

The hyperarid core of the Atacama Desert, an extremely dry and carbon deprived habitat of potential interest for the field of carbon science

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The Atacama Desert in Chile is the driest and oldest desert on Earth, also considered one of the best Mars analog models. Here, several heterotrophic microbial communities have been discovered in its driest regions, with the ones present in the soil subsurface being one of the most interesting due to its existence in a habitat with almost no water available and almost undetectable organic carbon sources. Our recent discovery of the driest site of the Atacama known to date (and the heterotrophic microbial species that are able to survive in this site) reaffirms the opportunity to better characterize the physiological and molecular mechanisms that these species use to detect, mobilize, incorporate and use carbon under these extremely harsh conditions. Here we summarize what has been reported up to date on the organic carbon concentrations in different sites of the hyperarid core of the Atacama Desert, proposing that due to the meager amounts of carbon and extremely dry conditions, the microbial communities of the hyperarid core of the Atacama Desert may be of interest for the field of carbon science. © 2017 Azua-Bustos, González-Silva and Corsini.

Atacama Desert

Carbon science

Desert ecosystems

Mars

Organic carbon

carbon

nitrogen

organic carbon

Article

Bacillus

carbon dynamics

carbon metabolism

carbon source

Chile

desert

extreme environment

Geodermatophilus

heterotrophy

hypothesis

mass fragmentography

mass spectrometry

microbial community

microhabitat

nitrifying bacterium

nonhuman

soil analysis

soil chemistry

soil microflora

Streptomyces

wind