



Journal

*J. Biol. Chem.
Environ. Sci., 2017,
Vol. 12(4): 459-492
<http://biochemv.blogspot.com.eg/>*

ACCUMULATION OF HEAVY METALS IN EDIBLE PARTS OF SOME VEGETABLE PLANTS IRRIGATED WITH EL-SALAM CANAL WATER

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ABSTRACT

Samples of El-Salam irrigation water, soil and edible parts of some vegetable plants were randomly collected from the farmlands along 86-km of the first stage of El-Salam canal at Damietta branch River Nile, before and after mixing with El-Serw, Bahr Hadous drains and themselves and the west of Qantara" and studied. It was found that salinity increase of El-Salam canal from west to east specially after mixed with both drains. Nine metals, total viable bacterial counts (TVBCs), total coliforms, Biological Oxygen diamond (BOD) and Chemical Oxygen Diamond (COD) were measure in water samples. And comparing results with World Health Organization (WHO) and Egyptian permissible limits for Law 4/1994 revised in 2009 Al³⁺, Co²⁺, Cr³⁺, Cu²⁺, Fe³⁺, Ni²⁺, Pb²⁺, Mn²⁺, Zn²⁺ in water samples. It was found that El-Serw and Bahr Hadous drains were the most chemically and biological polluted source for El- Salam canal. It was noticed that leafy plants were considered that more polluted than fruity ones. It can be recorded that wastewater which irrigated agricultural field showed high accumulation and translocation of toxic metals in their edible parts of vegetables, thus their cultivation are unsafe with respect to possible make health hazards. Suggesting that more sophisticated approaches to risk assessment may be required to assess hazard from peri-urban agriculture in studied area in Egypt. Thus some effective precautions might be necessary to cure heavy metal contamination in soil and to reduce metal translocation from water and soil to edible vegetable crops in this region .

Key words: Bacteriological contamination, BOD, COD, El-Salam canal, Health Risk heavy metal, pollution, vegetables.
, phytosynthetic pigments, ,sugars and derivatives, xerophytes.