# <u>C V</u>

# 13.1 PERSONAL DETALLS

Surname	Ahmed		
First name	Harby		
Full name	Harby Ezzeldeen Hassa	an Ahmed.	
Title	Associate Professor		The second secon
Occupation	1. Associate Professor	of Ancient Orga	nnic Materials Conservation (Conservation
•		_	Archeology, Cairo University.
		,	Leadership Development Center, Cairo
	University).		,
Address	Archeology Conservation	on Department-	Faculty of Archeology – Cairo University,
	El-Gamaa St., 12613 O	rman, Giza, EG	YPT.
Telephone	Н. 0020235940624	Languages	Arabic ( Native), English, Greek
Mobile	002- 0128 2367601 or	Email	harbyezzeldeen@cu.edu.eg.
	002- 01151404057	Website	http://scholar.cu.edu.eg/?q=harbyahmed/
ORCID ID		orcid.org/0000	-0003-4203-122X
<b>Google Scholar Citations</b>		Harby E. Ahm	ed
Date of Birth		28 / 11 /1972	
Place of birth		El-Balyana – S	Sohag – Egypt

# 13.2 EDUCATION IN ARCHEOLOGY FILD

School (Conservation field)	Degree obtained	Dates (from-to)
Enzyme Biotechnology Department, School of	Ph.D.	2004 - 2009
Chemical Engineering, National Technical University		
of Athens, Greece.		
Conservation and Restoration Department, Faculty of	M.A.	1998- 2002
Archeology, Cairo, Egypt		
Conservation and Restoration Department, Faculty of	B.A.	1993 - 1997
Archeology, Cairo, Egypt		
Conservation and Restoration Institute, Kina, Egypt	Diploma	1991 - 1993

# 1'3.2.1 EDUCATION IN OTHER FILD

School / Institute	Degree obtained	Dates
Training of Trainers programs (TOT).	National Center for Faculty and leadership Development (NCFLD), International Board of Certified Trainers	2012

	(IBCT) – Middle East and North Africa Division.	
Diploma in History ( 2 years)	Department of History, School of Arts, Cairo University, EGYPT	2015
Preparatory in Islamic History	Department of History, School of Arts, Cairo University, EGYPT	Present

# 13.3 TRAINING

Training attended/ Technical skills	Place	Dates
acquired		
A training course on X-ray Diffraction	Faculty of Science, Cairo University, Cairo,	2000
Techniques & Interpretation	Egypt	
A training course on HPLC Techniques	Faculty of Science, Cairo University, Cairo,	2001
& Interpretation	Egypt	
Practice on conservation and restoration	Islamic Art Museum, Cairo, Egypt	2001
of archaeological Egyptian textiles		
A training course on Electron	School of Chemical Engineering, National	2005
Microscopy Techniques &	Technical University of Athens, Greece.	
Interpretation		

# 13.4 EMPLOYMENT HISTORY

Employer	Position	Dates (from-to)
Associate Professor of Historical	Department of Monument	2015- Present
Textiles Conservation & Ancient	Conservation, Faculty of	
Organic materials Conservation	Archaeology, Cairo University, Egypt	
Lecturer of Historical Textiles	Department of Monument	2010 – 2015
Conservation & Ancient Organic	Conservation, Faculty of	
materials Conservation	Archaeology, Cairo University, Egypt	
Certified Trainer	Faculty and Leadership Development	2010 - Present
	Center, Cairo University, Egypt	
PhD Student at National Technical	Enzyme Biotechnology Department,	2004 - 2010
University of Athens, Greece.	School of Chemical Engineering,	
	National Technical University of	
	Athens, Greece.	
Assistant Lecturer at Department	Faculty of Archaeology, Cairo, Cairo,	2002 - 2004
of Monument Conservation	Egypt	
Demonstrator at Department of	Faculty of Archaeology, Cairo, Cairo,	1997 – 2002
Monument Conservation	Egypt	

# 13.5. SPECIAL SKILLS

Teach training courses for faculty members and postgraduates at Cairo University (Faculty and Leadership Development Center) and other Education centers.

The Name of Training Course	Duration of the program
Effective Presentation Skills	15 Hours
2. Communication Skills	15 Hours
3. Managing Time, Meeting and Work Stress	15 Hours
4. University Code of Ethics	15 Hours
5. Conference Organization	15 Hours
6. Managing Research Teams	15 Hours

## 13.6. MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS

Professional body	Level of membership	Year of award
The Arab Archaeologists Society	Member life	2000 - present
Textiles Conservation Group ICOM- CC	Member life	2000 - present
Egyptian Archeologists Association	Member life	2010 - present
Journal of Enzyme Research	Advisory Board	2013 - present

# 13.7. Scholarships

Scholarship	Study place	Year
Grunt for the State Scholarship's	Enzyme Biotechnology Department,	2004- 2008
Foundation (IKY) – Greece.	School of Chemical Engineering, National	
(For 4 years)	Technical University of Athens, Greece.	
Grant from National Technical	Enzyme Biotechnology Department,	2008 - 2009
University of Athens, Greece.	School of Chemical Engineering, National	
( For 1 years)	Technical University of Athens, Greece.	
Grant from The Partnership and	Laser Plasma Laboratory, Townes Laser	November
Ownership initiative (ParOwn), the	Institute, College of Optics & Photonics,	2011 to
Egyptian Ministry of Higher	University of Central Florida, USA.	February
Education and State for Scientific		2012
research, Egypt (For 3 months)		

#### 13.8. TEACHING EXPERIENCE

- From 1997-2004 I had been teaching practices labs for courses of treatment and conservation of various organic materials such as textiles, carpets, manuscripts, basketry and feathers in Conservation Dept., Faculty of Archaeology, Cairo Univ.
- Teaching short courses in special topics for young conservators in Supreme Council of Antiquities, Cairo, Egypt 1997 present.
- 2010 present I am teaching courses of Historical Textile conservation, Conservation and

Restoration of ancient organic materials, Preventive conservation, naturally textile dying for conservation procedure, history of woven structure, natural dyes in history and archeology in Conservation Dept., Faculty of Archaeology, Cairo University, Egypt. (Under graduate).

- 2010 present I am teaching two courses Historical Textiles Conservation, Historical Organic Materials conservation, Post graduate student (Preliminary MA), College of Fine Arts Alexandria University, Egypt.
- Lectures and workshops for employees of Egyptian ports and airports to detect archaeological artifacts.

#### 13.9 PRACTICAL EXPERIENCES

- 1997- Till now Practical Restoration and conservation of high numbers of historical textile objects in different museums in Egypt, such as "Islamic Art Museum in Cairo, Ismailia Museum ....etc". **See publications**.
- 2010- Till now First aid and Practical Restoration, conservation of ancient Egyptian textiles in different Egyptian excavations, such as "Tuna El- Gabel Excavation .... etc". **See publications.**
- 2010- Till now Practical Restoration and conservation of islamic holy and historic textile objects (private collections) outside Egypt as private projects. **See publications**.
- 2004- 2010, using Enzymes to remove oily dirt and starch adhesive past from some historical Egyptian textiles. **See publications**
- 1997- Till now Practical works in analysis, identification and investigation of various historical materials using various methods and techniques such as optical microscope, polarizing microscope, Scanning Electron Microscope, FTIR, HPLC and XR-D.
- 1997 Till now Expert in evaluation the durability of materials suggested to conservation field in the long term use.
- 1997 Present, Expert in dying natural fabric by using natural dyes.
- 1997 Present Expert in Evaluation the museum conditions (Sunlight, UV light, Heat, Microbial effect, Acid effect on historical textiles dyed with natural dyes.

#### 13.20 FIELDS OF INTEREST

- Treatment, Conservation and Restoration of Textile Artifacts
- Conservation of Organic Materials Artifacts
- Conservation of Carpets and Rugs
- Conservation of Embroidery Metal Threads
- Applications of Enzymes in Conservation Field
- Investigation and analysis of textile materials such as fibers, dyes and pigments
- Application of Natural dyes on Natural fabric

## **OTHER ACTIVITY**

A Member in the Egyptian National Project "New Strategies for Conservation of Ancient Egyptian Textiles with the Application on Some Selected Textile Objects in the Museum of Faculty of Archaeology, Cairo University, Funded by STDF (Ministry of Higher Education and Scientific Research, Egypt) for two years from November 2009

#### **AWARDS**

- Honored twice from Cairo University in 1998 after B.A and in 2003 after Masters.
- The International Publication Award from Cairo University from 2010 to 2015.
- National Encouragement Award in Humanities from Cairo University in 2004.

#### 13.21 PUBLICATIONS

#### **BOOK**

- [1] <u>Harby E. Ahmed</u> "History of Natural dyes in North Africa" in Handbook of Natural Colorants" (Eds): Thomas Bechtold and Rita Mussak- John Wiley & Sons, Ltd, UK, 2009.

  ISBN: 978-0-470-511992
- [2] <u>Harby E. Ahmed</u> "Biotechnological Processes in the Restoration of Historical Textiles: Principles and Practical Application" Lambert Academic Publishing, 2012, German.

  ISBN: 978-3-847-341512.
- [3] <u>Harby E. Ahmed</u> "Studies in the Restoration and Conservation of Archaeological textiles" part 1 "Techniques of historic textiles industry and its materials over the ages" International Library for Publishing and Distribution, Egypt. 2014.

ISBN: 978-977-90-2536-0

- [4] <u>Harby E. Ahmed</u> "Studies in the Restoration and Conservation of Archaeological textiles" part 2 "Introduction to the Conservation of Archaeological Textiles Principles and Practical Applications" International Library for Publishing and Distribution, Egypt . 2014

  ISBN: 978-977-90-1414-2
- [5] <u>Harby E. Ahmed</u> & Mostaffa Attia "Principals of Ancient Organic Materials Conservation" Dar Elthakafa Alarabia, Egypt, 2014. ISBN: 978-977-222-358-9
- [6] <u>Harby E. Ahmed</u> "Handbook of Historic Embroidery Textiles Conservation" Lambert Academic Publishing, 2014, German. (ISBN 978-3-659-66378-9)

### **Articles in Journals**

[1] <u>Harby E. Ahmed</u>, Fragiskos N. Kolisis and Stavros S. Gremos "Enzymatic removal of the oily dirt from a Coptic tunic using Lipase enzyme" Journal of Textiles Apparel. Technology and Management, U.S.A. Vol. 6, No. 3,(2010), pp 1-17.

- [2] <u>Harby E. Ahmed</u> "An Extensive Study of the Effect of the Enzyme  $\alpha$  amylase that Used In Textile Conservation on Silk Fibers Dyed With Safflower, Madder Dye" econservation magazine, No.17 (2010), pp 41-51.
- [3] <u>Harby E. Ahmed</u>, Fragiskos N. Kolisis "An Investigation into the Removal of Starch Paste Adhesives from Historical Textiles by using the enzyme  $\alpha$  amylase" Journal of Cultural Heritage . Vol. 12 (2011) pp. 169-179. Doi:10.1016/j.culher.2010.08.001
- [4] <u>Harby E. Ahmed</u>, Yassin E. Ziddan "A New Approach for Conservation Treatment of a Silk Textile in Islamic Art Museum, Cairo" Journal of Cultural Heritage, Vol, 12, (2011) PP. 412-419.

  Doi:10.1016/j.culher.2011.02.004
- [5] <u>Harby E. Ahmed</u> "Strategy for preservation of Ptolemaic wrapped Mummy's linen in tuna el-Gebel excavation, Egypt, A case study" International journal of Conservation science, Volume 2, Issue 3 (2011) PP. 155-164.
- [6] <u>Harby E. Ahmed</u> "First aid of rare Ptolemaic textile in Tuna el-Gabel Excavation, Egypt" e- Conservation magazine, No. 23 (2012), pp 78 89
- [7] <u>Harby E. Ahmed,</u> Fragiskos N. Kolisis "A Study on using of Protease for Removal of Animal Glue adhesive in Textile Conservation" Journal of applied polymer science. Vol. 124, Issue 5 (2012) pp 3565–3576. DOI 10.1002/app.34053
- [8] <u>Harby E. Ahmed</u>, Sawsan S. Darwish "Effect of Museum Conditions on Historical Dyed Silk Fabric with Madder Dye" Journal of Polymers and the Environment, Volume 20, Issue 2 (2012) pp 596-606.

  DOI 10.1007/s10924-012-0421-x
- [9] <u>Harby E. Ahmed</u>, Maisa M. Mansour "Occurrence of fungi on some deteriorated ancient Egyptian materials and their controlling by ecofriendly products" Egyptian Journal of Archaeological Restoration studies, Vol. 2, Issue 2 (2012) pp. 91-101. ISSN. 2090-4940.
- [10] <u>Harby E. Ahmed</u> "Protease Enzyme Used For Artificial Ageing on Modern Cotton Fabric For Historic Textile Preservation And Restoration" International journal of Conservation science, Volume 4, Issue 2 (2013) PP. 177-188.
- [11] <u>Harby E. Ahmed</u>, Olodia A. Nassef "From Ptolemaic to modern inked linen via Laser Induced Breakdown Spectroscopy (LIBS)" Journal of Analytical Methods, Volume 5, (2013) PP 3114- 3121.

  DOI: 10.1039/c3ay26358d
- [12] <u>Harby E. Ahmed</u> "Identification and conservation of a rare Islamic textile decorated with metallic yarns" Egyptian journal of archaeological and restoration studies, Volume, 4 (2013) pp 109: 118.
- [13] <u>Harby E. Ahmed</u>, Yuan Liu, Bruno Bousquet, Matthieu Baudelet and Martin Richardson "Investigation of Historical Egyptian Textile using Laser Induced

Breakdown Spectroscopy (LIBS) – a case study" Journal of Textiles Apparel. Technology and Management, U.S.A. Vol. 8, No. 2,(2013), pp 1-10.

- [14] <u>Harby E. Ahmed</u>, Sameh Reda and Khaled Elnagar "Studying Irradiation Homogeneity in Light Aging for Historical Textile Conservation" Fiber and Polymer, Vol.14, No.9, (2013) pp 1581-1585.

  DOI 10.1007/s12221-013-1581-6
- [15] <u>Harby E. Ahmed</u> "A new approach to the conservation of metallic embroidery threads in historic textile objects from private collections" International journal of Conservation science, Volume 5, Issue 1 (2014) PP. 21- 34.
- [16] <u>Harby E. Ahmed</u>, Amal A. El-Ebissy, Ilya Mingareev, Martin Richardson "Evaluating study of ultrafast laser-assisted cleaning of historical textiles conservation" Journal of Textiles Apparel. Technology and Management, U.S.A. Vol. 9, No. 2,(2015), pp 1-15
- [17] Yassin Zidan, Nabil Omar, <u>Harby E. Ahmed</u>, Ibrahim EL-Kholy "An experimental study about using acid lipase enzyme in treatment of natural dyed textile samples" Journal of humanitarian and literary Studies Faculty of Arts University of Kafr El-Sheikh.
- [18] Yassin Zidan, Nabil Omar, <u>Harby E. Ahmed</u>, Ibrahim EL-Kholy " Effect of pepsin and trypsin enzymes used in textile conservation on natural dyed textiles samples" Journal of Home Economics Textile Division College of Home Economics University of Menoufia, Vol. 25, No.1 (2015), PP 237- 247.
- [19] O. Aied Nassef, <u>Harby E. Ahmed</u>, M. Abdel-harith Mohamed "Surface and stratigraphic elemental analysis of Ancient Egyptian cartonnage using Laser Induced Breakdown Spectroscopy (LIBS)" Analytical Methods, (2016), 8, pp 7096-7106.

DOI: 10.1039/c6ay01769j

- [20] <u>Harby E. Ahmed</u>, Sameh M. Reda, Dina Yehia, Yassin Ziddan "Preventive Conservation of Historic Textile from the Ultraviolet Degradation due to Light Exposure in Egyptian Museums" International Journal of Materials Science and Applications 2016; 5(6-2): 10-14. doi: 10.11648/j.ijmsa.s.2016050602.12
- [21] Nour F. Attia, Dina. Yehia, M. A. Hassan, <u>Harby E. Ahmed</u> "Novel Synthesis of Nanoparticles Based Back Coating Flame Retardant Materials for Historic Textile Fabrics Conservation" Journal of Industrial Textiles, (2017), Vol. 46 (6), pp 1379-1392.

DOI: 10.1177/1528083715619957

[22] <u>Harby E. Ahmed</u>, Ibrahim F. Tahoun, Ibrahim Elkholy, Adel B. Shehata, Yassin Ziddan " Identification of natural dyes in rare Coptic textile using HPLC- DAD and

mass spectroscopy in museum of Faculty of Arts, Alexandria University, Egypt" Dyes and Pigments (2017), Vol 145, PP 486-492. doi.org/10.1016/j.dyepig.2017.06.035.

- [23] Islam Abdel Moneim, <u>Harby E. Ahmed</u>, Abdullah Abdel Moneim, Reham Abdel Aziz "Study of the effect of Uncontrolled Conditions on Historical Silk Fabric Dyed with Synthetic Dyes" Journal of Home Economics Textile Division College of Home Economics University of Menoufia, Vol. 27, No.4 (2017), PP 395-410.
- [24] <u>Harby E. Ahmed</u>, W.S. Mohamed, H. Saad, H.E. Nasr, M.Morsy, N. Mahmoud "Degradation Behavior of Nano-Glue Adhesive due to Historical Textiles Conservation Process" Egyptian Journal of Chemistry, (2017), Vol. 60, No.6, PP. 1-12.

DOI:10.21608/ejchem.2017.1455.1105

[25] Islam Abdel Moneim, <u>Harby E. Ahmed</u>, Abdullah Abdel Moneim, Reham Abdel Aziz "An investigation into the restoration of historical costumes applied to the historical dress of Mrs. Safia Zaghloul" International Design Journal, (2018), Vol 8, Issue 1, PP .315- 323

## **Articles in Conferences (Post Print)**

- [1] <u>Harby E. Ahmed</u>, Yassin Zidan "Study in Technique of Dying and Aging of Cochineal Dye" in the First conference El-Fayoum (El-Fayoum between the past and the present, future the Archaeological Touristic Development 7:8 April 2001. <u>Post print</u>, pp. 34 39.
- [2] Zidan, Y., <u>Harby E. Ahmed, El-Nagar</u>, K. (2001): Study in Treatment and Conservation Silk textile No 12014 Islamic Art Museum. Proceeding of the Arab Archaeologists Conference at Cairo, Egypt, November 2001, 1181-1200.
- [3] <u>Harby E. Ahmed</u> & Yassin Zidan and Kh.El-Nagar "Study on dying with Cochineal and aging of dyed fabric "in AHRB Research Center for Textile Conservation and Textile Studies First Annual Conference, 13- 15 July 2004, South Hampton, UK. <u>Post print</u>, pp. 246 249
- [4] <u>Harby E. Ahmed</u>, Fragiskos N. Kolisis "Preliminary notes on using the lipase enzyme to remove oily dirt in textile conservation" 4<sup>th</sup> International Congress 'Science and Technology for the Safeguard of Cultural Heritage of the Mediterranean Basin' 6th to 8th December 2009- Cairo- Egypt, <u>Vol. II</u>, pp. 501: 510.
- [5] <u>Harby E. Ahmed</u>, Fragiskos N. Kolisis "Behaviour of protease enzyme that use in textile conservation on silk dyed fabric with natural dyes" On the Body' 2011 Australian Institute for the Conservation of Cultural Material (AICCM) Textile Special Interest

Group TSIG Symposium, Canberra, Australia from 16th March to 18th March 2011. Post print, pp. 89-96.

## **CONFERENCES**

- [2] <u>Harby E. Ahmed</u> & Yassin Zidan "The Conservation Treatment of A Silk Textile in the Islamic Art Museum ,Cairo" in the Meeting of the ICOM Conservation Committee on –Recent Preoccupations Concerning Textile , Leather and Legislation , from 21st to 24th of April, 2004 , Athens, Greece.
- [3] <u>Harby E. Ahmed</u>, Yassin Zidan and Kh.El-Nagar "Aging behavior of silk dyed fabric with Safflower dye" in 26th Meeting of Dyes in Historical and Archaeology 7th 10th of November 2007, Vienna- Austria.
- [4] <u>Harby E. Ahmed</u>, Fragiskos N. Kolisis'' Notes on using the protease enzyme to remove animal glue in textile conservation'' in 'Giza through Ages' -First international conference- Faculty of Archeology Cairo University- 4 -6th March 2008, Cairo, Egypt
- [5] <u>Harby E. Ahmed</u>, Fragiskos N. Kolisis "A Study on the Use of the Enzyme Lipase for the Removal of Oil Stains in Textile Conservation" in 34th Canadian Association for Conservation Conference- 30th May 5th June 2008 Montreal- Canada.
- [6] <u>Harby E. Ahmed</u>, Fragiskos N. Kolisis "Practical Application of Protease Enzyme to remove Animal Glue in Textile Conservation" Going Green: towards sustainability in conservation- 24 April 2009 The British Museum-London- UK.
- [7] <u>Harby E. Ahmed</u>, Fragiskos N. Kolisis "A study on using of  $\alpha$ -amylase for removal of starch adhesive paste in textile conservation" First meeting of FP7 Marie Curie Initial Training Network Sep 29 Oct 1, 2009- Friedrich-Schiller University of Jena, Germany.
- [8] <u>Harby E. Ahmed</u>, Fragiskos N. Kolisis "An Extensive Study of The Effect of The Enzyme Protease That Used In Textile Conservation On Cotton Fibers Dyed With Turmeric Dye, Madder Dye" 28th meeting of dyes in History and Archaeology 21th to 24th October 2009- Poznan Poland.
- [9] <u>Harby E. Ahmed</u>, Fragiskos N. Kolisis "Notes of the effect of the Enzyme Lipase that use in Textiles Conservation on Silk Dyed Fabric with Madder Dye" The 3<sup>rd</sup> International Conference of the Faculty of Archeology- Cultural Contributions of Egypt and its Impact on the Human Civilization Through Ages-, 17<sup>Th</sup> to 19<sup>Th</sup> April 2010, Cairo, Egypt.
- [10] Omar Abdel-Kareem, <u>Harby E. Ahmed</u>, Khaled Elnagar, Identification of dyes in Islamic Textile Collection in Museum of Faculty of Archeology, Cairo University Egypt, The Symposium ISEND2011 Europe (International Symposium And Exhibition On Natural Dyes), La Rochelle, France From 24 30 April 2011.

- [11] <u>Harby E. Ahmed</u>, Yuan Liu, Matthieu Baudelet, Martin Richardson "Evaluating study of using Laser-Induced Breakdown Spectroscopy (LIBS) on Investigation of historical Egyptian textiles" The 15th Annual Southeast Ultrafast Conference (SEUFC), January 12th and 13th, 2012, University of Central Florida, USA.
- [12] <u>Harby E. Ahmed</u>, Yuan Liu, Matthieu Baudelet, Martin Richardson "Investigation study of using Laser-Induced Breakdown Spectroscopy (LIBS) on analysis of Historical Embroideries" International Symposium of Archaeometry (ISA), 19<sup>Th</sup> to 23<sup>Th</sup> May 2014, Los Angeles, USA.
- [13] <u>Harby E. Ahmed</u> "Study of the effect of the enzyme protease that used in textile conservation on cotton fibers dyed natural dyes" 43 annual meeting of American Institute for Conservation of Historic and Artistic Works, 13:16 May 2015, Miami, Florida, USA.
- [14] <u>Harby E. Ahmed</u> "First aid strategies of rare Ancient Egyptian Textiles in Excavation" AIC 44<sup>th</sup> Annual Meeting, held jointly with the CAC-ACCR 42<sup>nd</sup> Annual Conference in Montreal, Quebec, Canada, May 13-17,2016.

#### 13.22. ACADEMIC SUPERVISION

#### **Ph.D Theses**

The Name of Theses	Year
1. A study of the situations which are not appropriate for the use of enzymes in cleaning of antique natural dyed textiles" suggestions and solutions.	29 / 5 / 2011
2. An experimental study of using the nanotechnology in the conservation of printed textiles, applied on some models selected.	2012
<b>3.</b> Comparative study on some synthetic organic and some natural dyes of Egyptian archaeological textiles.	2016

## **Master Theses**

The Name of Theses	Year
1. The Role of Preventive Conservation in Protect Ancient Books and Manuscripts and Documents to face disaster Application on Some Selected Objects	22 /5 / 2013

2. Preventive conservation to exhibit and store flat textile, with practical application on a selected object	18/3/2013
3. Preventive conservation of historical dyed textiles by using nano-materials with practical application on a selected object	25 / 5 / 2014
4. An experimental study to evaluate using nano consolidation compounds in treatment and conservation of dyed archaeological textiles With application on one of the selected objects	4 / 2014
5. Cleaning of archaeological textile by using enzymes and detergents surface, a comparative, experimental and Applied study	4 / 2014
<b>6.</b> Comparative study of using gamma rays and some types of chemical pesticides to sterilize historical cellulosic textiles - application on the selected object.	2015
7. Comparative study of using enzymes and other methods in cleaning historical printed textiles applied on selected historic textile object.	2015
8. A Comparative Study of the Effect of Innovative and Traditional Cleaning Treatments on the Chemical and Mechanical Properties of Historic Cotton Textile, with Application on a Selected Object	2015
<b>9.</b> Experimental study to evaluate using of immobilized enzymes on nanometrice particles in cleaning of wool textiles dyed with natural dyes applied on some selected objects.	2016
10. Experimental study to consolidate weak historical textiles by using some Nano-composites applied on some selected models	2016
11. Study Using Nano Plant extracts in Sterilization of cellulosic historical Textiles – applying on selected objects	2016