

Microorganism isolated from Suiyo Seamount

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Suiyo Seamount is a submarine hydrothermal system located in Izu-Ogasawara Arc, western Pacific. To know inhabitants in this site, we tried to enrich and isolate from the samples collected in the hydrothermal system, as a part of the Archaean Park Project, which is funded by Special Coordination Fund of the Ministry of Education, Science and Technology (MEXT).

From a piece of a chimney, a novel thermophilic, microaerophilic, sulfur-reducing bacterium designated strain St55B was isolated. The phylogenetic analysis based on 16S rDNA sequence revealed that strain St55B belongs to the genus *Oceanithermus* in the phylum *Deinococcus-Thermus*. Although strain St55B used as an electron acceptor, it could not form a colony in an oxygen concentration of more than 5%. The isolate also used nitrate, nitrite, or elemental sulfur in the absence of oxygen. This is the first report of a sulfur reducer in the family *Thermaceae*.

From core samples collected by BMS (Boring Machine System), two thermophilic, thiosulfate-reducing archaea (strains Arc22 and Arc51), and three mesophilic, thiosulfate-oxidizing bacteria (strains eps51, gps52 and gps61) were isolated as a novel microorganism. The phylogenetic analysis revealed that strains Arc22 and Arc 51 belongs to the genus *Archaeoglobus*. *Archaeoglobus* sp. Arc51 only used thiosulfate as an electron acceptor in the presence of hydrogen. Strain eps51 belongs to epsilon-Proteobacteria and could grow on oxygen, nitrate or nitrite as an electron acceptor in the presence of thiosulfate. FISH (fluorescent in situ hybridization) analysis indicated that some sulfur-oxidizing bacteria belonging to epsilon and gamma-Proteobacteria were dominant in a caldera of the Suiyo Seamount, and strain eps51 was related to one of these bacteria. Strains gps52 and gps61 autotrophically grew in the presence of thiosulfate under aerobic condition. Phylogenetic analysis of strains gps52 and gps61 revealed that they are new genera in gamma-Proteobacteria.