

## **Thesis Summary**

This study is in five chapters and is divided as follows:

### **Chapter One:**

This chapter was allocated for the study of the icons from the arts and historical side, also the execution and the way of manufacturing.

This chapter discussed a brief about icon history, also how did it emerge and when first icon came to light, also how it improved and become an ordinary outcome for the preceded artists.

The chapter also touched the social factors that increase the spreading of the Icons Art in some decades and receded in other periods, in addition, the chapter also pulled some of the very most famous Artists and principals of Icons photography during the Coptic Era.

### **Chapter two:-**

Study of Micro-biological deterioration effect on icons on some Egyptian churches .

This chapter discussed within the latest studies done in this subject – the recognition of the most important reasons of Microbiological deterioration effect and aspects of this deterioration and the role of different factors in the activity of certain types of microbes and Inhibition of other types

In this chapter the following points were discussed:

- Aspects of Microbiological deterioration for the icons and how to differentiate between it and deterioration due to other factors.
- Study of the most important factors that affect the growth and spreading of micro-organisms ( Humidity – Temperature – Hydrogen power – Light – Organic and Nonorganic substances located in the icon construction )
- The role of insects that in the decomposition of icons.

### **Chapter three:**

Several ways to resist and control the microbes' infection of the icons.

this chapter discussed the ways and substances used to control and resist the micro-organisms, also the way to apply these substances on the icon of (Abukir and Johanna), this chapter includes the following points:

1-Physical ways: includes the ultraviolet rays, Gama Rays, Temperature, Pressure, anoxia.

2-Chemical ways: by using the modern Insecticides and the chemical substances either organic or non organic.

3-Biological ways: include using essential oils that the micro-organisms used in the resisting process sorts.

### **Chapter four:**

Laboratory study to isolate the micro-organisms from some ancient infected icons and its definition.

As in this chapter a Laboratory study was carried out to determine the most important micro-organisms that infects the icons by taking Microbial swabs from icons available in the Egyptian churches in order to identify and classify them, then determine the activities of these organisms in the deterioration process in the icons and the relation between these organisms and the components of the icon and the surrounding environment.

### **Chapter five:**

Laboratory experiments were carried out to study some ways and modern substances used in comparing the Microbiological deterioration on icons.

As in this chapter Laboratory experiments were applied for the ways and modern substances in resisting Microbiological deterioration and its effect on the several components and the icons' different layers and that through experimental models and by using tests and analysis of accurate scientific models.

Also Experimental methods were done with ways to remove stains which made by micro-organisms that distort the icon.

### **Chapter six:**

The applied part of this research.

After detecting the most accurate ways and substances used in treatment of the resisting micro-biological deterioration, these ways were applied and substances on the selected icons after making the necessary analysis and the sufficient practical studies and record the ancient icons before, during and after the treatment and conservation also tests and recommendations for the best and appropriate ways for exposure and storing for the icons.