ABSTRACT

Impact of some industrial and agricultural activities on the ground water quality of Sadat city. The objective of this work was to study the effect of some industrial and agricultural activities on the quality of groundwater, soil and plant in cultivated area surrounded the oxidation pond at Sadat City and their remediation. The obtained results can be summarized in the foolownig::

1-salinity and hardness of groundwater increased with the maximal the summer season. Sodium dominated the soluble cations, whereas Cl^- dominated the soluble anions. Micronutrients were generally low. The increase in heavy metals reached their maximum in summer, indicating the following order Ni> Pb>Cd. High counts of pathogenic bacteria were recorded only in oxidation pond and lakes, while the studied wells are safe. Evaluation of groundwater wells for either drinking irrigation, discovered that the safety drinking water was only for well No. 5, while all wells were safe for irrigation.

2- Results of soil chemical and physical characteristics showed that the soil are mainly sandy soil and relatively high in salinity in the surface layers than the subsurface ones. Data of available micronutrients and heavy metals showed some contamination with Mn, Cd, Ni and Pb. This contamination was in turn reflected in plant tissues in high values.

3- Phytoremediation experiment.- A pot experiment was carried out using five selected plant species i.e. a- ornamental plants (Dimorphotheca, Saliva Rose and saliva Blue). b-Fiber plants (Flax strain 5 and Flax strain 8) which can be used to remove heavy metals i.e., Cd, Ni and Pb. Seeds of plants were sown in sandy soil collected from site near oxidation pond which contaminated with heavy metals and irrigated with sewage water. Plant were harvested after 180 days and separate into roots, shoots and flower or seeds, then digested and analyzed for cd, Ni and Pb.. The obtained results could be summarized as flow: The uptake of heavy metals by ornamental plants arrange in the following order Saliva rose > dimorphotheca > saliva blue, while in flax verities arranged in the following order flax strain 5 > flax strain 8 . The uptake of Ni by all plant species is greater than (Cd and Pb) and were exceeded than the permissible in soil and water sewage effluent. The accumulation of elements depended on plant species, specific heavy metals it self and the content of these elements in the soil and water.

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