; 结果表明: SCE对朱砂叶螨24 h的触杀LC₅₀值为2.411 mg/mL; 中毒试螨表现出类似神经毒剂的致毒症状, 如兴奋、痉挛等。随后测定了SCE对朱砂叶螨神经系统靶标酶(乙酰胆碱酯酶、单胺氧化酶、Na⁺-K⁺-ATP酶和Ca²⁺-Mg²⁺-ATP酶)活性的影响。结果表明, SCE能够显著抑制试螨乙酰胆碱酯酶、单胺氧化酶、Na⁺-K⁺-ATP酶和Ca²⁺-Mg²⁺-ATP酶的活性; 据此推测, SCE对朱砂叶螨可能具有神经毒性。

关键词: 神经毒性

Preliminary Study on Toxicity of Supercritical Extract of *Stellera chamaejasme* L. to *Tetranychus cinnabarinus* and its Acaricidal Mechanism

Abstract:

In order to study the toxicity and possible lethal mechanism of supercritical extract of *Stellera chamaejasme* L., the experiment was conducted. In this study, the contact toxicity of supercritical extract of *Stellera chamaejasme* L. (SCE) to *Tetranychus cinnabarinus* was tested using slide dip method, and dynamic toxicosis symptoms of SCE-exposed mites were also detailedly observed. The results showed that the contact toxicity LC₅₀ value of SCE to *T. cinnabarinus* was 2.411 mg/mL at 24th h post-treatment. Some typical neurotoxic symptoms such as excitement and convulsions were observed in SCE-exposed mites. Subsequently, the changes of activities of AChE, MAO, Na⁺-K⁺-ATPase and Ca²⁺-Mg²⁺-ATPase after exposed to SCE were assayed. The experiment showed that SCE could significantly inhibit the activities of AChE, MAO, Na⁺-K⁺-ATPase and Ca²⁺-Mg²⁺-ATPase. The results led us to believe that SCE may be a neurotoxin.

Keywords: neurotoxicity

收稿日期 2011-01-10 修回日期 2011-02-10 网络版发布日期 2011-06-16

DOI:

基金项目:

核桃青皮杀螨活性成分及作用机理研究; 有机观光果园间作对有害生物及生态环境影响的研究; 北京山区果品优质生态安全关键技术研究与示范; 核桃青皮杀螨活性物质及作用毒理学

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