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**Applied Study for Technique, Treatment and Conservation of
Fayoum Portraits in the Roman Period**

Master Thesis

Submitted by

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SUMMARY

The research “Applied study for technique, treatment and conservation of Fayoum portraits in the Roman period” consists of five chapters.

Chapter I: “Roman Fayoum portraits through history”

In this part the sequence of civilization in Egypt until become Roman had been mentioned. The artistic remark in ancient Egypt had been explained and its effect on the Greek and Roman who lived in .It had also explained the religion in the three civilizations “Egyptian, Greek, and Roman” and its combination to produce Fayoum portraits.

The Greek art so ideal, they used wax in painting but they didn’t believe in another life after death, The Roman art is realistic and believe in great old people so, they made portraits. The Egyptian believes in life after death and its art served that religion so, the Egyptian artist made heads to replace soul in the other life. These heads developed to masks then portraits; when the Egyptian artists had effected with Raman style and Greek technique.

The portraits were used in all Egypt in Roman era for four centuries and most of them were found in Fayoum. So they had named Fayoum portraits after that the excavation found another portraits in many places in all Egypt like Saqqara, Mephis, Antinoopolis, Akhmim, Thebes, and Marina El-Alamein.

This part had studied also the important remarks for portraits art in Roman Egyptian period, like the identify of painters, nationality of persons whose painted in portraits and how to dating any portrait with (cloth, Jewelry and haircut).

Chapter II: Studying Materials & Technique of Fayoum portraits.

This part produced a study of materials which any portrait consists of (support, preparing layer, painting layer). Linen and wood were used as a

portrait support, but wood was more common, so that part had explained wood properties (physical, chemical and mechanical), methods of preparing wood sheet, defects of wood and wood species used in ancient Roman Egypt. Canvas support had studied also.

This part had studied materials of preparing layer in encaustic and tempera technique. Painting layer and its contents (pigments and media) had studied. At the end, the advantages and disadvantages of tempera encaustic technique were mentioned.

Chapter III: Studying of deterioration phenomena and factors of portraits.

In this part the factors because deterioration to fayoum portrait were studied before buried them, after burial and after discovered them. The factors of deterioration after discovered are so many included internal factors and external factors which included physical factors (humidity, temperature, light), chemical factors (air pollutants), biological factors (insects of wood and bacteria and fungi) and human deterioration specially Petrie layer (of paraffin wax).

Chapter IV: Treatment and conservation Methods of Fayoum portraits.

This part had studied the best plan for treatment and conservation of fayoum portraits. That plan had two stages, the first stage belongs to studies which preceded treatment and the second stage belongs to treatment of portraits.

The first stage included documenting of portraits, studying technique of portrait painting (tempera, encaustic (cold, hot), tempera and encaustic together), artistic study of portrait painting methods of, investigations must be done for any portrait (microscopic, biological, environment surrounding portrait investigations), and analysis of portrait components (wood, pigment, media analysis).

The second stage was studied a method of treatment and conservation of portrait which consists of:

- Mechanical and chemical cleaning
- Treatment of painted layer.
- Treatment of wood support
 - * Treatment the microbiological damage (insects, bacteria, fungi).
 - * Controlling the environment surrounding portraits (humidity, temperature, light, inhabit pollutant)
 - * Consolidation of wood support.
 - * completion method of missing parts in wood support.
- The best method to exhibition and storage of Mummy portraits.

Chapter V: Applied part of Mummy portraits.

This part concerns by studying and restoration three of mummy portrait in the Greek Roman museum have numbers (7244, 7250 and 7253). This chapter had two parts. The first part was studied & investigated three portraits, which produced the following:

- ❖ Portrait number 7244 : Wood support made from tamarix nilotica
- ❖ Portrait number 7250 : Wood support made from ficus syacamoros
- ❖ Portrait number 7253 : Wood support made from acacia nilotica
 - Microbiological investigation: there are three kinds of fungi identified on the painted layer of portrait number 7244 (A.Nigar, A.Flavus, A.Fumigatus) , but the back hadn't any fungous on it. Whereas portrait 7250 there are the same three fungi on the encaustic layer. There are two fungi on the back of the same portrait (A.Nigar, A.Fumigatus). Portrait 7253 have the same three fungi on the encaustic layer but the back had only A.Nigar. Because the air has A.Fumigatus and the store air have A.Nigar, A.Flavus. All of those fungi treated by using Dichlorozylenol 1.4% in alcohol
 - Analysis of pigments for portraits 7250 and 7253 were carried out by using X-Ray diffraction and LIBS. Portrait number 7244 had been

analyzed by XRD, LIBS, and XRF. All of these analysis proved that the pigments were ochre's (red, yellow, brown) with lead oxide and a mixture of another pigments.

- Analysis of the three portraits had been done by using absorbance I-R and Raman to ensure that the media which used with pigment was Bees wax.

The second part has three items (experimental, applied, exhibition and storage). The importance of experimental side refers to the choice of the best materials for cleaning, consolidation, isolation and completion materials.

It is found that, the best solution for cleaning portrait number 7244 consists of alcohol and water 2: 1, for portrait 7250 alcohol and xylen 1 : 1, and for portrait number 7253 is xylen.

For consolidation and isolation of encaustic layer it is found that poly vinyl butyral 7% in acetone and paraloid B 72 in acetone for consolidation the wooden support of the three portraits.

To complete the missing parts:

- * Encaustic layer; the best material for small holes and cracks was mix of bees wax, alexander wax and Rosin 2: 1: 1 but in the obvious large areas oxide pigments were used mixed with Arabic gum and applied above preparing layer of calcium biocarbonate and polyvinyl butyral 10% in Acetone. At the end isolation the painted layer was done by polyvinyl butyral 7%.
- * For wooden support the completion material consists of (powder of the same wood of the portrait), calcium bicarbonate, oxide pigments and polyvinyl butyral 10% in acetone. That mixture was used in filling cracks and small holes in the back of the portrait but in the large missing areas like portrait number 7244 a piece of the same kind of wood of portrait (Tamrix) is the best.
- * For exhibition, plexy glass supports was designed and frame of wood in the case of storage the portrait.

