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EVALUATION AND ASSESSMENT OF GROWTH, YIELD AND UPTAKE OF VARIOUS NON LOCAL BARLEY CULTIVARS IRRIGATED WITH SIMULATED WASTEWATER

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The research was implemented in order to study the effect of irrigation with artificial wastewater on soil, plant growth and crop yield of seven barley cultivars. The experiment was conducted at the new campus of An-Najah National University. The seeds were planted in the spring season and irrigated with two types of water (Fresh water as control and artificial wastewater), with three replicates for each treatment. Chemical analysis has been used for determining the mineral contents of the soil of the experiment for each variety and each type of water for nitrogen (N), phosphorus (P), potassium (K) and total dissolved salts (TDS). Barley proved to be a tolerant crop with considerable economic importance. Highest yield was obtained from cultivars irrigated with the artificial wastewater which gave nearly twice the yield and spike weight than the cultivars irrigated with fresh water. In addition, it gives higher spikes length and higher stem weight. The growth vigor as well as the growth period (from days to emergence to maturity) were not affected with the type of water and only depend on the type of the seeds. The chemical analysis of N, K and P represents the following, (N% – Root > N% – Spike, N% – Stem), for potassium, (K% – Stem> K% – Root, K% – Spike) and the phosphorous (P% – Spike > P% – Stem, P% – Root). In addition, artificial wastewater is a promising water resource as alternatives for fresh water to be used in agriculture specially crops with high tolerance to salinity such as barley since the use of wastewater in irrigation affects the soil texture through increasing the concentrations of some constituents such as N, K and P.

Keywords: *Fresh and artificial wastewater, Barley cultivars, Plant growth, Irrigation, crop yield*

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