

研究报告

## 土壤中乙草胺的微生物降解及其对防除稗草持效性的影响

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### 摘要

采用气相色谱法和生物测定法, 研究了土壤中乙草胺的微生物降解及其对防除稗草持效性的影响. 结果表明, 在同样的湿度和温度条件下, 当添加到土壤中的乙草胺浓度为1.25、2.5和5.0 mg·kg<sup>-1</sup>时, 相同浓度的乙草胺在非灭菌土壤中的半衰期显著短于灭菌土壤, 说明土壤微生物对乙草胺有明显的降解作用. 三大主要菌群分离培养物降解实验与上述结果一致. 生物测定结果表明, 乙草胺在非灭菌土壤中防除稗草的持效期显著短于灭菌土壤, 微生物的存在缩短了乙草胺在土壤中的滞留时间, 从而降低了乙草胺防除稗草的持效性.

关键词 [乙草胺](#) [微生物降解](#) [持效性](#) [土壤](#)

分类号

## Biodegradation of acetochlor in soil and its persistence against *Echinochloa crusgalli*

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### Abstract

Gas chromatograph and bioassay were used to study biodegradation of acetochlor and its influence on the persistence against *Echinochloa crusgalli* in soil. The results showed that half life of degradation of acetochlor was significantly shorter in unsterilized soil than that in sterilized soil under the same experimental conditions of concentrations, water content and temperature, when acetochlor was added to the soil with concentrations of 1.25, 2.5 and 5.0 mg·kg<sup>-1</sup> respectively, which demonstrated that microorganisms could evidently degrade acetochlor in soil. The experiment on degradation of three main kinds of microorganism cultivated in liquid culture medium gave same results above. The bioassay's result showed that the period of acetochlor persistence against *Echinochloa crusgalli* was shorter in unsterilized soil than that in sterilized soil, which indicated that existence of microorganism could accelerate the degradation of acetochlor and shorten remaining time of the herbicide in soil, consequently reduce its persistence against the weed.

Key words [Acetochlor](#) [Biodegradation](#) [Persistence](#) [Soil](#)

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