CHAPTER I
INTRODUCTION

General outline

Water is an essential commodity to mankind. Although, it is nature's abundant gift, water has attracted considerable attention during the last five decades owing to serious shortage felt in many parts of the world. With the advent of rapid industrialization, cultivation and growing population, this water is becoming insufficient. In Egypt, desert region constitute more than 96% of the total area of the country. The other 4% of the area include mainly the cultivated lands in Nile valley and Delta. On the other hand, the majority of Egyptian population is concentrated within the area of the Nile valley and Delta whereas less than 5% of the population are scattered in all desert areas. The increasing population in Egypt and the limitation of the surface water resources (mainly Nile River) and, accordingly, the limitation of the cultivable lands in the Nile valley and Delta urged the successive governments to draw various programs for land reclamation. In the study area, there are always urgent need for water both for land irrigation and the municipal purposes. The sources of water in this region are:-

(i) The Nile water, which will be augmented after the construction of the branches of Ismailia canal.

(ii) The groundwater, which is largely augmented due to the increase of reclamation land.

Such programs, mostly, depend totally or partially on local groundwater resources in desert areas and the development of non- conventional water resources such as reuse of water by treatment technique.

So, this study is concerning to synthesize, characterize and application of Nanotechnology to be used in treatment of polluted organic water.

I.1. Location:

The study area (Fakous –El Hussania), is located in the eastern portion of the Nile Delta basin at Sharkia governorate. It extended between longitude 31° 45\