A novel thermophilic microorganisum 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).

For the inoculation, pieces of a chimney formed in Suiyo hydrothermal system and collected by the submersible, Hakuyo2000, in Augest 2001 were used. The samples were cultivated in the medium composed of sulfate, thiosulfate, elemental sulfur, Fe(III) and Yeast extract, under various conditions (55-85 degree C, pH6 and 7, microaerobic and anaerobic). After the cultivation, significant microorganic activities were observed, and strain ST55B was isolated successfully at 55 degree C and pH7 under the microaerobic conditions. Strain ST55B was a short rod-shaped bacterium showing non-motility and non-pigmentation. The isolate used oxygen, nitrate, nitrite or elemental sulfur as an electron acceptor in the presence of Yeast extract. Nevertheless, strain ST55B was sensitive to oxygen and could not grow above 3% oxygen atmosphere. The phylogenetic analysis based on the 16S rDNA sequence indicated that strain ST55B was a member of the Deinocuccus-Thermus phylum. However, the 16S rDNA sequence similarities between strain ST55B and the related species were less than 90%. The physiological and phylogenetical findings suggested that strain ST55B should be a new genus and species in Deicococcus-Thermus phylum.