

Pseudomonas atacamensis sp. nov., isolated from the rhizosphere of desert bloom plant in the region of Atacama, Chile

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The bacterial strain M7D1T was isolated from samples of the rhizosphere of desert bloom plants on the Atacama region located in northern Chile as part of a study intended to isolate nitrifying bacteria in this adverse environment. It was previously identified as belonging to the *Pseudomonas fluorescens* group. In this study, the phylogenetic analysis of the 16s RNA, *gyrA*, *rpoB* and *rpoD* genes confirmed that this strain belongs to this group, especially Sub Group (SG) *Koreensis*, but it represents a potential new species. Additionally, the average nucleotide identity confirmed this as the highest identity value (0.92) with *Pseudomonas moraviensis* LMG 24280, which is lower than the 0.94 threshold established to classify two strains within the same species. The strain M7D1T shared a similar fatty acids methyl ester profile than the type strains of other *Pseudomonas* spp. previously described. Furthermore, it can be differentiated phenotypically from other related species of SG *P. koreensis*. Based on these results, the existence of a new species of *Pseudomonas* is demonstrated, for which the name *Pseudomonas atacamensis* is proposed. This strain presented a set of genes associated with plant growth-promoting rhizobacteria and it is a good candidate to be used for recovery of contaminated soils. However, more studies are required to demonstrate whether this bacterium is non-pathogenic, can survive in the presence of toxic compounds and promote growth or help to the stress management of plants. © 2020, Springer Nature Switzerland AG.

Genomic taxonomy

Hydrogen cyanide

Insecticidal toxin

Multilocus sequence analysis

PGPR

Pseudomonadaceae

TccC-type

fatty acid ester

RNA 16S

Article

bacterial gene

bacterial strain

bacterium isolation

Chile

controlled study

gyrA gene

nitrifying bacterium

nonhuman

phylogeny

plant growth-promoting bacterium

priority journal

Pseudomonas

Pseudomonas atacamensis

Pseudomonas fluorescens

Pseudomonas koreensis

Pseudomonas moraviensis

rhizosphere

rpoB gene

rpoD gene

soil pollution