

Accepted Manuscript

Title: Novel insights into heavy metal pollution of farmland based on reactive heavy metals (RHMs): pollution characteristics, predictive models, and quantitative source apportionment

Authors: Lixun Zhang, Guangyu Zhu, Xin Ge, Gang Xu, Yuntao Guan



PII: S0304-3894(18)30617-4
DOI: <https://doi.org/10.1016/j.jhazmat.2018.07.075>
Reference: HAZMAT 19584

To appear in: *Journal of Hazardous Materials*

Received date: 1-1-2018
Revised date: 27-6-2018
Accepted date: 20-7-2018

Please cite this article as: Zhang L, Zhu G, Ge X, Xu G, Guan Y, Novel insights into heavy metal pollution of farmland based on reactive heavy metals (RHMs): pollution characteristics, predictive models, and quantitative source apportionment, *Journal of Hazardous Materials* (2018), <https://doi.org/10.1016/j.jhazmat.2018.07.075>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

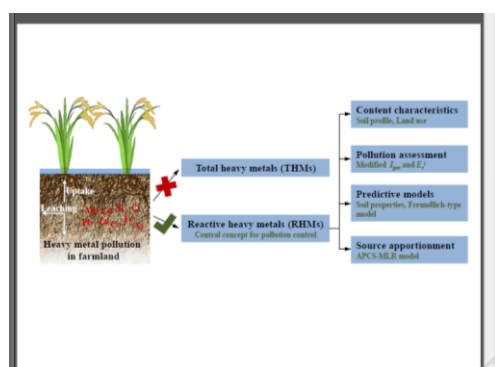
Novel insights into heavy metal pollution of farmland based on reactive heavy metals (RHMs): pollution characteristics, predictive models, and quantitative source apportionment

Lixun Zhang^{1,2}, Guangyu Zhu^{1,2}, Xin Ge^{1,2}, Gang Xu^{1,2}, Yuntao Guan^{1,2*}

¹Guangdong Provincial Engineering Technology Research Center for Urban Water Cycle and Water Environment Safety, Graduate School at Shenzhen, Tsinghua University, Shenzhen 518055, P.R. China

²State Environmental Protection Key Laboratory of Microorganism Application and Risk Control, School of Environment, Tsinghua University, Beijing 100084, P.R. China

Graphical abstract



Highlights

- RHM characteristics of farmland based on soil profile and land use were investigated.
- RHMs rather than THMs can be regarded as a better marker of heavy metal pollution.
- Modified I_{geo} and E_r^i were introduced to accurately assess heavy metal pollution.
- Empirical models for an efficient and accurate prediction of RHMs were developed.
- Sources of RHMs in farmland were quantified using APCS-MLR model.

Abstract

Recently, soil contamination by heavy metals in farmland has become a severe problem. In this study, a novel assessment method of heavy metal pollution based on reactive heavy metals (RHMs) was introduced. RHMs showed strong correlation with soil profile and land use, distinctly different from the variation of total heavy metals. According to modified geoaccumulation and Hakanson

Download English Version:

<https://daneshyari.com/en/article/6967689>

Download Persian Version:

<https://daneshyari.com/article/6967689>

[Daneshyari.com](https://daneshyari.com)