应用生态学报 2005 16 (03): 550-554 ISSN: 1001-9332 CN: 21-1253/Q

研究报告

镉在白骨壤模拟湿地系统中的分布、迁移及净化效应

陈桂葵[1]；陈桂珠[2]

[1]华南农业大学农学院，广州 510642；[2]中山大学环境科学研究所，广州 510275

收稿日期 2004-6-7 修回日期 2004-10-2 网络版发布日期 接受日期

摘要

在温室中建立红树林植物白骨壤模拟湿地系统，分别用正常（C_1）、5倍（C_5）和10倍（C_{10}）3种人工配置的不同浓度的污水每周定时定量对模拟系统污灌1年,研究重金属Cd的分布、迁移以及系统对Cd污染的净化效果.结果表明，由人工污水加入系统中的Cd主要存留在土壤子系统中（87 67%～96 74%），只有很少部分迁移到植物体和凋落物中，约占总加入量的0.43%～3.23%；白骨壤植物各器官中Cd含量在根中最高；模拟系统对污水中Cd的净化效果显著，在植物 土壤系统中,正常、5倍和10倍浓度组的净化率分别为90.43%、97.17%和97.06%，在无植物系统中，对应组分别为93.29%、93.10%和90.54%.

关键词 白骨壤；模拟湿地系统；镉；分布；迁移；净化效应

分类号

Distribution,migration and purifying effect of cadmium in artificial *Avicennia marina* wetland system

CHEN Guikui[1],CHEN Guizhu[2]

[1]College of Agriculture,South China Agricultural University,Guangzhou 510642,China; [2]Institute of Environmental Science,Zhongshan University,Guangzhou 510275,China

Abstract

An artificial mangrove *Avicennia marina* wetland was set up in a greenhouse, and an irrigation experiment with synthetic wastewater was performed to research the behavior of cadmium in the artificial wetland system.The synthetic wastewater C_1 had the characteristics and strength similar to normal municipal sewage,while C_5 and C_{10} had the nutrients and heavy metals as five and ten times as those in C_1,respectively.The control was of 15‰ salinity.All the test wastewater was quantitatively irrigated weakly for a year.The results showed that the cadmium in the synthetic wastewater discharged into the system was mainly stagnated in soil subsystem (87.67%～96.74%),and only a small portion (0.43%～3.23%) migrated into plants and litters.After a year trial,the Cd content in roots was more than that in stems and leaves.The artificial *Avicennia marina* wetland system did have a significant effect on purifying cadmium in synthetic wastewater,and the purification rate for C_1,C_5 and C_{10} was 90.43%，97.17% and 97.06%, respectively.

Key words

Avicennia marina Artificial wetland system Cadmium Distribution Migration Purifying effect

DOI:

通讯作者