

研究报告

阿维菌素B1a对土壤微生物和蚯蚓的影响

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摘要

研究了不同阿维菌素B1a浓度对4种土壤微生物生长和呼吸强度的影响及对土壤中蚯蚓的急性毒性.结果表明,土壤中阿维菌素B1a浓度在 $83.3 \text{ mg} \cdot \text{kg}^{-1}$ 以上时对4种土壤细菌均表现出明显的抑制作用,但对土壤真菌不表现抑制作用.高浓度阿维菌素B1a对土壤微生物的呼吸强度有抑制作用,并且在不同土壤其作用有差异.采用滤纸接触试验和人工土壤试验测定阿维菌素对蚯蚓的急性毒性(半数致死量, LD50),接触毒性LD50为 $4.63 \mu\text{g} \cdot \text{cm}^{-2}$,土壤法试验测定的LD50在处理第7 d和第14 d分别为 24.13 和 $17.06 \text{ mg} \cdot \text{kg}^{-1}$.

关键词 [阿维菌素B1a](#), [土壤微生物](#), [蚯蚓](#), [急性毒性](#)

分类号

Effects of avermectin B1a on soil microorganism and earthworm(*Eisenia fetida*)

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Abstract

Avermectins are the pesticides widely applied in agriculture. This paper studied the effects of different concentration avermectin B1a (AVM B1a) on soil bacteria and fungi, soil respiration, and soil earthworm (*Eisenia fetida*). The results showed that in 4 test soils, bacteria were significantly inhibited when the AVM B1a concentration was higher than $83.3 \text{ mg} \cdot \text{kg}^{-1}$, while fungi were less impaired. Soil respiration was also inhibited by high concentration AVM B1a, which differed with soil types. The half lethal dosage (LD50) of AVM B1a to soil earthworm was estimated as $4.63 \mu\text{g} \cdot \text{cm}^{-2}$ in filter paper contact test, and as 24.13 and $17.06 \text{ mg} \cdot \text{kg}^{-1}$, respectively after treated 7 and 14 days in artificial soil.

Key words [Avermectin B1a](#) [Soil microorganism](#) [Earthworm](#) [Acute toxicity](#)

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