Effect of some organic materials on movement of some heavy metals in soils

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The current investigation aims to:(i) study water quality of some drains that conjugated with Edko drain, and monitor the changes in some heavy metals, i.e., Cd, Co, pb and Ni, (ii) Assess the changes of water quality for some selected drains over a prolonged period (more than 20 years) to evaluate the salinity and sodictiy status of water to draw the policy of the possible best utilization of these types of water. And (iii), evaluate the status of some pathogenic components, total coliform, faecal colifrom and salmonella and Shigella as bacterial bioindictors used to measure the contamination, and to evaluate the suitability of drainage water for irrigation.To achieve these objectives, water samples were monthly collected through the period from April 2002 to March 2003 and analyzed to assess their suitability for irrigation according to the standard guidelines obtained by Ayers and westcot (FAO, 1985). Previous study by EL-Wakeel (1983) was considered to evaluate the changes occurred in water quality in a prolonged period. The obtained results could be summarized as follows: 5.1. Study the monitoring status of water quality in the studied drains:This study involved the drains of Edko drain system, these drains were Shubrakhit, El-Lowia, El-Khariy, El-Alf, EL-Kosore, Shamasma, and Toson before and after dump in Edko drain.5.1.1. Shubrakhit drain:Salinity of Shubrakhit drain was ranged between 0.69dSm1 in May and 1.22 dSm in October with an average of 1.02 dSm '.After the dump of water in Edko drain, salinity was slightly decreased and ranged between 0.66 dSm ' in May and 1.11 dSni ' in August with a mean value of 0.97 dSm. Salinity of water showed the degree of moderate salinity. On the other hand, sodicity did not cause alarming problem and water quality was of class C3S1 in the most of year months.Toxicity hazard of water showed that the concentrations of B were situated under the degree of non problem. Concentration of Na+ indicated that the water through months; May, November and December had not alarming toxicity effect for its Na content, but in other year months, Na had a moderate toxicity. In addition, water Cl" did not show an alarming toxicity in the most of year months, while months of June and August had a moderate C1" problem.Values of water N in Shubrakhit drain were approximately similar in the most of year months, they varied between 1.75 ppm through August to 5.95 ppm through May and March. After dump of water, soluble N in Edko drain were ranged between 1.75 ppm in August and 7.35 ppm in March. The concentrations of water P and some trace elements; Fe, Mn, Zn and Cu were very little and did not show an appreciable changes after the dump of water.5.1.2. El-Lowia drain and Edko drain at Zarqun:Salinity values of EI-Lowia drain were ranged between 0.96 dSm' through May month and 1.67 dSm' through March with an average of 1.3 dSm', while in Edko drain salinity were ranged between 0.82 dSm-1 through May and 1.64 dSm' through March with an average value of 1.17 dSm'. Thus, the salinity of water for both drains was classified as a moderate salinity problems. On the other hand, the sodicity of water had a grade of Si, and consequently the sodicity problems might be undetectable. Concentrations of both Na+ and cr had generally the grade of moderate hazard. In Edko drain through months of April, May, July, October and November Cl- toxicity did not cause any problems. Boron values in both studied drains was in the permissible level. Values of water N in El-Lowia drain were ranged between 1.05 ppm through August and 7 ppm through April, while it ranged between 0.7 ppm through June and 7.7 ppm through April in Edko drain. Concentrations of P and some trace elements; Fe, Mn , Zn, and Cu were very low in the studied drains along year months and consequently did not cause any

problem.