

Performance improvement of a modified distiller with V-corrugated absorber and heat pump in different configurations: A thermoenviroeconomic assessment	
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Publication Year	2024
Grant Number	IMSIU-RP23056
DOI link	<a href="https://doi.org/10.1016/j.tsep.2023.102301">10.1016/j.tsep.2023.102301</a>
<p><b>Abstract:</b> More than two-thirds of the surface of the earth is covered by water. Only below 3 % of it is drinkable and primarily located in underground water and frozen rivers. Consequently, the presence of available freshwater is less than 1 %, leading to the world's biggest problem in the current era, as the world population increases, climate changes constantly, and rising temperatures reduce freshwater levels [1]. This led to the tendency of scientists and engineers to innovate and research to get freshwater by desalination of seawater and wastewater, where they came up with many ways to desalinate seawater [2]. Among these methods, reverse osmosis [3], [4], known with its water flux near 37.1 L/m<sup>2</sup>.h [3], humidification-dehumidification [5], [6], which can handle water with 3.5–81 % salinity and produce freshwater of salinity below 500 ppm, multi-stage flash (MSF) [7], [8], multi-stage flash system produces 30.098 m<sup>3</sup>/day, freshwater recovery rate 57.544 % and gain output ratio 8.583 [8]. Reaching solar stills (SSs), which are characterized by dependency only on solar energy, have a simple structure and lower cost [9]. They generally consist of metallic basins and transparent covers to allow solar radiation to pass through them to heat and evaporate seawater, then produce freshwater via condensing the generated vapor at the glass cover surface. Many SS-improved designs and modifications are scoping for a maximum freshwater output within high thermal efficiency and low price, such as [10], [11], [12], [13].</p>	

هـ-خوجه