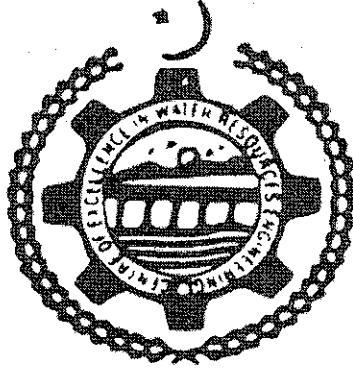


THESIS

**MAGNETIC WATER TREATMENT (MWT) AND ITS IMPACT ON WATER
QUALITY AND SEEDLING EMERGENCE IN SAND CULTURE**



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ABSTRACT

This study examines whether there is any beneficial effect of magnetic treatment of irrigation water on water quality and seedling emergence of maize seeds. Water of various types like tap water, saline water, canal water and sewerage water was treated magnetically by passing it through different strength of magnetic fields i.e. 110, 235 and 385 mT at different flow rates of 0.9, 3.05 and 5.92 lpm. Magnetized water was analysed in the laboratory for evaluation of water quality parameters and same was applied to small pots in sand culture set up for emergence of maize seeds. Seeds were soaked in water for 24 hr and planted in sand culture. Number of emerged seedling was counted on daily basis to analyze the germination rate whereas growth data was collected on the 15th day after planting. Results revealed that the application of magnetized water stimulated and promoted the germination rate of maize seeds, regardless of increasing strength of magnetic field or flow rate. Seedling irrigated with magnetized water grew healthy and faster than the untreated water. Maximum increase in length and weight of emerged seedling was noted after 15 days with magnetized sewerage water. On the other hand, there seems to be no significant effect of magnetic water treatment on irrigation water quality parameters like EC, pH, Cations, Anions and SAR. On overall basis, the results indicate some beneficial effect of magnetically treated irrigation water particularly for sewerage water, on the seedling growth and emergence parameters. Further testing and extension of research work from laboratory to field scale on magnetize water treatment is suggested before making any concrete recommendations.