An experimental comparative study on different configurations of basin solar still

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\begin{abstract}
A basin solar still system with four different modifications is designed and tested under actual environmental conditions of North Cyprus. The first configuration is the conventional model and the three remaining models are the ones with steps and sponges which have been developed for the aim of improving the productivity of conventional solar stills by determining the effects of additional properties in the outputs of the system. By taking advantage of steps and sponges, the modified configurations are improved in comparison with those of conventional configurations. The basin has been fabricated with galvanized iron sheets of 1 mm thicknesses which are colored in black in order to maximize the amount of heat absorption from solar radiation. The results indicated that the quantity of produced water is a function of average ambient temperature and solar radiation which have been measured accurately in the current study. Experiments are conducted during six months of the year including, September, October, November, March, April and May. The best configuration which corresponds the maximum amount of water production is the case where solar still embraces steps and sponge liner and produces 5.37 L/d m\textsuperscript{2}.

Keywords: Modified solar still; Water production; Conventional model; Basin; Sponge; Step; Desalination
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