

EGU2020-3827

<https://doi.org/10.5194/egusphere-egu2020-3827>

EGU General Assembly 2020

© Author(s) 2021. This work is distributed under the Creative Commons Attribution 4.0 License.



## Distribution and cause and cause analysis of typical soil microorganisms in alpine region

Jianwei Wang<sup>1</sup>, Tianling Qin<sup>1</sup>, Fang Liu<sup>2</sup>, Hanjiang Nie<sup>1,3</sup>, and Zhenyu Lv<sup>1,3</sup>

<sup>1</sup>China Institute of Water Resources and Hydropower Research, Department of Water Resources, China

(wangjw0603@163.com, qintl@iwhr.com, nhj199008@163.com, lvzyiwhr@163.com)

<sup>2</sup>College of Environmental Science and Engineering, Donghua University, Shanghai, China(13586705638@163.com)

<sup>3</sup>Department of Hydraulic Engineering, Tsinghua University, Beijing, China(nhj199008@163.com, lvzyiwhr@163.com)

### Abstract:

Soil microorganisms play an important role in the material cycle, especially in the alpine region where the ecological environment is fragile. Therefore, we selected a typical soil on slop for sampling in a sub-watershed upstream of the Yellow River Basin. Microbial species were detected by High-throughput sequencing. At the same time, the relevant physical and chemical properties of the soil were also tested, such as mechanical composition, soil type, moisture content, TN, TP, pH, organic matter et al. Species and abundance of microorganism were calculated and analyzed by significance test regression analysis. The results showed that Nitrospira and Gaiella were the main microorganism. There was no obvious relationship between soil type and microorganism species. But soil moisture content had a significant effect on diversity of microorganism. There was a significant negative correlation between Bradyrhizobium and soil TN, and a negative correlation between Nitrospira and Nocardioide species abundance. This study provides a data basis for microbiological research in alpine regions, and also actively explores the characteristics of microbial distribution.