Register list for 7 new names including Methanoflorens stordalenmirensis sp. nov. gen. nov.

Submitted by Rodriguez-R, Luis M

Order *Methanoflorentales*

Etymology

[Me.tha.no.flo.ren.ta'les] **N.L. masc. n.** *Methanoflorens*, a genus; *-ales*, ending to denote an order; **N.L. fem. pl. n.** *Methanoflorentales*, the Methanoflorens order

Nomenclatural type

Genus *Methanoflorens*

Description

Woodcroft et al., 2018 **(with modifications):** The description is the same as given for the type genus *Methanoflorens* and the family *Methanoflorentaceae* Mondav et al. (2014) with the following modifications. The delineation of the order is determined by phylogenetic analyses showing that the *Methanocellales* would otherwise be paraphyletic. The order currently comprises two species *M. stordalenmirensis* and *M. crillii*. The type genus is *Methanoflorens*.

Methane producing organisms linked to be key mediators of methane-based positive feedback to climate warming. Represented by microbial population from permafrost. Previously known as the uncultivated lineage 'Rice Cluster II'

Classification

Archaea » *Methanobacteriota* » “Methanomicrobia” » *Methanoflorentales*

References

Effective publication: Woodcroft et al., 2018 [1]
Assigned taxonomically: Woodcroft et al., 2018 [1]

Registry URL

https://seqco.de/i:32194

Family *Methanoflorentaceae*

Etymology

[Me.tha.no.flo.ren.ta'ce.ae] **N.L. masc. n.** *Methanoflorens*, referring to the type genus Methanoflorens; *-aceae*, ending to denote a family; **N.L. fem. pl. n.** *Methanoflorentaceae*, the Methanoflorens family

Nomenclatural type

Genus *Methanoflorens*

Description

The description is the same as that of the sole genus *Methanoflorens*.

Classification

Archaea » *Methanobacteriota* » “Methanomicrobia” » *Methanoflorentales* » *Methanoflorentaceae*

References

Effective publication: Woodcroft et al., 2018 [1]
Assigned taxonomically: Woodcroft et al., 2018 [1]

Registry URL
https://seqco.de/i:32553

Genus *Acidiflorens*

Etymology
[A.ci.di.flo'rens] **L. neut. adj.** *acidum*, an acid; **L. pres. part.** *florens*, flourishing; **N.L. masc. n.** *Acidiflorens*, an organism that blooms in acid

Nomenclatural type
Species *Acidiflorens stordalenmirensis*[Ts]

Description
The description is the same as that of the sole species: *Acidiflorens stordalenmirensis*.

Classification
Bacteria » *Acidobacteriota* » *Terriglobia* » *Terriglobales* » *Acidobacteriaceae* » *Acidiflorens*

References
Effective publication: Woodcroft et al., 2018 [1]
Assigned taxonomically: Woodcroft et al., 2018 [1]

Registry URL
https://seqco.de/i:32199

Genus *Methanoflorens*

Etymology
[Me.tha.no.flo'rens] **N.L. pref.** *methano-*, pertaining to methane; **L. pres. part.** *florens*, blooming, abundant; **N.L. masc. n.** *Methanoflorens*, an abundant methane-producing organism

Nomenclatural type
Species *Methanoflorens stordalenmirensis*[Ts]

Description
Established by Mondav et al. (2014) on the basis of 16S rRNA and genome-based phylogenetic reconstruction including only *M. stordalenmirensis*, and expanded by Woodcroft et al. (2018) to also include *M. crillii*. Corresponding to g__Bog-38 in GTDB.

Classification
Archaea » *Methanobacteriota* » “Methanomicrobia” » *Methanoflorentales* » *Methanoflorentaceae* » *Methanoflorens*

References
Effective publication: Woodcroft et al., 2018 [1]
Original (not valid) publication: Mondav et al., 2014 [2]
Assigned taxonomically: Mondav et al., 2014 [2]

Registry URL
https://seqco.de/i:32552

Species *Methanoflorens stordalenmirensis*[Ts]

Etymology
[stor.da.len.mir.en'sis] **N.L. masc. adj.** *stordalenmirensis*, of or belonging to Stordalen Mire, Sweden from where the species was characterised

Nomenclatural type
NCBI Assembly: GCA_003139855.1 [Ts]

Description
Established by Mondav et al. (2014) on the basis of phylogenetic reconstruction, and observed to be in high abundance in thawing permafrost.

Classification
Archaea » *Methanobacteriota* » "Methanomicrobia" » *Methanoflorentales* » *Methanoflorentaceae* » *Methanoflorens* » *Methanoflorens stordalenmirensis*[Ts]

References
Effective publication: Woodcroft et al., 2018 [1]
Original (not valid) publication: Mondav et al., 2014 [2]

Registry URL
https://seqco.de/i:49938

Species *Acidiflorens stordalenmirensis*[Ts]

Etymology
[stor.da.len.mi.ren'sis] **N.L. masc. adj.** *stordalenmirensis*, of or belonging to Stordalen Mire, Sweden, where the species was characterized

Nomenclatural type
NCBI Assembly: GCA_003139995.1 [Ts]

Description
Woodcroft et al., 2018: Phylogenetic analyses of genes/markers indicated that this species is different from all other recognized genera in the family Acidobacteriaceae.

Classification
Bacteria » *Acidobacteriota* » *Terriglobia* » *Terriglobales* » *Acidobacteriaceae* » *Acidiflorens* » *Acidiflorens stordalenmirensis*[Ts]

References
Effective publication: Woodcroft et al., 2018 [1]
Assigned taxonomically: Woodcroft et al., 2018 [1]

Registry URL
https://seqco.de/i:32242

Species *Methanoflorens crillii*

Etymology
[cril'li.i] **N.L. gen. n.** *crillii*, named after Patrick Crill, Stockholm University, Sweden, in recognition of his work on understanding of biogeochemical processes at the landscape scale (thawing permafrost) including greenhouse gases emission under the impact of climate change

Nomenclatural type
NCBI Assembly: GCA_003162175.1 [Ts]

Description
Woodcroft et al., 2018 **(with modifications):** The description is as provided by Mondav et al. (2014) for the genus with the following additional properties. The species can be differentiated from the recognized *Methanoflorens stordalenmirensis* on the basis of phylogenetic analyses showing them to be monophyletic and sufficiently distinct average amino acid identity between encoded proteins.

Classification

Archaea » *Methanobacteriota* » “Methanomicrobia” » *Methanoflorentales* » *Methanoflorentaceae* » *Methanoflorens* » *Methanoflorens crillii*

References

Effective publication: Woodcroft et al., 2018 [1]
Assigned taxonomically: Woodcroft et al., 2018 [1]

Registry URL

https://seqco.de/i:32551

References

1. Woodcroft et al. (2018). Genome-centric view of carbon processing in thawing permafrost. *Nature*. DOI:10.1038/s41586-018-0338-1
2. Mondav et al. (2014). Discovery of a novel methanogen prevalent in thawing permafrost. *Nature Communications*. DOI:10.1038/ncomms4212

Register List Certificate of Validation

On behalf of the *Committee on the Systematics of Prokaryotes Described from Sequence Data* (SeqCode Committee), we hereby certify that the Register List **seqco.de/r:cm4dpqa7** submitted by **Rodriguez-R, Luis M** and including 7 new names has been successfully validated.

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