

Construction of solar stills and evaluation of their performance in relation to climatic conditions

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ABSTRACT

Locally built solar stills were at two locations in Swaziland, one at Dvokolwako in the lowveld and the other at Timphisini in the Middleveld. Data on the weather conditions and the amount of water distilled were collected for a period of one year. An approximately linear relationship was observed between the ambient temperature and the amount of water distilled. In comparison with the Lowveld, the amount of water collected in the Middleveld, in summer, was found to be higher, whereas an opposite trend was observed in winter. On average, 2.75 liters of water can be distilled per day in the Middleveld compared to 2.6 liters in the Lowveld, using a still with a base area of one square meter. Results of the water quality tests showed that there was 53% to 100% reduction in cations and 22% to 100% reduction in anions. Improvements for future work have also been highlighted.

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