

研究报告

阜新市农田土壤重金属含量及其分布特征

徐理超^{1,2}, 李艳霞¹, 苏秋红^{1,3}, 吴娟^{1,4}, 熊雄¹, 宋波¹, 郑国邸¹, 陈玉成²

¹中国科学院地理科学与资源研究所, 北京 100101;²西南大学资源环境学院, 重庆 400716;³山东农业大学资源环境学院, 山东泰安 271018;⁴山东农业大学食品科学与工程学院, 山东泰安 271018

收稿日期 2006-5-24 修回日期 网络版发布日期 2007-8-14 接受日期 2007-4-12

摘要 通过对辽宁省阜新市城郊区县180处农田土壤的取样调查分析, 初步了解了农田土壤重金属As、Cu、Zn、Ni的含量特征及其空间分布, 并探讨了当地矿业开采活动对农田土壤重金属积累及空间分布的影响. 结果表明, 研究区域内农田土壤Cu、Zn和Ni的几何平均含量均高于背景值, 且这3种重金属存在普遍累积的现象; 不同种植类型土壤中, 菜地土壤Cu、Zn、As含量显著高于粮田, 且重金属积累更为明显; 4种重金属的空间分布均呈城区高于郊县的趋势; 重金属含量较高的区域与矿山开采区域基本重叠. 研究区域内采矿活动是农田重金属的重要来源, 同时畜禽养殖业所产生的畜禽粪便可能对农田土壤中Cu、Zn和As的增加有一定作用. 当地农牧业生产和布局应适当考虑土壤污染的风险.

关键词 [重金属](#) [农田土壤](#) [空间分布](#) [来源](#) [阜新市](#)

分类号

Contents and spatial distribution patterns of heavy metals in farmland soils of Fuxin City.

XU Li-chao^{1,2}, LI Yan-xia¹, SU Qiu-hong^{1,3}, WU Juan^{1,4}, XIONG Xiong¹, SONG Bo¹, ZHENG Guo-di¹, CHEN Yu-cheng²

¹Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing 100101, China;²College of Resources and Environment, Southwest University, Chongqing 400716, China;³College of Resources and Environment, Shandong Agricultural University, Taian 271018, Shandong, China;⁴College of Food Science and Engineering, Shandong Agricultural University, Taian 271018, Shandong, China

Abstract

A total of 180 farmland soil samples were collected from the suburbs of Fuxin City, Liaoning Province, to investigate the contents and spatial distribution patterns of Cu, Zn, As and Ni, with the effects of mining on their accumulation and spatial distribution in test farmland soils discussed. The results indicated that in study area, farmland soils had an accumulation of Cu, Zn and Ni, with the geometric mean concentrations higher than the background values. Among the soils planted with different crops, vegetable soil had significantly higher contents of Cu, Zn and As than grain crop soil. The spatial distribution of four test metals showed the same pattern of urban>suburban, and the regions with high concentrations of heavy metals were well overlapped with mining areas, suggesting that mining activities might be one of the most important source of heavy metals in the farmland soils. The rapid increase of animal manure also contributed to the import of pollutants to farmland soils to some degree. The potential risks of soil heavy metals pollution should be considered in the arrangement of local agricultural and animal husbandry productions.

Key words [heavy metal](#) [farmland soil](#) [spatial distribution](#) [source](#) [Fuxin City](#)

DOI:

通讯作者

扩展功能

本文信息

- ▶ [Supporting info](#)
- ▶ [PDF\(406KB\)](#)
- ▶ [\[HTML全文\]\(0KB\)](#)
- ▶ [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“重金属”的相关文章](#)
- ▶ [本文作者相关文章](#)

- [徐理超](#)
- [李艳霞](#)
- [苏秋红](#)
- [吴娟](#)
- [熊雄](#)
- [宋波](#)
- [郑国邸](#)