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## 不同品种硫肥对苋菜镉累积的影响

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**摘 要:**为选择适宜种类的硫肥来辅助苋菜修复土壤Cd污染, 采用盆栽试验, 以苋菜(*Amaranthus mangostanus* L.)为供试作物, 在两种酸性土壤(黄棕壤、赤红壤)上施用硫磺、硫酸钙、硫酸铵三种不同硫肥, 探究不同特性硫肥对酸性土壤上苋菜生长及其对硫和Cd的吸收以及累积的影响。结果显示, 两种酸性土壤中施用硫肥均促进了苋菜植株对硫的吸收, 且减轻了Cd对植株的毒害作用, 苋菜的生物量显著提高。此外, 三种不同特性硫肥施入两种Cd污染的土壤, 苋菜地上和地下部Cd含量均显著增加。两种酸性土壤施用不同硫肥后, 苋菜硫和Cd累积量增加, 其中以施加硫酸铵效果最佳; 黄棕壤和赤红壤中苋菜地上部Cd累积量分别比对照高1.45倍和2.39倍; 施加硫磺后苋菜根部Cd累积量最少。硫酸铵作为含氮硫肥在黄棕壤和赤红壤上施用, 可有效辅助苋菜修复土壤Cd污染。

**关键词:**硫肥; 苋菜; 镉; 累积

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### Effects of different sulfur fertilizers on cadmium accumulation in *Amaranthus mangostanus* L.

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**Abstract:** In this study, a pot experiment was conducted to investigate the effects of three kinds of sulfur fertilizer (sulfur, calcium sulfate, ammonium sulfate) on growth and Cd and S accumulation in *Amaranthus mangostanus* L. in two acidic soils (yellow-brown soil and lateritic red soil). The purpose was to select a suitable sulfur fertilizer to assist *Amaranthus mangostanus* L. in remedying Cd-contaminated soil. The results showed that the application of S fertilizers on the two acidic soils enhanced Cd tolerance by promoting S assimilation in *Amaranthus mangostanus* L. and improved plant growth significantly. In addition, the Cd contents in the shoots and roots of *Amaranthus mangostanus* L. increased when S fertilizers were supplied to the yellow-brown and lateritic red soils, respectively. The accumulation of S and Cd increased with application of the different S fertilizers to the two acidic soils. For the yellow-brown soil and lateritic red soil, ammonium sulfate treatment led to the greatest increase in cadmium accumulation in the shoot, i.e., 1.45 and 2.39 times higher than that of CK, respectively, whereas the sulfur treatment led to the lowest. Ammonium sulfate as the nitrogen-containing sulfur fertilizer, applied on the yellow-brown and red soils, can effectively assist *Amaranthus mangostanus* L. to remedy Cd-contaminated soil.

**Keywords:** sulfur fertilizer species; *Amaranthus mangostanus* L.; cadmium; accumulation

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