

Review of: "Experimental Behavior of Solar Still Using Mixed Oxides Mn-Fe/Silicon Resin Composite as Selective Solar Absorber"

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Potential competing interests: No potential competing interests to declare.

- The paper contributes by optimizing the design of a solar still using a hybrid material with high solar absorbance and low thermal emission, ensuring stability and durability.
- It highlights the importance of solar distillation for human consumption, emphasizing the purity of distilled water and its energy and environmental relevance.
- The paper suggests future research directions such as mathematical and computational fluid dynamics simulations to enhance productivity and efficiency of solar desalination systems.
- It focuses on studying variables like crystal structure, optical properties, and morphology to optimize the performance of the solar still.
- X-ray diffraction patterns were obtained to determine the crystal structure of the solar absorber samples.
- Spectral reflectance of black pigments was measured using a UV-Vis-NIR spectrophotometer.
- Spectral reflectance of samples in a different range was obtained using an FT-IR spectrophotometer.
- Surface profilometry was conducted using a Stylus Bruker Dektak XT profilometer.

Final Decision: The paper needs the following amendments prior to publication.

- The paper does not extensively discuss the specific challenges or limitations encountered during the experimental process.
- It does not provide detailed information on potential drawbacks or constraints of using the hybrid material in real-world applications.
- The limitations related to the efficiency and scalability of the solar still design are not explicitly addressed in the paper.
- Further studies can be conducted on the computational fluid dynamics (CFD) simulations of solar stills to estimate productivity, considering techniques like nanotechnology and improved reflectors.

- Research on enhancing the efficiency of solar desalination systems by exploring various techniques such as the use of storage materials, fans, and fins can be pursued.
- Investigating the impact of different variables, such as crystal structure, optical properties, and morphology, on the performance of solar stills to optimize their design and functionality.