

Species *Methylobacter titanis*

Etymology

[ti.ta'nis] L. gen. masc. n. *titanis*, in reference to Titan, Saturn's moon with rivers and lakes of methane at low temperatures

Nomenclatural type

[NCBI Assembly: GCA_029946125.1](#)^{Ts}

Description

K-2018 and D1-2020 were enriched from lake sediment samples collected at Kitezh (62°11'36"S, 58°57'58"W) and Drake 1 (62°10'37"S, 58°55'16"W) lakes, respectively, in King George Island, maritime Antarctica. Cells of K-2018 MAG008 and D1-2020 MAG004(Ts) are Gram negative cocci, single or in pairs. Growth occurs at 5 to 30 °C. The MAGs encoded the genes for particulate membrane-bound methane monooxygenase (pMMO) but not for soluble methane monooxygenase (sMMO). The genes necessary for the synthesis of tetrahydrofolate (THF) were present, but the genes for the cofactors methanefuran (MFR) and tetrahydromethanepterin (THPMT) were absent. The genes that encode the ribulose-monophosphate (RuMP) pathway for carbon fixation and the almost complete serine pathway for carbon fixation were present, but not the genes for malate-CoA ligase. The genes encoding the ribulose-1,5-bisphosphate carboxylase/oxygenase enzyme (Rubisco) were not detected but the genes for the Entner-Doudoroff pathway were found, except the gene encoding a hexokinase that catalyses the phosphorylation of glucose to glucose 6-phosphate. The genes for the tricarboxylic acid (TCA) cycle and the pentose phosphate pathway were also found. The genes for the nitrate reductase NarGHJ and the nitrite reductase NirBD were present suggesting the organism could use nitrate and nitrite as nitrogen sources. However, no genes were found that encode for urease (*ureBA*) or nitrogenase (*nifHDK*). The DNA G+C content is 47.9-49.3%. The MAG D1-2020 MAG004(Ts) is the designated nomenclatural type for the species. The GenBank/EMBL/DBJ accession number for MAGs K-2018 MAG008 and D1-2020 MAG004(Ts) are JAQSDX000000000 and JAQSDX000000000, respectively.

Classification

Bacteria » *Pseudomonadota* » *Gammaproteobacteria* » *Methylococcales* » *Methylococcaceae* » *Methylobacter* » *Methylobacter titanis*

References

Proposed: Roldán, Menes, 2023

Registry URL

<https://seqco.de/i:31305>

References

1. Roldán, Menes (2023). Characterisation of 'Candidatus *Methylobacter titanis*' sp. nov., a putative novel species of *Methylobacter* clade 2 and their distribution in sediments of freshwater lakes in maritime Antarctica. *Antonie van Leeuwenhoek*. DOI:10.1007/s10482-023-01840-1