Genus *Methylosemipumilus*

Etymology

[Me.thy.lo.se.mi.pu.mi'lus] **N.L. neut. n.** *methyl*, pertaining to the methyl group; **L. pref.** *semi-*, half; **L. masc. n.** *pumilus*, dwarfish; **N.L. masc. n.** *Methylosemipumilus*, half-dwarfish methyl (group oxidizing) organism, pertaining to an intermediated genome size

Nomenclatural type

Species *Methylosemipumilus turicensis*[Ts]

Description

Consists of one species, *Methylosemipumilus turicensis* (GCF_000953015.1), that was initially proposed as '*Candidatus* Methylopumilus turicensis' in Salcher et. al. 2015 and later changed to *Methylosemipumilus turicensis* in Salcher et al. 2019. Also known as PRD01a001B from 16S rRNA gene based studies. *Methylosemipumilus* has a relatively small genome size (<1.8 Mb) but not as small as *Methylopumilus* (1.3-1.4 Mb), which – together with improved genomic analyses – led to the reclassification to *Methylosemipumilus*. The closest cultivated relatives are *Methylotenera* sp. L2L1 (GCF_000744605.1) with an average amino acid identity of 67.45% and average nucleotide identity of 70.55% and *Methylovorus* sp. MP688 (GCF_000183115.1) with an AAI of 69.37% and an ANI of 69.42%, while the genus Methylopumilus is more distantly related (AAI of 61.5-62.2% and ANI of 66.4-66.9%). *Methylosemipumilus* are aerobic methylotrophs containing pathways for methanol oxidation (Xox), the RuMP cycle and the tetrahydromethanopterin (H4MPT) pathway for formaldehyde oxidation. *Methylosemipumilus* are found in the plankton of lakes in relatively low abundances. The so far only strain was isolated via dilution-to extinction cultivation by using autoclaved lake water, no growth is observed in rich medium or on agar plates (Salcher et al. 2015). Therefore, the strain was not submitted to a culture collection because these bacteria are hard to maintain, i.e., they are very slowly growing, reach low densities in liquid culture, and do not grow on agar plates.

Classification

Bacteria » *Pseudomonadota* » *Betaproteobacteria* » *Nitrosomonadales* » *Methylophilaceae* » *Methylosemipumilus*

References

Effective publication: Salcher et al., 2019 [1]
Original (not valid) publication: Salcher et al., 2015 [2]
Corrigendum: Salcher et al., 2019 [1] (from "Candidatus Methylopumilus")
Assigned taxonomically: Salcher et al., 2019 [1]

Registry URL

https://seqco.de/i:49942

References

1. Salcher et al. (2019). Evolution in action: habitat transition from sediment to the pelagial leads to genome streamlining in Methylophilaceae. *The ISME Journal*. DOI: 10.1038/s41396-019-0471-3
2. Salcher et al. (2015). The ecology of pelagic freshwater methylotrophs assessed by a high-resolution monitoring and isolation campaign. *The ISME Journal*. DOI: 10.1038/ismej.2015.55