

研究报告

脲酶硝化抑制剂对减缓尿素转化产物氧化及淋溶的作用

陈振华^{1,2}; 陈利军¹; 武志杰¹

¹中国科学院沈阳应用生态研究所, 沈阳 110016; ²中国科学院研究生院, 北京 100039

收稿日期 2004-7-26 修回日期 2004-10-19 网络版发布日期 接受日期

摘要

利用原状土柱模拟试验,研究了脲酶抑制剂氢醌(HQ),硝化抑制剂包被碳化钙(ECC)和双氰胺(DCD)以及它们的不同组合对尿素转化产物土壤滞留、氧化以及淋溶的影响.结果表明,与其它抑制剂处理相比,HQ+DCD组合能有效抑制尿素水解产物的氧化,使其以交换态NH₄⁺的形式在土壤中长时间滞留;氧化作用的抑制不仅减少了氧化产物NO₃⁻的累积,也降低了NO₃⁻淋溶潜势,使其淋入下层土壤的深度仅限在5~10 cm范围内,且淋溶量显著降低.

关键词 [脲酶抑制剂](#); [硝化抑制剂](#); [铵态氮](#); [硝态氮](#); [NO₃⁻淋溶](#)

分类号

Effects of urease and nitrification inhibitors on alleviating the oxidation and leaching of soil urea's hydrolyzed product ammonium

CHEN Zhenhua^{1,2}, CHEN Lijun¹, WU Zhijie¹

¹Institute of Applied Ecology, Chinese Academy of Sciences, Shenyang 110016, China; ²Graduate School of Chinese Academy of Sciences, Beijing 100039, China

Abstract

With simulation test of in situ soil column, this paper studied the effects of urease inhibitor hydroquinone (HQ), nitrification inhibitors coated calcium carbide (ECC) and dicyandiamide (DCD), and their different combinations on the persistence, oxidation, and leaching of soil urea's hydrolyzed product ammonium. The results showed that compared with other treatments, the combination of HQ and DCD could effectively inhibit the oxidation of the ammonium, and make it as exchangeable form reserve in soil in a larger amount and a longer period. The inhibition of this oxidation not only decreased the accumulation of oxidized product NO₃⁻ in soil, but also decreased the potential of NO₃⁻ leaching, making the NO₃⁻ only leach to 5~10 cm in depth, and the leached amount significantly decreased.

Key words

[Urease inhibitor](#) [Nitrification inhibitor](#) [NH₄⁺-N](#) [NO₃⁻-N](#) [NO₃⁻ leaching](#)

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(418KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [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](#)
- ▶ [“脲酶抑制剂; 硝化抑制剂; 铵态氮; 硝态氮; NO₃⁻淋溶” 的相关文章](#)
- ▶ [本文作者相关文章](#)

- [陈振华](#)
- [陈利军](#)
- [武志杰](#)

DOI:

通讯作者