Species *Candidatus* Biekeibacterium resiliens

Etymology

[re.si'li.ens] **L. part. adj.** *resiliens*, rebounding, named after its ability to respond (enriching in abundance and function) after an environmental perturbation

Nomenclatural type

Unknown

Description

"*Ca.* Biekeibacterium resiliens" appears to be a chemolithoautotrophic bacterial population capable of carbon fixation and can probably oxidize thiosulfate to sulfate via the SOX complex. The presence of SOX complex also indicates that oxygen is the preferred electron acceptor, but if there are oxygen limitations, nitrate, iron or organic matter could be used instead as alternative electron acceptors based on hallmark genes identified in the genome for these pathways (Kuever, Rainey & Widdel, 2005). "*Ca.* Biekeibacterium resiliens" suggests to be (1) capable of glycolysis and carbon fixation, (2) potential for thiosulfate oxidation through the SOX complex, (3) non-nitrogen fixer, (4) non-photosynthetic. "*Ca.* Biekeibacterium resiliens" appears to be capable of thiosulfate oxidation (100% pathway completeness), nitrate/nitrate transport (100% completeness), NarX-NarL two component regulatory system (100% completeness), cytochrome c oxidase for ATP synthesis (100% completeness), assimilatory nitrate reduction (50% completeness), dissimilatory nitrate reduction (50% completeness). In addition, potential for carrying a xenobiotic reductase B (XenB) and oxygen nitroreductase (*nfsB)*, which indicate capacity for biodegradation of explosives, and copper export (*copA*). The latter suggests that "*Ca.* Biekeibacterium resiliens" is a genetically and phenotypically versatile bacterium that is enriched after exposure to organic pollutants such as explosives.

Classification

Candidatus Biekeibacteriaceae » *Candidatus* Biekeibacterium » *Candidatus* Biekeibacterium resiliens

References

Effective publication: Dávila Santiago et al., 2022 [1]

Registry URL

https://seqco.de/i:23395

References

1. Dávila Santiago et al. (2022). Microbial diversity in a military impacted lagoon (Vieques, Puerto Rico) and description of "Candidatus Biekeibacterium resiliens" gen. nov., sp. nov. comprising a new bacterial family. *Systematic and Applied Microbiology.* DOI:10.1016/j.syapm.2021.126288