

Institutional support



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Introduction

Artistic production in Goa during the 4 centuries of Portuguese administration (1505-1961), reflects the incorporation of Indian and European traditions, not only in what concerns technical and decorative solutions, but also in terms of symbology. The gallery of the Viceroys and Governors, currently exhibited in the Archaeological Survey of India Museum, in Old Goa, was once the ultimate symbol of Portuguese overseas venture, where each portrait was commissioned respecting the ruler's physiognomy and iconography, which adds this collection a unique documental value that needs to be correctly identified and interpreted. The several overpaints added to these painting through the centuries make this task very challenging, so the development of a common strategy between stakeholders was necessary in order to assure the correct interpretation of this unique collection.

Main goals

The main goal of project Old Goa Revelations was the development of tools for interpretation of the tangible and intangible values inherent to these portraits towards a new reading of the older and most damaged paintings, by using a multidisciplinary approach which correlated scientific and archival data. We present the first results from the scientific study, focusing on the benefits of interdisciplinarity and complementarity between examination techniques towards a clearer interpretation of data.

Methodology

Our team travelled to Old Goa in January 2019 with HERCULES's MoLab and performed *in-situ* scientific examination on 8 portraits, following the previous study of three paintings of the collection that are incorporated in the National Museum of Ancient Art, in Lisbon (Portugal). Instrumental approach included surface examination by Visible, Racking light and UV Fluorescence Photography, IR Reflectography and Radiography, complemented with *in-situ* chemical elemental analysis, performed by EDXRF systems allowing punctual and mapping analysis without the need to collect micro-samples. ASI team participated in the process and received upskills in the interpretation of the collection and the multi-analytical techniques for the study of easel paintings on wood.

Main results

Photographic examination techniques provided the team with technical documentation on the paintings, such as high-resolution images, current conservation assessment, including the more recent interventions (by UVF) and underlying outlines (by Racking Light).

Infrared reflectography provided information on the repaints from the early 19c. which constitute the intermediate layer and were only identified using this multispectral bandwidth. The specific decorative motifs used in the costumes, as well as inscriptions matched reproductions from the 19c. The brushstrokes from the superficial layer were also identified using this technique.

X-Ray radiography provided information regarding the conservation conditions of the internal structure of the painting and the primitive layers from the 16 and 17c. Complemented with the other multispectral exams it was possible to identify and document all the overlapped layers which, in some cases, reached 3 levels and, at least, 4 different moments of renovation processes.

In-situ analysis by ED-XRF provided data regarding the chemical composition of the pigments and pigment mixtures used. Patterns are being detected towards the definition of the color pallet of both the primitive and the more superficial layers. These results are being compared with colored images from reproductions (16-19c.), thus allowing to establish a timeframe for the different interventions and associate them with an historical context/motivation, such as shifts or re-organization of the collection between the different palaces.

Conclusion

This is the first time scientific teams from Portugal and India join efforts towards the study of this shared heritage collection. The results of this project, will bring a new page to this gallery's history and to the cultural relations between our countries.

References

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INTERNATIONAL COOPERATION TOWARDS INTERPRETATION

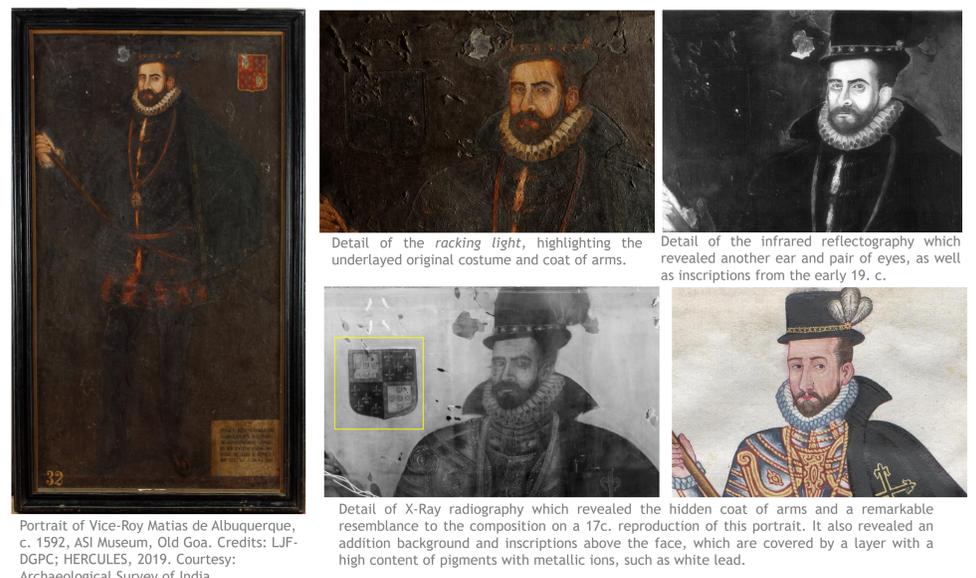
Scientific teams from Portugal and India network using a multidisciplinary approach to conduct the integrated study of a shared heritage collection of easel paintings on wood. The techniques used were preliminary observation and collection of data; Photographic documentation; Infrared Reflectography; X-Ray Radiography and in-situ XRF (tracer & mapping)



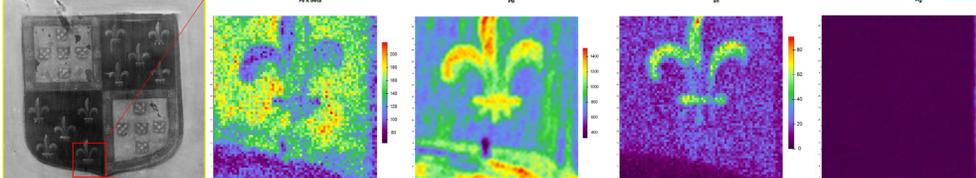
Some images of OGR Sessions. The team developed and delivered training in in-situ and non-invasive analysis of easel paintings on wood. January, 2019 © Old Goa Revelations. Courtesy: Archaeological Survey of India

MAIN RESULTS: COMPLEMENTARITY BETWEEN HISTORICAL AND ANALYTICAL SOURCES OF INFORMATION

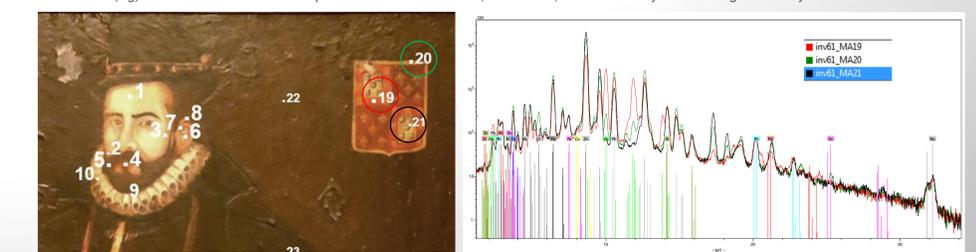
By correlating the results from surface examination and elemental analysis with reproductions from the collection, we realised that each technique provided specific data which helped identify the features and period of each overlapped layer.



Portrait of Vice-Roy Matias de Albuquerque, c. 1592, ASI Museum, Old Goa. Credits: LJF-DGPC; HERCULES, 2019. Courtesy: Archaeological Survey of India



Detail of in-situ XRF Mapping of a 5cm² of the primitive coat of arms (report of elements Fe, Pb, Sn and Hg). The analysis collected elements from the different overlapped layers. The analysis suggests the use of a red ochre (Fe) pigment in the background of the 3rd quarter and the use of lead white in the fleur-de-lis, with highlights of lead and tin yellow. These colours match the iconography of this Vice-Roy. The lead white is also used in the thick layer which covers the original background, surrounding the coat of arms and the figure (see X-Ray detail). This analysis also revealed that a different red tone, with vermilion (Hg) was used to frame the 4th quarter. Credits: LJF-DGPC; HERCULES, 2019. Courtesy: Archaeological Survey of India



Detail of in-situ XRF points on the visible coat of arms, report of the XRF points MA19 (red frame); MA20 (golden frame) and MA21 (blue shield). This analysis allowed more information on the superficial and more recent paint layer (c. 1893-94), characterized by the use of zinc white and barium white. In this coat of arms, the golden outer frame (MA20) was made with the use of chromium yellow. It was interesting to notice that pigment vermilion (Hg) was still in use in the late 19c. and in the same area as the original coat of arms (MA19). As far as the blue tone, we were expecting to find azurite (Cu), but the report suggested the use of an organic pigment, which could be indigo, a colourant commonly used for dyeing textiles in the region. Elements lead (Pb) and tin (Sn) were also identified, but by comparison with the remaining points analysed, we associate their use to the underlayers. Co-relating XRF results, we can admit the painter copied the original coat of arms to the right side before concluding the full repaint. Credits: LJF-DGPC; HERCULES, 2019. Courtesy: Archaeological Survey of India