

Peer Review

Review of: "The Limits of Life at Extremely Low Water Activity: Lithium-Concentration Ponds in a Solar Saltern (Salar de Atacama, Chile)"

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The study investigates microbial life in lithium-concentration ponds of the Salar de Atacama, Chile, which reach extremely low water activity (aw). The authors explore how microbial communities adapt to extreme hypersalinity and variations in ion composition, especially in relation to lithium and magnesium concentrations. They use DNA and RNA-based approaches along with enrichment cultures to assess microbial diversity and activity.

The paper is sound and requires minor revisions before acceptance.

The different sections of the manuscript need to be numbered.

Page 2: What is the unit "masl"? Please clarify.

What does "Salar" mean, and how does it differ from a solar saltern?

Could you add a photo or figure showing the different ponds and wells sampled? You can combine it with Figure 1.

In the **Materials and Methods** section, please explain the unit of water activity (aw).

Page 6: The sentence *"First, the reactants for the DNA extraction (buffers, enzymes, detergents, etc.) were extracted"*—could you explain how you removed these compounds?

It is important to improve the quality of some figures, especially Figures 3 and 5, which are blurry and have low resolution.

Page 13: I invite the authors to add a PCA figure in the **Results** section.

Page 26: Please add a reference (REF) to support the sentence *"The last ponds, finally, only(REF)."*

Declarations

Potential competing interests: No potential competing interests to declare.