

Suitability of Groundwater for irrigation uses in Shithatha area within Karbala Governorate / Iraq.

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- **Abstract:** Groundwater suitability for irrigation uses in Shithatha area which is located in the west of Karbala governorates is determined by analysing groundwater samples of 15 wells distributed in the area, for two periods. Results indicated that all water samples are colourless, salty taste and with rotten egg smell that maybe caused by the effect of hydrogen sulfide, slightly-brackish except (W5 and W14) is classified as brackish water, also the samples are classified as excessively mineralized water, on the other hand the groundwater in the studied area is classified as very hard water depending on the total hardness values. The most prevalent water type is (NaCl), (CaSO₄) and (CaCl₂). The predominated water types are "earth alkaline water with increased portions of alkalis with prevailing sulfate and chloride" and "Alkaline water with prevailing sulfate and chloride". After comparing the ionic concentrations with the water quality standards for irrigation purposes, it is suitable for growing most types of crops, also its suitable depending on the sodium adsorption ratio (SAR), Soluble Sodium Percentage (Na%) and the Residual Sodium Carbonate (RSC).
- **Keywords:** Dammam aquifer, Hydrochemistry, Suitability of groundwater, Shithatha