

内蒙古呼伦贝尔草原土壤氨氧化细菌多样性及群落结构

文都日乐^{1,2}, 李刚¹, 杨殿林¹, 张静妮^{1**}, 易津²

1农业部环境保护科研监测所| 天津 300191; 2内蒙古农业大学农学院| 呼和浩特 010018

Diversity and community structure of soil ammonia-oxidizing bacteria in Hulunbeier Grassland, Inner Mongolia.

WENDU Ri-le1,2, LI Gang1, YANG Dian-lin1, ZHANG Jing-ni1, YI Jin2

1Agro-Environmental Protection Institute, Ministry of Agriculture, Tianjin 300191, China|2College of Agronomy, Inner Mongolia Agricultural University, Hohhot 010018, China

- 摘要
- 参考文献
- 相关文章

全文: PDF (1252 KB) HTML (1 KB) 输出: BibTeX | EndNote (RIS) 背景资料

摘要

采用聚合酶链式反应-变性梯度凝胶电泳技术及扩增产物序列分析方法,研究了呼伦贝尔5种草地类型(线叶菊草原、贝加尔针茅草原、羊草草原、大针茅草原、克氏针茅草原)土壤氨氧化细菌多样性及群落结构特征.研究表明:不同草地类型间土壤氨氧化细菌群落结构组成差异显著,相似性均低于50%.线叶菊草原土壤氨氧化细菌群落多样性最高,其次是贝加尔针茅草原、羊草草原和克氏针茅草原,大针茅草原最低.5种草地类型土壤氨氧化细菌均以*Nitrosospira* cluster 3为优势种群,此外还发现有*Nitrosospira* cluster 1、2、4和*Nitrosomonas*.线叶菊草原土壤氨氧化细菌群落组成较其他草地类型复杂,而羊草草原和大针茅草原群落组成较简单.经相关性分析,土壤含水量、土壤全氮、有机碳、土壤C/N与土壤氨氧化细菌群落多样性显著正相关($P<0.05$).

关键词: 呼伦贝尔草原 氨氧化细菌 多样性 系统发育分析

Abstract:

By the methods of polymerase chain reaction-denaturing gradient gel electrophoresis and sequence analysis, a comparative study was conducted on the diversity and community structure of soil ammonia-oxidizing bacteria in the *Filifolium sibiricum* steppe, *Stipa baicalensis* steppe, *Leymus chinensis* steppe, *Stipa grandis* steppe, and *Stipa kryrowi* steppe in Hulunbeier Grassland, Inner Mongolia. A significant difference was observed in the community structure of soil ammonia-oxidizing bacteria among the five steppes, with the similarity lower than 50%. The diversity of soil ammonia-oxidizing bacteria was the highest in *F. sibiricum* steppe, followed by in *S. baicalensis* steppe, *L. chinensis* steppe, *S. kryrowi* steppe, and *S. grandis* steppe. In the five steppes, *Nitrosospira* cluster 3 was the dominant group, and the *Nitrosospira* cluster 1, 2, and 4 as well as *Nitrosomonas* were also found. The community structure of soil ammonia oxidizing bacteria in *F. sibiricum* steppe was most complex, while that in *L. chinensis* steppe and *S. grandis* steppe was relatively simple. Correlation analysis indicated that there existed significant positive correlations between the diversity of soil ammonia-oxidizing bacteria and the soil moisture, total nitrogen, total organic carbon, and C/N ratio ($P<0.05$).

Key words: Hulunbeier Grassland ammonia-oxidizing bacteria diversity phylogenetic analysis

引用本文:

. 内蒙古呼伦贝尔草原土壤氨氧化细菌多样性及群落结构[J]. 应用生态学报, 2011, 22(04): 929-935.

. Diversity and community structure of soil ammonia-oxidizing bacteria in Hulunbeier Grassland, Inner Mongolia. [J]. Chinese Journal of Applied Ecology, 2011, 22(04): 929-935.

链接本文:

<http://www.cjae.net/CN/> 或 <http://www.cjae.net/CN/Y2011/V22/I04/929>

没有本文参考文献

[1] . 城市生态系统中AM真菌侵染与群落结构特征[J]. 应用生态学报, 2011, 22(07): 1939-1943.

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