

Register list for 3 new names including *Acidulidesulfobacteriota* phyl. nov.

Submitted by Ren, Yanhu

Abstract

Acidulidesulfobacterales was a formerly proposed bacterial order within the *Deltaproteobacteria* lineage (Tan et al., 2019). Our phylogenomic, 16S rRNA gene, and AAI analyses indicated that this lineage represents a distinct phylum-level clade, leading us to propose the designation *Acidulidesulfobacteriota*. It currently comprises a single class, *Aciduloidesulfobacteriia*, and six distinct orders. Four of these are designated as *Acididesulfobacterales*, *Acidulidesulfobacterales* (originally proposed by Tan et al. 2019), *Hydrothermoacidobacterales*, and *Acidulidesulfobacterales*.

Phylum *Acidulidesulfobacteriota*

Etymology

[A.ci.du.li.de.sul.fo.bac.te.ri.o'ta] **N.L. neut. n.** *Acidulidesulfobacterium*, referring to the type genus *Acidulidesulfobacterium*; *-ota*, ending to denote a phylum; **N.L. neut. pl. n.** *Acidulidesulfobacteriota*, the *Acidulidesulfobacterium* phylum

Nomenclatural type

Genus *Acidulidesulfobacterium*

Description

Acidulidesulfobacteriota represents an ecologically significant group in sulfur-rich environments including artificial acid mine drainage and hydrothermal sulfides. Phylogenomic and 16S rRNA gene analyses indicated that this lineage represents a distinct phylum-level clade, leading us to propose the designation *Acidulidesulfobacteriota*. Notably, the concatenated DsrAB protein phylogeny and the mixed enzyme types involved in Dsr-dependent dissimilatory sulfur metabolism suggest that *Acidulidesulfobacteriota* may represent a transitional lineage in the evolutionary shift from reductive to oxidative Dsr metabolism.

Classification

Bacteria » *Acidulidesulfobacteriota*

References

Effective publication: Ren et al., 2025 [1]

Registry URL

<https://seqco.de/i:50994>

Class *Acidulidesulfobacteriia*

Etymology

[A.ci.du.li.de.sul.fo.bac.te.ri'i.a] **N.L. neut. n.** *Acidulidesulfobacterium*, referring to the type genus *Acidulidesulfobacterium*; *-ia*, ending to denote a class; **N.L. neut. pl. n.** *Acidulidesulfobacteriia*, the *Acidulidesulfobacterium* class

Nomenclatural type

Genus *Acidulidesulfobacterium*

Description

Acidulidesulfobacteriia is a class of the phylum *Acidulidesulfobacteriota*

Classification

Bacteria » *Acidulidesulfobacteriota* » *Acidulidesulfobacteriia*

References

Effective publication: Ren et al., 2025 [1]

Registry URL

<https://seqco.de/i:51029>

Order *Acididesulfobacterales*

Etymology

[A.ci.di.de.sul.fo.bac.te.ra'les] **N.L. masc. n.** *Acididesulfobacter*, referring to the type genus *Acididesulfobacter*; *-ales*, ending to denote an order; **N.L. fem. pl. n.** *Acididesulfobacterales*, the *Acididesulfobacter* order

Nomenclatural type

Genus *Acididesulfobacter*

Classification

Bacteria » *Acidulidesulfobacteriota* » *Acidulidesulfobacteriia* » *Acididesulfobacterales*

References

Effective publication: Ren et al., 2025 [1]

Registry URL

<https://seqco.de/i:54934>

References

1. Ren et al. (2025). New insights into the evolution and metabolism of the bacterial phylum Candidatus Acidulodesulfobacteriota through metagenomics. *Environmental Microbiome*. [DOI:10.1186/s40793-025-00779-2](https://doi.org/10.1186/s40793-025-00779-2)

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:-5u_fted** submitted by **Ren, Yanhu** and including 3 new names has been successfully validated.

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