

Reviewer 3

1. *The full stop in the title should be revised.*
Noted. Revised.
2. *The abstract needs to be revised and be more attractive. The research gap, novelty and main findings should be concisely mentioned in the abstract.*
We have rewritten the abstract. We believe that the abstract is much more attractive now.
3. *In this current shape, the manuscript looks like a report. The authors have to revise the flow of the context to attract the readers.*
We have revised and changed the manuscript to be more attractive for the readers.
4. *The manuscript must be improved by checking once again in English and technical writing.*
We improved the writing style of the manuscript and corrected the grammatical errors.
5. *The whole manuscript must be supported by enough recent references. Revise the whole context.*
We added more recent references.
6. *The beginning of the introduction part must be revised to be more attractive.*
Corrected. We have rewritten the Introduction section.
7. *The authors can follow the following references to generally highlight the global contamination and environmental pollution problems at the beginning of the introduction part*
<https://doi.org/10.1016/j.jwpe.2022.102847> ;
<https://doi.org/10.1016/j.ceramint.2022.05.151> ;
<https://doi.org/10.3390/catal12050500> ;
<https://doi.org/10.1007/s11356-022-21160-7> ;
<https://doi.org/10.3390/ma15134547>.
Then, highlight the water desalination technologies and Gibbs ensemble
(<https://doi.org/10.3390/nano10020293>).
Corrected. We added the citations, which are relevant to the studied problems, in their appropriate places.
8. *Authors should indicate a clear gap in knowledge which this study seeks to bridge, and potentially contribute to knowledge.*
The purpose of our paper is to show that desalination using polyelectrolyte hydrogels is a cheap and therefore competitive alternative to reverse osmosis. We highlighted this idea in the Introduction and Conclusion sections.
9. *L 125-126, meaningless sentence. Revise the whole context.*
Corrected.
10. *All sections/subsections titles must be revised to be expressive.*
Corrected. We have rewritten and improved not only the Introduction, but the sections Model and Methods, Results, Conclusions as well.
11. *Statistical physics considerations including setup and calculations should be added.*
We rewritten the section “Model and methods” and added there a detailed explanation

of our methodology.

12. *The authors should identify the limitations of this study and the recommended future studies in the conclusion part.*

We identified the study limitations and considered the implications and future perspectives of the study. We added the respective paragraphs.