

论文

土壤中重金属元素Pb、Cd地球化学行为影响因素研究

- 1 中国地质大学(北京) 地球科学与资源学院, 北京 100083
- 2 中国地质大学(北京) 地质调查研究院, 北京 100083

摘要:

通过研究湖南洞庭湖地区水稻土中Pb、Cd与土壤有机质、粘粒和pH值的关系,结果表明,(1)土壤中

有机质含量与Cd、Pb有着显著的正相关性,土壤中有机质含量增加可明显降低Cd和Pb的离子态和可交换态

含量。(2)随着粘粒含量增加,Pb和Cd离子可交换态占全量的比值略有增加,这说明粘粒表面吸附的Pb和Cd

容易进入植物体中,对生态系统安全具有危害的组分。(3)Cd离子交换态与土壤pH值呈显著相关关系,土壤

酸化使Cd的离子交换态比例上升,可直接导致农作物中Cd含量增加,防止土壤酸化是控制Cd对生态系统危害

的有效途径;Pb的离子交换态与全量的比值与pH值具有显著的相关性,对于Pb污染严重的土壤,保持土壤pH

值在弱酸性至弱碱性范围,防止土壤酸化和盐碱化,可以降低Pb危害。土壤有机质含量、pH值等是控制重金

属元素地球化学行为的重要因素之一。

关键词: [重金属元素](#); [有机质](#); [粘粒](#); [土壤pH值](#)

Factors affecting the geochemical behavior of heavy metal elements Pb and Cd in soil.

- 1 School of Earth Science and Resources,China University of Geosciences(Beijing), Beijing 100083, China
- 2 Institute of Geological Survey, China University of Geosciences(Beijing), Beijing 100083,China

Abstract:

In this paper,we have studied the relationship of lead and cadmium to the organic

matter, clay content and pH in the paddy soil in the Dongting lake region, Hunan Province

It shows that the content of organic matter has a distinct relationship to cadmium or lead

in soil The increase in organic matter in soil may obviously lower the content of cadmium

or lead in ionic and exchangeable form Also, the increase in clay content in soil may

slightly increase the proportion of the content of cadmium and lead in ionic exchangeable

form to the total content of Pb and Cd The lead or cadmium that is adsorbed in the clay

surface may enter into the frond more easily, and would endanger the ecosystem The soil

acidification may increase the content of cadmium in ionic exchangeable form, which has a

distinct relationship to the pH in soil, and directly results in the increase in cadmium

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content in crop, thus it is a good way to avoid ecosystem damage by preventing soil

acidification The proportion of the content of lead in ionic exchangeable form to the total

content of lead is distinctly related to the pH in soil; keeping soil pH in a range of less

acidity to alkalescence is a better way to prevent soil acidification or basification in the

heavily lead polluted area It is concluded that the soil organic matter and soil pH are

the most important factors controlling the geochemical behavior of heavy metals

Keywords:

Key words: heavy metal element; organic matter; clay; soil pH

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通讯作者:

作者简介:余涛(1979—),男,博士研究生,研究实习员,环境地球化学专业,主要从事环境地球化学科 研工作。

E mail: yutao@cugb edu cn

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