

Investigation of Irrigation Water Quality at Al-Wafra Agricultural Area, Kuwait

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Abstract : The water quality of five water types at Al-Wuhaib farm, Al-Wafra area, was studied through onsite field measurements, including pH, temperature, electrical conductivity (EC), and dissolved oxygen (DO), for four different water types. Biweekly samples were collected and analyzed for two months to obtain data of chemicals, nutrients, organics, and heavy metals. The field and laboratory results were compared with irrigation standards of Kuwait Environmental Public Authority (KEPA). The pH values of the five samples sites were within the maximum and minimum limits of KEPA standards. Based on EC values, two groups of water types were observed. The first group represents freshwater quality originated from freshwater Ministry of Electricity & Water & Renewable Energy (MEWRE) line or from freshwater tanks or treated wastewater. The second group represents brackish water type originated from groundwater or treated water mixed with groundwater. The study indicated that all nitrogen forms (ammonia, Total Kjeldahl nitrogen (TKN), Total nitrogen (TN)), total phosphate concentrations and all tested heavy metals for the five water types were below KEPA standards. These macro and micro nutrients are essential for plant growth and can be used as fertilizers. The study suggests that the groundwater should be treated and disinfected in the farming area. Also, these type of studies shall be carried out routinely to all farm areas to ensure safe water use and safe agricultural produce.

Keywords : salinity, heavy metals, ammonia, phosphate

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