دراسات على بعض الملوثات فى مياه الرى بترعة السلام و مدى تراكمها في بعض محاصيل الخضر

رسالة مقدمة من

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ABSTRACT

Rana Hosny Hassan Abou-Noufal. Studies of some Pollutants in Irrigation Water of El-Salam Canal and its Accumulation in some Vegetable Crops. Published M.Sc. Thesis, Agriculture Development in Dry Areas, Arid Land Agricultural Graduate Studies and Research Institute. Faculty of Agriculture, Ain Shams University, 2015

In Egypt, the major challenge facing the sustainable requirements for agricultural development is limited water resources. Water supply shortage at the end of irrigation network is a common problem in the north of Sinai, Egypt. El-Salam canal project was initiated in 1987 to irrigate 650000 hectares of the newly reclaimed areas in the west and east Suez Canal by mixed water from River Nile and both Hadous and El Serw Drains by (1:1). These combined irrigation water has creates both opportunities and problems in agricultural sector.

The purpose of this study was to determine the quality of El-Salam irrigation water chemically, biologically and microbial contamination in collected water samples through summer 2013 and winter 2014. Quantify the content of some metals in some vegetables and their rhizosphere soil which irrigated by El-Salam canal through both seasons. And investigate the metal content, the healthy quotient and the daily intake amount of Cu, Zn, Mn and Co elements in edible parts for 19 types of vegetables irrigated by combined water of El-Salam Canal after mixing with El-Serw and Bahr Hadous drains. Eight selected sites along 86-km of the first stage of El-Salam canal "River Nile at Damietta branch, before and after mixing with El-Serw, Bahr Hadous drains and themselves and the west of Qantara" were studied for both seasons. It was noticed that water salinity increases from west to east of El-Salam canal especially after mixing with both drains mentioned before. Concentration of nine metal elements Al, Co, Cr, Cu, Fe, Ni, Pb, Mn and Zn were measured in collected water

samples. Concentrations of these elements in the current study were mostly less than the permissible limits except for Mn in Bahr Hadous drain and after mixing with it. Concentrations of Cu, Zn, Mn and Co were studied in tested vegetable plants which irrigated with mixed water it was found a significant increasing than those of Nile water irrigated soil. Comparing El-Serw and Bahr Hadous drains with guidelines of FAO, 1997 and Egyptian Law 4/1994 (revised in 2011), it was found that they are a source of contamination and violation. Brevity, Gradate the health risks in the edible parts of vegetable plants from root to leafy then fruiting parts. Thus human consuming these cultivated vegetables ingest significant amount of these metals and thus can cause serious health problem.

Key words: Pollutants, El-Salam Canal irrigation water, Vegetable crops

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