THESIS

SIMULATION OF SOLAR RADIATION FOR POOR QUALITY WATER AND ITS APPLICATION IN SOIL WATER PLANT SYSTEM

BY

KHURRAM SHAHZAD
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ABSTRACT

Poor quality irrigation water is a common problem in many developing countries and mostly quality of irrigation water depends upon type and amount of salts dissolved in it. Irrigation by poor quality water not only resulted in less production of crops but also caused degradation of soil. Many methods are available for treatment of poor quality water but these involve high cost to treat the poor quality water. In recent years, the use of solar energy is getting popularity for improving the quality of drinking water and this concept is now extended in nursery irrigation farming system.

Present study was an attempt to study the impact of sun rays/solar energy in purifying the irrigation water quality and enhancing the plant growth in pot culture. Solar water treatment is considered ideal and cheap for treatment of small quantities of water using natural sunlight. The changes in physiochemical water quality parameters were studied and solarized water was applied to crop during the pot study experimentation. Results indicated that the pH, HCO_3^{-1} and Cl^{-1} parameters decreased and the other parameters EC, TDS, SO_4^{-2}, Ca^{+2} & Mg^{+2}, Na^{+1} and SAR increased by the application of solar energy. Biometric parameters like Plant growth, and ultimate yield increased by the application of fresh water against low saline water under sunlight conditions. Further it was noted that water use efficiency was about 30 percent higher for water treated under sunlight than that irrigation water kept under shadow for similar conditions.