

研究报告

## 石油污染土壤修复植物的根-土界面微生物特征

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**摘要** 选取沈抚灌区的主要修复植物蓖麻为实验材料, 分析了蓖麻根区土壤、根际土壤、根面、根内4个层面上细菌和真菌的数量, 优势菌种的生理生化特征, 及细菌菌株生长营养类型, 揭示了根-土界面微生物区系特征与石油污染土壤生物修复的关系. 结果发现: 修复植物根-土界面上, 细菌数量为根际>根面>根内, 真菌数量为根内>根面>根际, 根面细菌与真菌数量均处于根际与根内区域微生物数量之间; 修复植物蓖麻根面区域优势细菌种类最多, 根内区域优势真菌种类最多; 根际与根内的优势细菌具有较强的降解大分子物质的能力; 根面细菌在营养需求分类上可归为氨基酸需求菌群.

**关键词** [污染土壤](#) [根际](#) [微生物特征](#) [植物修复](#)

分类号

## Microbiological characteristics of phytoremediation plant root-soil interface for petroleum contaminated soil

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### Abstract

With the petroleum-contaminated soil under *Ricinus communis* L. phytoremediation in Shenfu irrigation area of Shenyang as test material, this paper studied the quantitative variations of bacteria and fungi, physiological and biochemical characteristics of dominant microbial species, and nutritional types of bacteria in root zone, rhizosphere, root plane and root inside. The results showed that the quantity of bacteria decreased in the order of rhizosphere>root plane>root inside, while that of fungi was in the sequence of root inside >root plane> rhizosphere. The dominant species of bacteria and fungi were most abundant in root plane and root inside, respectively, and the dominant bacterial species in root plane and root inside had a stronger capability in degrading macro-molecular substances. The nutritional demand of bacteria in root plane was of amino acid type.

**Key words** [contaminated soil](#) [rhizosphere](#) [microbiological characteristics](#) [phytoremediation](#)

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