生态与农村环境学报
Journal of Ecology and Rural Environment
ISSN 1673-4831
CN 32-1766/X

生态与农村环境学报 » 2012, Vol. 28 » Issue (3) :238-242 DOI:

桂林市土壤和蔬菜镉含量调查及食用安全性评估

宋波, 唐丽嵘

桂林理工大学环境科学与工程学院

A Survey of Cadmium Concentrations in Vegetables and Soils in Guilin and Food Safety Assessment of Vegetables

SONG Bo, TANG Li-Rong

College of Environmental Science and Engineering, Guilin University of Technology

摘要 对桂林市蔬菜和菜地土壤镉含量进行调查,评价其累积状况,并评估人体经食用蔬菜摄入镉的安全性。结果显示,桂林市菜地土壤镉含量空间变异较大,呈现西北部和西南部低、东北部和东南部高的分布特点;与背景样点相比,菜地土壤镉累积效应显著,土壤镉含量范围、中值、算术均值和几何均值分别为0.056～17.35、0.624、1.193和0.696 mg · kg^{-1},超标率为85.5%。蔬菜镉含量范围、中值和几何均值分别为0.09～663.2、29.4和29.2μg · kg^{-1}(以鲜质量计),综合超标率为4.95%;叶菜类蔬菜镉含量显著高于根茎类和瓜果类,花菜、韭菜、大白菜、大葱、芋头、豆苗、萝卜、菠菜、大蒜和蕃茄的镉富集系数较低,抗镉污染能力较强。桂林市居民人均通过食用蔬菜的镉摄入量为9.08μg · d^{-1},对普通人群不存在明显的食用安全风险。

关键词： 蔬菜 镉 富集系数 食用安全性 桂林

Abstract： A large scale survey of cadmium levels in soil and vegetables planted or sold in Guilin was conducted to evaluate Cd pollution degree of vegetables and soil and to assess their potential health risks to local inhabitants.Results show that spatial distribution of soil Cd varied sharply from field to field in Guilin,displaying the characteristics of being lower in the northwest and southwest regions and higher in the northeast and southeast regions of Guilin.Compared with the sampling sites for background values,garden soils accumulated Cd significantly,and their Cd concentrations were found to be in the range from 0.056 to 17.35 mg · kg^{-1},and their median value,arithmetic mean value and geometric mean value was 0.624,1.193 and 0.696 mg · kg^{-1},respectively.About 85.5% of the garden soils were beyond the criterion for Cadmium in garden soil.Cd concentrations in vegetables varied in the range from 0.09 to 663.2 μg · kg^{-1}(FW),with median and geometric means being 29.4 and 29.2 μg · kg^{-1}(FW),respectively.The integrated over-standard rate of the samples reached 4.95%.Cd concentration was higher in leafy vegetables than in root,tube and melon vegetables.Cauliflower,leeks,cabbage,onions,taro,sugar pea,radish,spinach,garlic and tomatoes were quite low in Cd enrichment coefficient and therefore high in Cd resistance.On average,the residents of Guilin ingest 9.08 μg Cd per day per person through food,which does not pose any health risk to common people.

Keywords： vegetable cadmium accumulation coefficient food safety Guilin

Received 2012-02-13; published 2012-05-25

Fund:

广西科学基金(桂科自0848022,桂科基0832017);广西环境工程与保护评估重点实验室基金(桂科能0801z023); 桂林理工大学科研启动费资助项目

Corresponding Authors: 宋波 桂林理工大学环境科学与工程学院 Email: songbo.china@163.com

About author: 宋波(1972-)，男，湖南溆浦人，副教授，博士，主要从事污染土壤修复、区域环境调查与风险评估研究。E-mail:songbo.china@163.com

引用本文:

宋波, 唐丽嵘.桂林市土壤和蔬菜镉含量调查及食用安全性评估[J] 生态与农村环境学报, 2012,V28(3): 238-242

SONG Bo, TANG Li-Rong.A Survey of Cadmium Concentrations in Vegetables and Soils in Guilin and Food Safety Assessment of Vegetables[J] Journal of Ecology and Rural Environment, 2012,V28(3): 238-242

Copyright 2010 by 生态与农村环境学报