INTRODUCTION

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The decline in the quality of life in many of the developing countries can be attributed to great extent to environmental deterioration. One of the main reasons for the deterioration has been resulted from the rapid increase in the population density and the industrial activities within urban areas. At the same time adequate plans for the protection of the environment has not been integrated with the development projects. Consequently, a common visible problem is the pollution and depletion of natural resources.

Egypt is currently facing serious water quality problems. The Nile water quality has been deteriorated at an accelerate rate during the last decade. Industrial effluents are discharged into the Nile River with no/or inadequate treatment.

The wastes of oil and soap industries are one of the major industries in Egypt which contributes greatly to the pollution load of the River Nile. The major hazards created by waste-water from this industries are usually due to the presence of oil and grease in the effluent or process water. Such liquors often contain emulsion substances which aggravate the problem and cause immense difficulties for water treating (Abou El-Ela *et al.*, 1990).

The waste-water of these factories is highly contaminated with both organic and inorganic pollutants and discharged into the River Nile without treatment. The waste discharge amounted to 650 m^3 per hour. In terms of Biological Oxygen Demand

(BOD), the organic load carried by this volumes of water was estimated to be 44702 kg BOD/day (Mahrous, 1992).

Generally, the application of physical, chemical and biological treatments provides the most appropriate solution for handling domestic and most industrial waste-water. The chemical treatment process may consist of rapidly mixing chemicals such as charcoal, potassium dihydrogen phosphate (KH_2PO_4) and calcium carbonate ($CaCO_3$) with the waste-water, followed by heating, setting, and biological treatment. Such technique proved to be the most effective process in the treatment of many industrial wastes, especially the oil-water wastes. Waste-water from the Oil and Soap Company in Kafr El-Zayat City, El-Gharbia Governorate, Egypt, provides the material of this study.

The main objectives of the present work is to investigate and evaluate the application of physical, chemical and biological treatments of waste-water from the Oil and Soap Factories before discharging in the River Nile, in attempt to agree and suitable with the National Regularity Standards of Egypt (Low No. 48, 1982 and its modifications).