

Peer Review

Review of: "Microbial Mediation in Gypsum Dissolution and Its Role in Evaporitic System Transformation in Northern Chilean Salt Flats"

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This manuscript examines how microbial consortia influence gypsum dissolution and secondary mineral precipitation in polyextreme Andean salt flats under controlled laboratory conditions. It shows that microbial activity can either enhance or inhibit gypsum dissolution through metabolic processes and EPS formation, while promoting diverse secondary minerals absent in abiotic controls. However, the novelty of this work remains unclear, as well as its added value relative to previously published studies addressing microbially mediated mineral dissolution and precipitation in evaporitic or extreme environments. The manuscript does not sufficiently demonstrate how its findings advance current knowledge beyond existing literature. Consequently, I do not recommend publication in this journal in its present form.

The article has several issues that need attention:

1. Most of the analyses conducted remain qualitative; robust quantitative data are lacking, such as comparative dissolution rates and mineral reaction kinetics over time.
2. There is redundancy between the results and discussion sections; it would be better to merge them, which would also help reduce the overall length of the manuscript.
3. The English language and grammar need to be improved throughout the manuscript.
4. The manuscript lacks keywords.
5. Table titles should be placed above the tables, not below them.
6. There is an inconsistency in figure numbering (for example, Figure 1A is missing), and the caption of Figure 3 is incomplete.

Declarations

Potential competing interests: No potential competing interests to declare.