



## Protected endolithic niches on Earth as models for Habitability on Mars

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Water deliquescence in salts deposits increases water activity from which life could take advantage of on the surface of Mars (Davila et al., 2010). Some Atacama Desert locations which are tremendously adverse for life due to the low water activity reported the presence of microbial biodiversity when particular protected niches were studied (Gómez-Silva et al., 2008). Multi layered salty deposits were identified in Rio Tinto. Green layers appear included in brown stratified salt precipitates principally composed by Jarosite (pH 1). The crust deposit was between 5 mm and 1 cm width. The layered structure is deposited over surfaces exposed to acidic waters from the river. It appears in not direct Sun light exposed places (shadow side of walls) with thermal and pH stability. Endolithic micro niches in Rio Tinto salts precipitates determine controlled scenarios where phototrops develop under controlled conditions. Those micro-environments are drove by biology. The Rio Tinto salts precipitation patters can contribute to biomineralization processes which could be of special interest for organics but also life preservation on environmental harsh conditions. These “oasys” for organics and/or life forms are of special astrobiological interest and should attract our attention in other planets and we should be looking for it during rover exploration missions.

We will present some preliminary studies about those endolithic niches inside salt deposits used by phototrops for taking advantage of sheltering particular light wavelengths. These acidic salts deposits located in Río Tinto shelter life forms. Similar micro environments would be interesting of localizing and studying during space missions.

### Bibliography

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