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BGM22-06 Room:415 Time:April 30 10:30-10:45

SUP05 contribution for Carbon and Nitrogen cycles in semi-closed water mass

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In the deep sea hydrothermal plume, significantly elevated microbial biomass has been reported depending on chemolithoautotrophic activities by hydrothermal reduced chemicals. The potential energetic is sulfur, methane and hydrogen oxidation, and microbial production is up to date. The most important microbes in the plume is SUP05 phylotype (genus Thioglobes), which is known to have sulfur and H2 oxidation pathway, RubisCO carbon assimilation pathway, and denitrification pathways. In this study, we compared the bicarbonate and inorganic nitrogen species with SUP05 cell densities in the hydrothermal plume of the TOTO caldera hydrothermal field with half-closed water mass system in the Southern Mariana Trough. The cell densities of SUP05 is strong negative correlation with bicarbonate and nitrate, however, the correlation slope indicated the nitrogen assimilation but not the nitrogen respiration (denitrification). Only the nitrogen assimilation occurred in the plume is also supported by the lack of denitrification genes in the plume sample with the metagenomic analysis.

Keywords: Chemolithoautotroph, SUP05, TOTO, metagenomics