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Anaerobic oxidation of methane in terrestrial subsurface

Mio Takeuchi[1*], Hideyoshi Yoshioka[1], Yuna Seo[1], Yoichi Kamagata[2], Susumu Sakata[1]

[1]AIST, [2]AIST

Microorganisms play an important role in the global cycle of carbon, for example, methane. Anaerobic oxidation of methane (AOM) is one of the processes. In marine sediments, it is estimated that up to 90% of methane is oxidized through microbially mediated AOM, contributing to minimize the input of methane to the atomosphere to 2% of the global flux. Microorganisms involved in AOM in marine sediments have been extensively studied. To date, various groups of methanotrophic archaea (ANME) are known to be involved in AOM in marine sediments. Several researchers reported activity of AOM in freshwater environment, such as soil, aquifer, and lake. However, little is known about microorganisms involved in the process. We introduce results of a research to identify microorganisms involved in AOM in terrestrial subsurface environment.

Keywords: anaerobic oxidation of methane, terrestrial subsurface, archaea, freshwater