SUMMARY AND CONCLUSION

5. SUMMARY AND CONCLUSSION

The chemical analysis of waste-water which produced from Oil and Soap Company in Kafr El-Zayat, El-Gharbia, Egypt showed a high contents of oil and grease, total dissolved solids, total suspended solids and other parameters *i.e.*, Biological Oxygen Demand (B.O.D.), chemical Oxygen Demand (C.O.D.) and heavy metals as well as pollutants. The design of systems for dissolved solid, oil and grease removal various widely with the technical method. Different treatments have been applied successfully for oil and soap waste-water.

Firstly, treatment process was carried out by diluted of waste-water with fresh water from artesian water at the ratios of 3 : 1 and 2 : 1. From the above results it has been observed that the dilution of waste-water process by using fresh artesian water gave differentiation the efficiency percentage under the different ratios with all parameters of waste-water diluted.

Chemical treatment by using different reagents was carried out to eliminate and reduce the pollutants of waste water. The obtained results indicated that this treatment decreased and removed the main pollutants but not complying with the National Regularity Standards.

Secondary. Biological treatment was carried out by using microorganism. This treatment gave significant improvement for reduction of pollutants. On the other hand, the combined chemical and biological treatments proved to be very efficient in removing the organic, inorganic contaminants and other

pollutants. Average removal values of B.O.D., C.O.D. and oil and grease were 98.14%, 98.10% and 99.8%, respectively. Consequently, the quality of treated waste-water produced from oil and soap company is very complying with National Regularity Standards, Egyptian Law No. 48 (1982).

Effluent standards data for Alexandria Oil and Soap Company.

Item	Standards
pH	6-9
Temperature (°C)	-
Turbidity (NTU)	50 NTU
Electerical conductivity (E.C., µmol/cm)	-
Biological oxygen demand (mg O_2/L)	60
Chemical oxygen demand (mg O_2/L)	100
Permanganate value (mg/L)	25
Dissolved oxygen (mg O_2/L)	Up to 4 mg/L
Total dissolved solids (mg/L)	2000
Total suspended solids (mg/L)	60
Oil and grease (mg/L)	15
Calcium hardness (mg/L)	-
Magnesium hardness (mg/L)	-
Sodium (mg/L)	-
Sulphides (mg/L)	1.0
Inorganic phosphates (mg PO_4^{-3}/L)	5.0
Phlories (mg/L)	1.0
Colon count/100 cm^3	5000
Heavy metals:	
Iron (mg/L)	1.5
Manganese (mg/L)	1.0
Zinc (mg/L)	5.0
Nickel (mg/L)	0.1
Lead (mg/L)	0.5
Copper (mg/L)	1.5