



ARCHLAB TRANSNATIONAL ACCESS REPORT

Project Title:

Metal threads in Hispano-Islamic textiles (11th-15th centuries): scientific investigation of the manufacturing techniques and comparative studies with metal threads in Sicilian-Islamic textiles and Lucchese medieval textiles.

Project Acronym:

METHIT

Lead Researcher:

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Home Institution:

Escuela Internacional de Doctorado. Faculty of Fine Arts, University of Seville. Seville, Spain.

Institution requested for ARCHLAB Access:

Instituto del Patrimonio Cultural de España (IPCE). Madrid, España.

Date of Access:

25th January to 28th January 2016

Introduction:

The METHIT project focuses on the study of metal threads incorporated (interwoven in fabrics or used for embroidery) into medieval textiles of al-Andalus, Sicily and Lucca from 11th to 15th centuries.

The main aim of this research is to gain knowledge about metal threads manufacturing technology (materials and techniques) in order to characterize Arab craftsmen's techniques and understand their different developments in every textile workshops (tiraz) of al-Andalus and another Mediterranean land, such as Italy.

Moreover, one of the most interesting goals of the research is clarifying whether or not raw materials are imported or manufactured locally and reconstructing in this way the ancient trade routes.



In order to develop the present research I planned to use an interdisciplinary methodological approach, both historical and scientific, based on the accurate interpretation of written records, the review of the analytical data already achieved in this field, and the investigation of specific case studies.

In this connection, the ARCHLAB Access to the archives of the Laboratory of Materials of the IPCE enabled me to collect scientific data on metal threads. The investigation performed by the Instituto del Patrimonio Cultural de España (IPCE) of Madrid is one of the most important contributions to the historical and technical study of Hispano-Islamic textiles, and it represents the most comprehensive work in this field.

By this experience, I acquired documentation useful for the interpretation of the results of my further analysis. All these information will help me to develop reliable final conclusions on metal threads manufacturing techniques.

Specific aims of the Access:

I focused my visit on the following specific directions:

- Consulting and studying the available documentation on Hispano-Islamic metal threaded textiles from 11th to 15th centuries. For each example that I examined, I reviewed all the historical and scientific documentation, with a special focus on technical analysis of each textile, dyes analysis and metal threads analysis;
- Comparing, when possible, the morphological and technological characteristics of my samples with those of reference materials stored in the archives of the IPCE.

Description of the work carried out during the Access:

During the ARCHLAB Access, I consulted the research project included into the National Plan for Research in Conservation of Cultural, titled "Characterization and Conservation of Islamic textiles of Al-Andalus". The objective of this extensive investigation, conducted by the Department of Materials Analysis of the IPCE, was to establish textile workshops in the Iberian Peninsula by the study of changes in the use of textile techniques and raw materials, according to different periods of time and the influences of neighbouring cultures.



Their research was mainly focused on the following topics:

- a. Historical and technical study of textiles (performed by Cristina Partearroyo);
- b. Analysis of textile techniques and methods of weaving (performed by Pilar Borrego);
- c. Natural dyes analysis (performed by Estrella Sanz and Angela Arteaga);
- d. Characterization of metal threads (performed by Ana Albar and Pedro Perez).

I directed my attention specially to metal threaded textile. Of each of them I reviewed:

- Report on decorative patterns and motifs;
- Analytical report on textile technique;
- Analytical report on natural dyes identified;
- Analytical report (images and analytical data) on metal threads.

The characterization of metal threads was carried out by the IPCE researchers using **stereoscopic microscopy, optical microscopy and SEM-EDS analysis.**

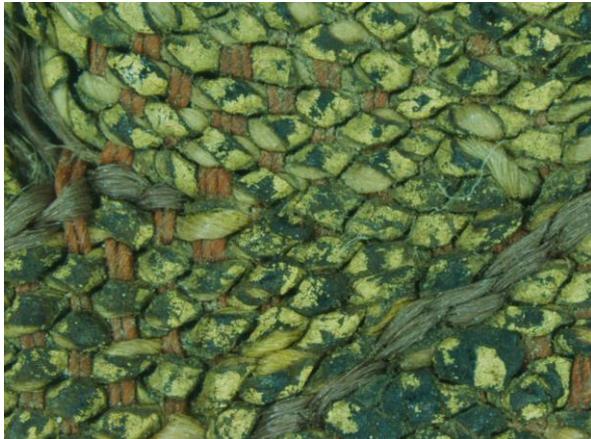


Photo 1. Macro photography of textile weaving



Photo 2. Photo of metal thread sample by stereoscopic microscopy

During the visit, in order to investigate metal coatings morphologies, I decided alongside Pilar Borrego, Pedro Perez and Ana Albar to test three different types of gold used in paintings for gilding: gold powder, gold leaf and gold foil. These standards were been observed by scanning electron microscopy to study their morphology.



Finally, we obtained interesting results which have confirmed the data resulted from the analysis of the first samples of METHIT.

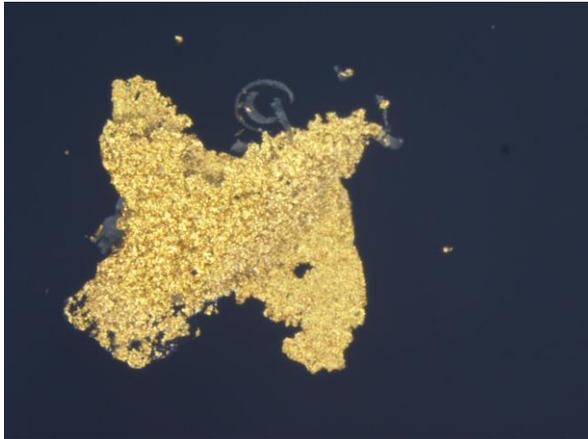


Photo 3. Gold powder sample

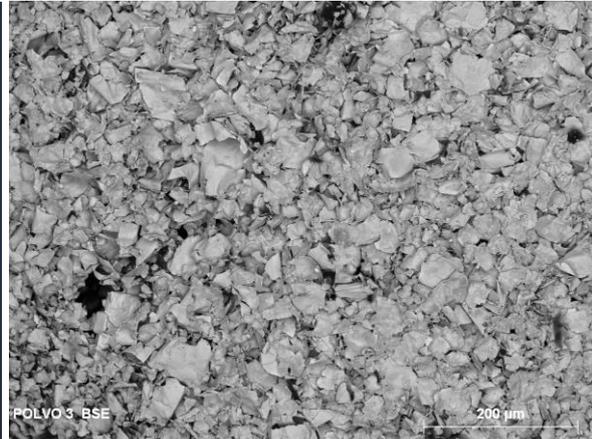


Photo 4. SEM image of the gold powder sample

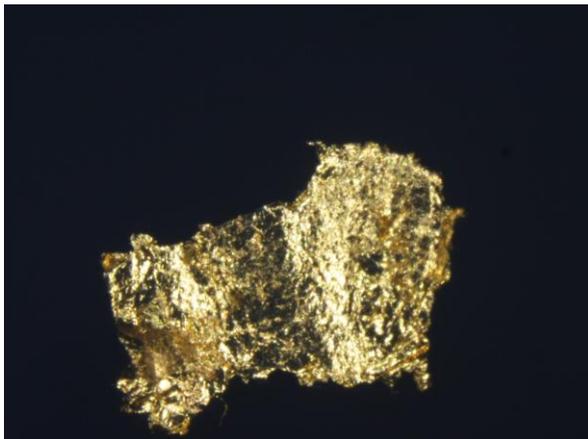


Photo 5. Gold leaf sample

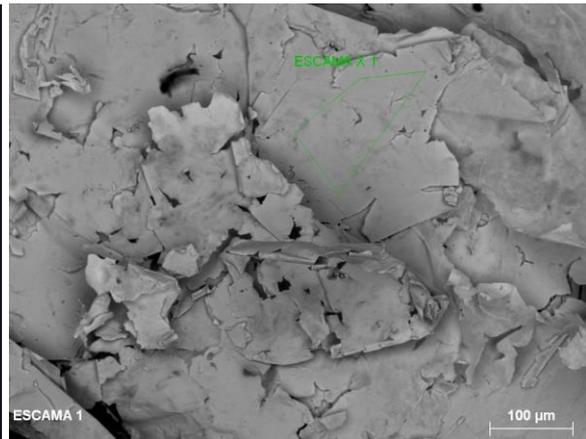


Photo 6. SEM image of the gold leaf sample

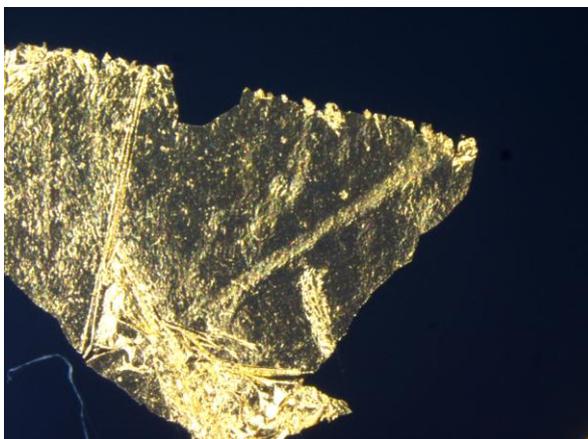


Photo 7. Gold foil sample

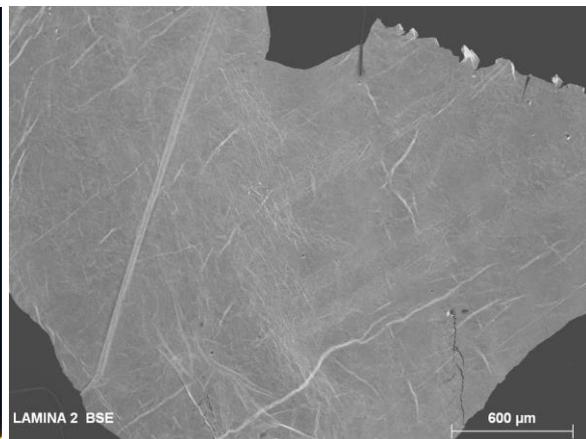


Photo 8. SEM image of the gold foil sample



Case studies of metal threads consulted at IPCE:

Over the years, the IPCE have studied several metal threads samples in Hispano-Islamic textiles from 11th to 15th centuries. The cases consulted during the ARCHLAB Access, coming mainly from three important textile collections, are shown below:

- Textile collection of the **Instituto Valencia de Don Juan (Madrid)**:
 - Textile fragment of sendal, “cendal” (IVJ 2076), 13th century, Toledo?, coming from the Reliquary of Saint Dominic of Silos in Burgos: *metal strip of gilded silver (with copper impurities), silver coated with gold only on one-side;*
 - Islamic Textile fragment (IVJ 2122), 14th-15th century, Ottoman?: *metal strip of silver (with copper impurities) alloyed with gold;*
 - Islamic “Mudéjar” Textile fragment from the Chasuble of San Valerius (IVJ 8360), coming from the Cathedral of San Vicente de Roda de Isábena in Lerida, 13th century?: *metal strip of gilded silver (with copper impurities), silver coated with gold only on one-side;*
 - Islamic “Nazari” Textile Fragment (IVJ 2103), 14th century, Al-Andalus: *membrane thread, leather or parchment? with silver alloyed with a smaller amount of gold;*
 - Islamic “Almohade” Textile Fragment (IVJ 2082), 13th century, Al-Andalus: *membrane thread, leather or parchment with gold alloyed with a smaller amount of silver;*
 - Islamic “Almohade” Textile Fragment (IVJ 2086), 12th-13th century, Al-Andalus: *membrane thread, leather with gold alloyed with a smaller amount of silver;*
 - Islamic Textile Fragment (IVJ 2061), 13th century, Al-Andalus: *2 types of membrane threads; leather with gold alloyed with a smaller amount of silver and leather with silver with a smaller amount of gold;*
 - Islamic “Mudéjar” Textile fragment from the Cape of the Abbot Arnold Biure (IVJ 2057), coming from the Monastery of San Cugat del Vallés in Barcelona, 13th century: *membrane thread, animal gut with silver alloyed with a smaller amount of gold;*



- Islamic “Nazari”? Textile Fragment (IVJ 2120), 14th-15th century, Al-Andalus?: *membrane thread, animal gut with silver alloyed with a smaller amount of gold;*
- Textile collection of the **Hispanic Society of America (New York)**:
 - Islamic “Nazari” Textile fragment (N° H904-b) from the vestment, “aljuba”, of Don Felipe Infante, coming from Santa Maria la Blanca de Villalcázar de Sirga in Palencia, 13th century, Al-Andalus: *membrane thread, leather with gold alloyed with a smaller amount of silver;*
- Textiles found in the **Reliquary Chest of Saint Eugene, Cathedral of Toledo**:
 - Textile fragment of the headdress, “almaizar”, (N° ASECT 6.1c) found in a Reliquary Pouches, 11th-12th centuries, Al-Andalus?: *membrane thread, leather or parchment? with gold alloyed with a smaller amount of silver;*
 - 2 Metal threads loosed (N° ASECT 7.4b and ASECT 9): *membrane threads, leather with gold alloyed with a smaller amount of silver.*

Achievements from the Access:

The ARCHLAB Access provided me the excellent opportunity to consult IPCE reports on Islamic metal threaded textiles. These reports let me access not only to all the information on metal threads, but to all technical and historical information on the textile too.

According to all metal threads reviewed, it was possible to identify four main typologies of metal threads (metal strip; leather, parchment or animal gut with metal coating), as it emerged by the case studies of METHIT.

The collected data will be inserted in the designed database for METHIT, where the textiles studied will be classified according to the different metal threads typologies.

These information are precious because it will be interesting to evaluate step by step if metal threads have the same characteristics regarding the typology of textiles: that is having same textile techniques, decorative pattern, dyes and fibers.

At the end of this evaluation, it will be possible to verify if the same typologies of textiles were assigned to the same period and textile workshop.

The data collected from the IPCE archives together with those data which I will collect during the next ARCHLAB visits will represent a Scientific Data Archive for the METHIT.



To conclude my investigation, I would compare my test results with those contained in this Scientific Database in order to accomplish conclusions of scientific validity and evidence.

Conclusion:

The Access to the IPCE archives let me study in detail the main metal threads manufacturing techniques identified among 11th and 15th century Andalusian textile workshops.

It also provided me an excellent opportunity to gain further knowledge about the contents of their scientific archives and to benefit from the knowledge of Spanish scientists and experts in this area of research. Indeed, this experience facilitated me the access to reports and databases concerning metal threads and their analytical characterization in Hispano-Islamic textiles, conducted by these institutions.

For a complete comprehension of the differences and analogies between manufacturing techniques, in order to relate each materials and techniques used to a specific period of time and a textile center, it will be necessary to analyse a large range of samples.

Thanks to the ARCHLAB Access I will be able to build a wide database of metal threads, in which all the scientific data obtained by ARCHLAB host institutions will represent a fundamental reference.

Date: 8th February 2016

Signature of lead researcher:

Cristina Scibè