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研究报告

溶液pH值及模拟酸雨对两种磺酰脲类除草剂在土壤中行为的影响

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摘要 采用平衡振荡法和土柱淋洗法，研究了溶液pH及模拟酸雨对土壤中苄嘧磺隆和甲磺隆行为的影响. 结果表明，Freundlich方程能较好地描述苄嘧磺隆和甲磺隆的吸附等温线，水-土壤系统pH升高能明显地降低这两种除草剂在土壤中的吸附，促进其在土壤中的迁移，且吸附常数(K_f)与土壤有机质含量、粘土含量呈正相关，而与土壤pH呈负相关. pH值高的模拟酸雨对除草剂在土壤中淋溶贡献较大，且淋溶量随雨量的增大而增大. 除草剂在土壤中的淋溶与土壤性质密切相关，有机质含量和粘粒含量较高的土壤对除草剂的持留能力较强.

关键词 苄嘧磺隆 甲磺隆 酸雨 吸附 淋溶 迁移

分类号

Effects of solution pH and simulated acid rain on the behavior of two sulfonylurea herbicides in soil

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Abstract

By the methods of batch equilibration and leaching, this paper studied the effects of solution pH and simulated acid rain on the behavior of bensulfur on-methyl and metsulfuron-methyl in soil. The results showed that the adsorption isotherms of these two herbicides fitted Freundlich equation well, and their adsorbed amounts reduced obviously with the increasing pH of water-soil system, which in turn promoted the translocation of the herbicides in soil. The adsorption coefficient (K_f) was positively correlated with soil organic matter and clay contents, while negatively correlated with soil pH. The higher pH of simulated acid rain had a greater contribution on the leaching of the two sulfonylurea herbicides, and their leached amount was increased with increasing acid rain. There was a close relationship between the leaching of the herbicides and the properties of soil. The soils with higher contents of organic matter and clay had a greater retention capability to the herbicides.

Key words bensulfuron-methyl metsulfuron-methyl simulated acid rain adsorption leaching translocation

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