

EFFECT OF WATER POLLUTION IN SOME WATER STREAMS ON IRRIGATION WATER QUALITY IN NORTH DELTA

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ABSTRACT

The shortage of water resources in many countries all over the world, especially in arid and semi arid regions, has dictated the need for using different water qualities and even low qualities for irrigation purposes.

The study was carried out in Kafr El-Sheikh, Governorate. The present work was conducted to study the Effect of water pollution in some water streams such as canals, drains and Al-Burullus lake on irrigation water quality in North Delta.

Eleven sites were chosen in the North Delta along some canals, drains and Al-Burullus lake. Three sites were chosen along Mit Yazied canal, Bahr Tera canal and drain no.7 and one site on Al- Bahrawy drain and Al-Burulus lake. Water samples were collected and analyzed monthly during the period from May 2007 till February 2008.

The results obtained may be summarized as follows:

- 1- Irrigation water was classified according to the United States Salinity Laboratory (USSL) (C_2-S_1) (medium salinity -low sodium).
- 2- Drainage water was classified as ($C_3 - S_2$), (C_4-S_2)(high salinity– medium sodium) while Al- Burullus lake classified as ($C_4 -S_4$) (very high salinity – high sodium).
- 3- The values of zink (Zn), manganize (Mn), nickel (Ni), and cobalt (Co) ranged from 0.001 to 0.025, 0.001 to 2.044, 0.001 to 0504 and 0.001 to 1.376 ppm, respectively.

With exception ,cobalt concentration in water canals and drains was higher than the value of standard irrigation water standard (WHO, 1995), so that using this water is harmful for human health , animals, plants and soil.

INTRODUCTION

Egyptian water resources are limited ,Consequently improving irrigation systems, increasing water use efficiency and reuse of drainage water are a must for irrigation. The components of water losses in the Delta of the River Nile are subsurface drainage, surface run off in irrigation fields, canal tail end losses , seepage and some other sources such as municipal, domestic and industrial wastes (El-Quosy, 1990).

The use of low water quality such as drainage water might be important. About 7.7 billion m^3 of drainage water is expected to be used for irrigation in the Delta by the year 2000 (Abu-Zeid, 1995). The policy of ministry of water resources and irrigation is to reuse drainage water for irrigation. It can be used directly if its salinity is less than 700 mg/l or by mixing it with fresh water in different ratios . The mixing ratios are 1: 2 and 1: 3 for salinity concentrations which coincided with 700 to 1500 mg/l and from 1500 to 3000 mg/l , respectively.