

Acidulidesulfobacteriales ord. nov. with a novel family, two novel genera, and four novel species

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Order *Acidulidesulfobacteriales*

Etymology

[A.ci.du.li.de.sul.fo.bac.te.ri.a'les] **N.L. neut. n.** *Acidulidesulfobacterium*, referring to the type genus *Acidulidesulfobacterium*; *-ales*, ending to denote an order; **N.L. fem. pl. n.** *Acidulidesulfobacteriales*, the *Acidulidesulfobacterium* order

Nomenclatural type

Genus *Acidulidesulfobacterium*

Description

Tan et al., 2019 (modified): Facultatively anaerobic autotrophs, likely use oxygen as terminal electron acceptor and thus couple Fe(II) and sulfide oxidation to aerobic respiration under aerobic conditions in AMD water and on biofilm surface, while they may perform dissimilatory sulfate reduction, Fe(III) respiration and fermentations under anaerobic conditions in the interior of biofilms and sediments.

Classification

Bacteria » “*Acidulidesulfobacteriota*” » “*Acidulidesulfobacteriia*” » *Acidulidesulfobacteriales*

References

Effective publication: Tan et al., 2019 [1]

Registry URL

<https://seqco.de/i:275>

Family *Acidulidesulfobacteriaceae*

Etymology

[A.ci.du.li.de.sul.fo.bac.te.ri.a'ce.ae] **N.L. neut. n.** *Acidulidesulfobacterium*, referring to the type genus *Acidulidesulfobacterium*; *-aceae*, ending to denote a family; **N.L. fem. pl. n.** *Acidulidesulfobacteriaceae*, the *Acidulidesulfobacterium* family

Nomenclatural type

Genus *Acidulidesulfobacterium*

Classification

Bacteria » “*Acidulidesulfobacteriota*” » “*Acidulidesulfobacteriia*” » *Acidulidesulfobacteriales* » *Acidulidesulfobacteriaceae*

References

Effective publication: Tan et al., 2019 [1]

Registry URL

<https://seqco.de/i:41968>

Genus *Acididesulfobacter*

Etymology

[A.ci.di.de.sul.fo.bac'ter] **N.L. masc. adj.** *acidus*, acid; **L. pref.** *de-*, from; **L. n.** *sulfur*, sulfur; **N.L. pref.** *desulfo-*, a dissimilatory sulfate-reducing bacterium; **L. masc. n.** *bacter*, a rod; **N.L. masc. n.** *Acididesulfobacter*, a rod-shaped sulfate reducer in acidic environments

Nomenclatural type

Species *Acididesulfobacter guangdongensis*^{Ts}

Description

A genus in the order *Acidulidesulfobacteriales*, described on the basis of metagenome-assembled genomes AP1 (*Acididesulfobacter diazotrophicus*) and AP2 (*Acididesulfobacter guangdongensis*). Established on the basis of maximum-likelihood phylogenetic reconstruction using the concatenated alignment of 16 ribosomal proteins.

Classification

Bacteria » “Acidulidesulfobacteriota” » “Acidulidesulfobacteriia” » *Acidulidesulfobacteriales* » *Acidulidesulfobacteriaceae* » *Acididesulfobacter*

References

Effective publication: Tan et al., 2019 [1]

Registry URL

<https://seqco.de/i:39396>

Genus *Acidulidesulfobacterium*

Etymology

[A.ci.du.li.de.sul.fo.bac.te'ri.um] **L. masc. adj.** *acidulus*, a little sour; **N.L. pref.** *desulfo-*, dissimilatory sulfate-reducing; **N.L. neut. n.** *bacterium*, rod; **N.L. neut. n.** *Acidulidesulfobacterium*, a sulfate-reducing rod in an acidic environment

Nomenclatural type

Species *Acidulidesulfobacterium ferriphilum*^{Ts}

Description

A genus in the order *Acidulidesulfobacteriales*, described on the basis of metagenome-assembled genomes AP3 (*Acidulidesulfobacterium ferriphilum*) and AP4 (*Acidulidesulfobacterium acidiphilum*). Established on the basis of maximum-likelihood phylogenetic reconstruction using the concatenated alignment of 16 ribosomal proteins.

Classification

Bacteria » “Acidulidesulfobacteriota” » “Acidulidesulfobacteriia” » *Acidulidesulfobacteriales* » *Acidulidesulfobacteriaceae* » *Acidulidesulfobacterium*

References

Effective publication: Tan et al., 2019 [1]

Corrigendum: Oren, Garrity, 2021 [2] (from “Acidulodesulfobacterium”)

Registry URL

<https://seqco.de/i:39397>

Species *Acididesulfobacter diazotrophicus*

Etymology

[di.a.zo.tro'phi.cus] **Gr. pref.** *di-*, twice, doubly; **N.L. neut. n.** *azotum*, nitrogen; **N.L. pref.** *diazo-*, pertaining to dinitrogen; **N.L. masc. adj.** *trophicus*, (from Gr. masc. adj. *trophikos*) nursing, tending; **N.L. masc. adj.** *diazotrophicus*, growing on dinitrogen

Nomenclatural type

[NCBI Assembly: GCA_004195025.1](#)^{Ts}

Description

Established on the basis of Average Nucleotide Identity (ANI, using OrthoANI), 16S rRNA identity, and maximum-likelihood phylogenetic reconstruction using the concatenated alignment of 16 ribosomal proteins. The type genome is AP1.

Classification

Bacteria » "Acidulidesulfobacteriota" » "Acidulidesulfobacteriia" » *Acidulidesulfobacteriales* » *Acidulidesulfobacteriaceae* » *Acididesulfobacter* » *Acididesulfobacter diazotrophicus*

References

Effective publication: Tan et al., 2019 [1]

Registry URL

<https://seqco.de/i:42351>

Species *Acididesulfobacter guangdongensis*^{Ts}

Etymology

[guang.dong.en'sis] **N.L. masc. adj.** *guangdongensis*, pertaining to Guangdong, a province of southern China, where this organism was first genomically described

Nomenclatural type

[NCBI Assembly: GCA_004195045.1](#)^{Ts}

Description

Established on the basis of Average Nucleotide Identity (ANI, using OrthoANI), 16S rRNA identity, and maximum-likelihood phylogenetic reconstruction using the concatenated alignment of 16 ribosomal proteins. The type genome is AP2.

Classification

Bacteria » "Acidulidesulfobacteriota" » "Acidulidesulfobacteriia" » *Acidulidesulfobacteriales* » *Acidulidesulfobacteriaceae* » *Acididesulfobacter* » *Acididesulfobacter guangdongensis*^{Ts}

References

Effective publication: Tan et al., 2019 [1]

Registry URL

<https://seqco.de/i:42752>

Species *Acidulidesulfobacterium acidiphilum*

Etymology

[a.ci.di.phi'lum] **L. masc. adj.** *acidus*, sour, acid; **Gr. masc. adj.** *philos*, loving; **N.L. neut. adj.** *acidiphilum*, acid-loving

Nomenclatural type

[NCBI Assembly: GCA_008534395.1](#)^{Ts}

Description

Established on the basis of Average Nucleotide Identity (ANI, using OrthoANI), 16S rRNA identity, and maximum-likelihood phylogenetic reconstruction using the concatenated alignment of 16 ribosomal proteins. The type genome is AP4.

Classification

Bacteria » “Acidulidesulfobacteriota” » “Acidulidesulfobacteriia” » *Acidulidesulfobacteriales* » *Acidulidesulfobacteriaceae* » *Acidulidesulfobacterium* » *Acidulidesulfobacterium acidiphilum*

References

Effective publication: Tan et al., 2019 [1]
Corrigendum: Oren, Garrity, 2021 [2] (from “Acidulodesulfobacterium acidiphilum”)
Assigned taxonomically: Tan et al., 2019 [1]

Registry URL

<https://seqco.de/i:54849>

Species *Acidulidesulfobacterium ferriphilum*^{Ts}

Etymology

[fer.ri.phi'lum] **L. neut. n.** *ferrum*, iron; **N.L. neut. adj.** *philum*, loving; **N.L. neut. adj.** *ferriphilum*, iron-loving

Nomenclatural type

[NCBI Assembly: GCA_004195035.1](#)^{Ts}

Description

Established on the basis of Average Nucleotide Identity (ANI, using OrthoANI), 16S rRNA identity, and maximum-likelihood phylogenetic reconstruction using the concatenated alignment of 16 ribosomal proteins. The type genome is AP3.

Classification

Bacteria » “Acidulidesulfobacteriota” » “Acidulidesulfobacteriia” » *Acidulidesulfobacteriales* » *Acidulidesulfobacteriaceae* » *Acidulidesulfobacterium* » *Acidulidesulfobacterium ferriphilum*^{Ts}

References

Effective publication: Tan et al., 2019 [1]
Corrigendum: Oren, Garrity, 2021 [2] (from “Acidulodesulfobacterium ferriphilum”)

Registry URL

<https://seqco.de/i:42041>

References

1. Tan et al. (2019). Insights into ecological role of a new deltaproteobacterial order *Candidatus Acidulodesulfobacteriales* by metagenomics and metatranscriptomics. *The ISME Journal*. DOI:10.1038/s41396-019-0415-y
2. Oren, Garrity (2021). Candidatus List No. 2. Lists of names of prokaryotic Candidatus taxa. *International Journal of Systematic and Evolutionary Microbiology*. DOI:10.1099/ijsem.0.004671

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:xmm5ngub** submitted by **Rodriguez-R, Luis M** and including 8 new names has been successfully validated.

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