

## 新疆地震断裂带次生植物根际土壤微生物碳源利用

林青<sup>1,2</sup>, 曾军<sup>2</sup>, 马晶<sup>1,2</sup>, 王重<sup>2</sup>, 张涛<sup>2</sup>, 李珊<sup>1,2</sup>, 娄恺<sup>2\*</sup><sup>1</sup>新疆大学生命科学与技术学院, 乌鲁木齐 830046; <sup>2</sup>新疆农业科学院微生物应用研究所, 乌鲁木齐 830091

Microbial carbon utilization in rhizosphere soils of secondary plants in earthquake fault zone of Xinjiang.

LIN Qing<sup>1,2</sup>, ZENG Jun<sup>2</sup>, MA Jing<sup>1,2</sup>, WANG Zhong<sup>2</sup>, ZHANG Tao<sup>2</sup>, LI Shan<sup>1,2</sup>, LOU Kai<sup>2</sup><sup>1</sup>College of Life Science and Technology of Xinjiang University, Urumqi 830046, China; <sup>2</sup>Institute of Microbiology, Xinjiang Academy of Agriculture Science, Urumqi 830091, China

- 摘要
- 参考文献
- 相关文章

全文: PDF (513 KB) HTML (1 KB) 输出: BibTeX | EndNote (RIS) 背景资料

**摘要** 利用BIOLOG技术研究了新疆富蕴地震断裂带6种次生植物对根际土壤微生物碳源利用的影响.结果表明:多数植物根际土壤养分显著高于对照.6种根际土壤的平均颜色变化率差异显著,且均高于对照.次生植物不影响根际土壤微生物碳源利用的丰富度,但改变了其优势度和均匀度.不同处理根际土壤微生物碳源利用存在差异,主要体现在对糖类、氨基酸类、羧酸类的利用上.断裂带上次生植物的出现使土壤微生物利用碳源的类型由酚类向糖类、羧酸类转变.土壤速效钾含量与土壤微生物对聚合物( $r=-0.84$ )、胺类( $r=-0.83$ )的利用呈负相关.新疆地震断裂带的次生植物能显著增强土壤微生物的碳源利用能力,改变碳源利用类型.密刺蔷薇和蓍在提高土壤微生物碳源利用能力和改善土壤养分方面效果最佳.

**关键词:** 地震断裂带 根际微生物 功能多样性 BIOLÓG PCA

**Abstract:** By using BIOLÓG technique, this paper studied the microbial carbon utilization in the rhizosphere soils of six kinds of secondary plants in Fuyun earthquake fault zone of Xinjiang. Most of the rhizosphere soils had significantly higher nutrient contents, and all of them had a higher AWCD, as compared with the control. There was a distinct difference in the AWCD among the six rhizosphere soils. Secondary plants less affected the richness but changed the dominance and evenness of the microbial carbon sources in the rhizosphere soils. The carbon sources utilization by the microorganisms in the rhizosphere soils differed with the kinds of secondary plants, and was mainly manifested in the utilization of carbohydrates, amino acids, and carboxylic acids. The appearance of secondary plants in the earthquake fault zone made the types of carbon sources utilized by the microorganisms changed from phenols to carbohydrates and carboxylic acids. In addition, the available K content in rhizosphere soils had a negative correlation with the microbial utilization of polymers ( $r=-0.84$ ) and amines ( $r=-0.83$ ). It was suggested that the secondary plants in the earthquake fault zone of Xinjiang could significantly enhance the capability of soil microorganisms in carbon sources utilization, and change the types of carbon sources utilized by the microorganisms. *Rosa spinosissima* and *Achillea millefolium* played the best roles in enhancing the carbon source utilization capability of soil microorganisms and in improving soil nutrient status.

**Key words:** earthquake fault zone rhizosphere microorganism functional diversity BIOLÓG PCA

## 服务

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ E-mail Alert
- ▶ RSS

## 作者相关文章

## 引用本文:

. 新疆地震断裂带次生植物根际土壤微生物碳源利用[J]. 应用生态学报, 2011, 22(09): 2297-2302.

. Microbial carbon utilization in rhizosphere soils of secondary plants in earthquake fault zone of Xinjiang.[J]. Chinese Journal of Applied Ecology, 2011, 22(09): 2297-2302.

## 链接本文:

<http://www.cjae.net/CN/> 或 <http://www.cjae.net/CN/Y2011/V22/I09/2297>

## 没有本文参考文献

- [1] 曹成有,姚金冬,韩晓姝,张颖. 科尔沁沙地小叶锦鸡儿固沙群落土壤微生物功能多样性[J]. 应用生态学报, 2011, 22(09): 2309-2315.