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典型固废拆解区土壤Cd、Cu含量特征及其对农产品安全的影响

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Characteristics of Copper and Cadmium Concentrations in Soil of a Typical Solid Waste Dismantling Area and Their Impact on Agricutural Produce Safety

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摘要 以浙东沿海某典型固废拆解区为研究区域，通过采集土壤、灌溉水、农作物以及大气干湿沉降样品进行分析测试，研究土壤Cd、Cu含量特征及其对农产品安全的影响。结果表明，研究区表层（0~20 cm）土壤已遭受较为严重的Cd、Cu污染，土壤Cd、Cu含量平均值分别为0.34和65.83 mg · kg-1。土壤中活性较高的水溶态、离子交换态和碳酸盐结合态Cd占Cd总量比例达45.37%，说明其生物有效性和潜在危害性极大。大气干湿沉降、污水灌溉对土壤Cd、Cu的累积均有一定影响。农作物尤其是蔬菜Cd、Cu含量已有不同程度的累积甚至超标，食用的潜在危害性较大。相关分析表明，农作物Cd、Cu含量与土壤中Cd、Cu含量均呈显著正相关关系。

关键词： 土壤 镉 铜 农作物 形态 固废拆解区

Abstract： Samples of surface and subsurface soils, irrigation water, crops, dry and wet depositions were collected from a typical solid waste dismantling area on the coast of East Zhejiang for analysis and study on characteristics of Cd and Cu concentrations in the soil and their impact on agricultural product safety. It was found that the surface soil (0 – 20 cm) of the studied zone was seriously polluted with copper and cadmium, of which the average concentration reached to 0.34 and 65.83 mg · kg^{-1}, respectively. The content of active cadmium, including soluble, exchangeable and carbonate-bonded Cd, accounted for 45.37% of the total Cd, which means its bio-availability and potential damage are extremely high. Based on the research, it was found that dry and wet deposition and sewage irrigation were also contributors to Cd and Cu accumulation in the soil, and the former in particular. Cd and Cu in the crops were also investigated and found to be accumulated to a varying extent and especially in some vegetables even beyond the limit of the national standard for food safety. Correlation analysis indicates that Cd and Cu concentration in vegetables are positively related to Cd and Cu contents in the soil.

Keywords： soil soil copper cadmium crop morphology solid waste dismantling area

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