

## Stable carbon and nitrogen isotope analysis of bacterial nucleic acid

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Conventional stable isotope ecology cannot evaluate the role of microbes in ecosystems. We focus on nucleic acids of microbes, and try to use the carbon and nitrogen isotope ratios of the nucleic acid to the stable isotope ecology. However, the stable carbon and nitrogen isotope ratios of the nucleic acid have not been analyzed. The purpose of this study is to develop the methods for isotope analysis of bacterial nucleic acid and to reveal offsets of isotope ratios between the biomass and nucleic acid.

Nucleic acids were extracted from incubated denitrifying bacteria (*Pseudomonas aureofaciens*) using reagent for nucleic acid extraction, ISOPLANT and ISOPLANT II (Nippon Gene Co., Ltd.). The extractions were precipitated under ethanol, and then were dissolved in water. A part of the solution was used for protein, RNA, and DNA concentrations, and the remain was used for isotope analysis.

The extraction by ISOPLANT II contained a large amount of protein and contaminant, which suggest that the reagent is inadequate for isotope analysis. On the other hand, protein was not detected in the extraction by ISOPLANT. The extraction almost consists of RNA rather than DNA. Offsets of carbon and nitrogen isotope ratios between biomass and the extraction by ISOPLANT insignificantly varied, which imply that the isotope ratios of bacterial RNA are controlled by those of biomass.

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