

研究报告

施用尿素引起红壤pH及铝活性的短期变化

曾清如; 廖柏寒; 蒋朝辉; 周细红; 汤灿; 钟宁

湖南农业大学资源环境学院, 长沙 410128

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摘要

酸性红壤在我国南方广泛分布, 其酸性是限制大多数作物生长的一个主要环境胁迫因子, 主要原因是低pH条件下土壤中Al的溶解所导致的毒性. 对3种红壤施用不同浓度的尿素, 其pH值在短期内都随着施入尿素浓度的增大而急剧上升, 交换性Al随着施用尿素浓度的增大而急剧下降. 交换性Al含量与土壤pH值变化呈显著负相关. 动态试验表明, pH值上升的现象是短期的, pH值在达最大值后缓慢下降, 下降幅度最大的阶段在第2~4周. 短期内, 施用尿素能显著降低酸性土壤对玉米的铝毒效应.

关键词 [尿素](#); [土壤](#); [pH](#); [活性铝](#)

分类号

Short term changes of pH value and Al activity in acid soils after urea fertilization

ZENG Qingru, LIAO Bohan, JIANG Zhaohui, ZHOU Xihong, TANG Can, ZHONG Ning

College of Resource and Environment, Hunnan Agricultural University, Changsha 410128, China

Abstract

Acidic soils are widely distributed in South China, and their acidity is the major environmental stress factor limiting the growth of most crops. It is well known that soil Al solubilized at low pH is a main toxic factor for plant growth. Our study with three acidic soils showed that soil pH increased quickly, while soil exchangeable Al decreased sharply with the increasing concentrations of applied urea. The time-course experiment revealed that the increase of soil pH was short-lived, with a subsequently slow drop after reached its maximum. Urea fertilization caused a drastic change of soil pH during 2~4 weeks of the experimental period. There was a negative relationship between soil pH and soil exchangeable Al. Biological toxicity test demonstrated that applying urea to acidic soils could obviously decrease the aluminum toxicity of maize in a short-term period.

Key words [Urea](#) [Soil](#) [pH](#) [Active Al](#)

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