



Evaluation of groundwater quality and its suitability for drinking and irrigation purposes: Case of Skhira aquifer Sfax –Tunisia

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Groundwater is considered as the first source of pure water in the world. In the Skhira region, southeast of Tunisia, the groundwater is used in different sectors such as in drinking, irrigation and industry. This area is known by the development of several industries and the agricultural activities. Groundwater quality degradation is caused mainly by the intensive use of chemical and organic fertilization in agriculture and industrial pollution. In this purpose, 30 wells were sampled in August 2017 well distributed in the agricultural areas of the Skhira region to evaluate the water suitability for drinking and for irrigation. The cations, anions, Heavy metals and the bacteriological analysis were performed in the laboratory. The most of studied water samples have Na, Ca, Mg, Cl, F, SO₄ and salinity exceeding the WHO standards. The K, NO₃, HCO₃ concentrations are acceptable. The majority of the heavy metals for all the samples are acceptable, except the boron which reach 2.85mg/L. The selenium reaches 0.02 mg/L in some samples and the cadmium reaches 0.07 mg/L. The total hardness indicates a very hard water quality. The water quality index prove that 56% of studied samples have very poor water quality and 44% of the studied water samples are unsuitable for drinking purposes. For the suitability for irrigation purposes, the Sodium adsorption ratio shows a low to medium sodium hazard and very high salinity. The sodium percentage, the permeability index and the Magnesium hazard indicate that all water samples are suitable for irrigation. The higher salinity content points out to prevent the intensive irrigation use of the studied water samples. The bacteriological analysis (Total coliform bacteria, streptococcus, E. coli and Fecal coliforms) indicates that 83.3% of sampled wells have a poor water quality and they are not suitable for drinking. Therefore, it is better to treat these waters.