World Academy of Science, Engineering and Technology
International Journal of Chemical and Molecular Engineering
Vol:9, No:04, 2015

Magnetic Treatment of Irrigation Water and Its Effect on Water Salinity

Authors : Muhammad Waqar Ashraf

Abstract : The influence of magnetic field on the structure of water and aqueous solutions are similar and can alter the physical and chemical properties of water-dispersed systems. With the application of magnetic field, hydration of salt ions and other impurities slides down and improve the possible technological characteristics of the water. Magnetic field can enhance the characteristic of water i.e. better salt solubility, kinetic changes in salt crystallization, accelerated coagulation, etc. Gulf countries are facing critical problem due to depletion of water resources and increasing food demands to cover the human needs; therefore water shortage is being increasingly accepted as a major limitation for increased agricultural production and food security. In arid and semi-arid regions sustainable agricultural development is influenced to a great extent by water quality that might be used economically and effectively in developing agriculture programs. In the present study, the possibility of using magnetized water to desalinate the soil is accounted for the enhanced dissolving capacity of the magnetized water. Magnetic field has been applied to treat brackish water. The study showed that the impact of magnetic field on saline water is sustained up to three hours (with and without shaking). These results suggest that even low magnetic field can decrease the electrical conductivity and total dissolved solids which are good for the removal of salinity from the irrigated land by using magnetized water.

Keywords : magnetic treatment, saline water, hardness of water, removal of salinity
Conference Title : ICCBE 2015 : International Conference on Chemical and Biological Engineering
Conference Location : Venice, Italy
Conference Dates : April 13-14, 2015