

Diversity of airborne microbes by air flowing into the forest area on Japanese sea side

Sakae Horisawa¹⁾, Yuko Itoh²⁾

¹⁾Kochi University of Technology, Japan

²⁾Forestry and Forest Products Research Institute, Japan

Purpose: Airborne substances, having a close relation with various dust including Kosa, are transported from the Asian continent to Japan by the air flow. Airborne microbes which have resistant to UV light and dryness can be transported alive over long distances and detected at several thousand meters above the ground. In forest ecosystems, various microorganisms play important roles in material cycles. The inflow of various airborne substances including microbes transported a long distance should be investigated from the view point of understanding the material circulation within the ecosystem. In this study, the microbial diversity in rain water was analyzed.

Methods: Rainwater was collected from test site forests on the Sea of Japan side (Ishikawa) and the Pacific side (Ibaraki) and then microbes in the rainwater were collected by membrane filter. Total DNA was extracted from them and barcode DNA fragments such as 16s rDNA and ITS region were amplified by PCR. The sequences of these DNA fragments were analyzed by NGS.

Results: Results showed that difference of the fungal diversity between both sides of the mountain range was detected while the bacterial diversity was similar. Currently, we are trying to detect and quantify functional genes.

Conclusion: The present study suggested that the diversity of microorganisms in rainwater can be detected and analyzed by DNA barcoding technique and NGS.

This study was supported by the River Fund of The River Foundation, Japan.