

研究报告

铜陵铜矿区凤丹根际和非根际土壤酶活性

刘登义¹, 沈章军², 严密¹, 王友保¹, 李晶¹

¹安徽师范大学生物多样性研究中心, 芜湖 241000; ²安徽教育学院继续教育中心, 合肥 230000

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摘要 对铜陵铜矿区凤丹根际和非根际土壤酶活性特征进行了研究. 结果表明, 凤丹根际土壤各种酶活性显著大于非根际土壤. 凤丹非根际土壤过氧化氢酶、磷酸酶和脲酶活性能敏感地反映土壤重金属复合污染状况; 根际环境对土壤酶活性的影响表现为: 磷酸酶>脲酶>过氧化氢酶>蔗糖酶>多酚氧化酶, 影响率分别为131.562%、92.492%、87.557%、59.673%和34.076%; 土壤各种酶活性与重金属复合污染程度呈显著负相关, 相关系数均-0.868以上, 表现出重金属复合污染对土壤酶活性的抑制效应. 凤丹可有效地改善土壤环境, 提高土壤各种酶的活性.

关键词 [土壤酶活性](#) [铜矿区](#) [凤丹](#) [根际土](#) [非根际土](#)

分类号

Enzyme activities in *Paeonia ostii* rhizosphere and non-rhizosphere soil of Tongling copper mining

LIU Dengyi¹, SHEN Zhangjun², YAN Mi¹, WANG Youbao¹, LI Jing¹

¹Biodiversity Research Center, Anhui Normal University, Wuhu 241000, China;

²Continuiny Education Center, Auhui Institute of Education, Hefei 230000, China

Abstract

The study on the calatase, polyphenol-oxidase, invertase, urease and phosphatase activities in *Paeonia ostii* rhizosphere and non-rhizosphere soil of Tongling copper mining showed that all test enzyme activities were higher in rhizosphere than in non-rhizosphere soil. Soil calatase, urease and phosphatase were sensitive to heavy metals pollution, and their activities could be used as the indicators of heavy metals' joint pollution. The effects of rhizosphere environment on the soil enzyme activities were in the sequence of phosphatase>urease>calatase>invertase>polyphenol-oxidase, and the affecting rate was 131.562%, 92.492%, 87.557%, 59.673% and 34.076%, respectively. The test enzyme activities were negatively correlated with soil heavy metals pollution, and the correlation coefficients were all higher than -0.898, suggesting the inhibitory effects of heavy metals' joint pollution on soil enzyme activities. *P. ostii* could effectively improve soil environment, and thus, enhance the activities of soil enzymes.

Key words [Soil enzyme activity](#) [Copper mining](#) [Paeonia ostii](#) [Rhizosphere](#) [Non-rhizosphere](#)

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