FABRICATION AND EVALUATION OF SOLAR STILL FOR BRACKISH WATER DESALINATION

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ABSTRACT

DATUIN, ALFONSO Z. Department of Agricultural and Biosystems Engineering, College of Engineering, Central Luzon State University, Science City of Muñoz, Nueva Ecija, MAY 2023. **FABRICATION AND EVALUATION OF SOLAR STILL FOR BRAKISH WATER DESALINATION.**

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Urban and coastal parts of the Philippines continue to face water shortages, despite the fact that water is an essential element for life. In addition, rich natural resources, like water, are essential to the country's economic prosperity. A range of environmental conditions often reduce agricultural yield. One of the most severe problems is soil salinity, which causes global agricultural growth and production losses. This study was conducted for the purpose of modifiying and evaluating the performance of solar still for harvesting desalinated water for crop irrigation. Mainly to evaluate the performance of solar still in terms of production and collection of desalinated water and the determination of the effect of desalinated water from solar still on the growth of Chinese Cabbage. The result of modified solar still had produced 1470ml of desalinated water with the average of 390ml per day. This was influenced by three major environmental variables mainly sunlight duration, temperature and relative humidity, the length of exposure to sunlight where the best contributed greatly to this output. The salinity level of water was decreased by up to 40% from 10ppm to 5.41ppm. To determine its effecitiveness, it was used to irrigate Chinese cabbage where two test was conducted, one with saline water and one with treated desalinated water. The experiment revealed that the Plot A (desalinated water) had significant difference to Plot B (Saline Water) in the height of leaves with 20cm and 4cm

resepectively while in number of leaves with less difference. Furthermore, the study revealed that the fabricated solar still can produce desalinated water which can be used in the production of Chinese cabbage crop and possibly other vegetables crops.

Keywords: Condensation; Desalination; Salt Water; Salinity Level; Solar Still

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