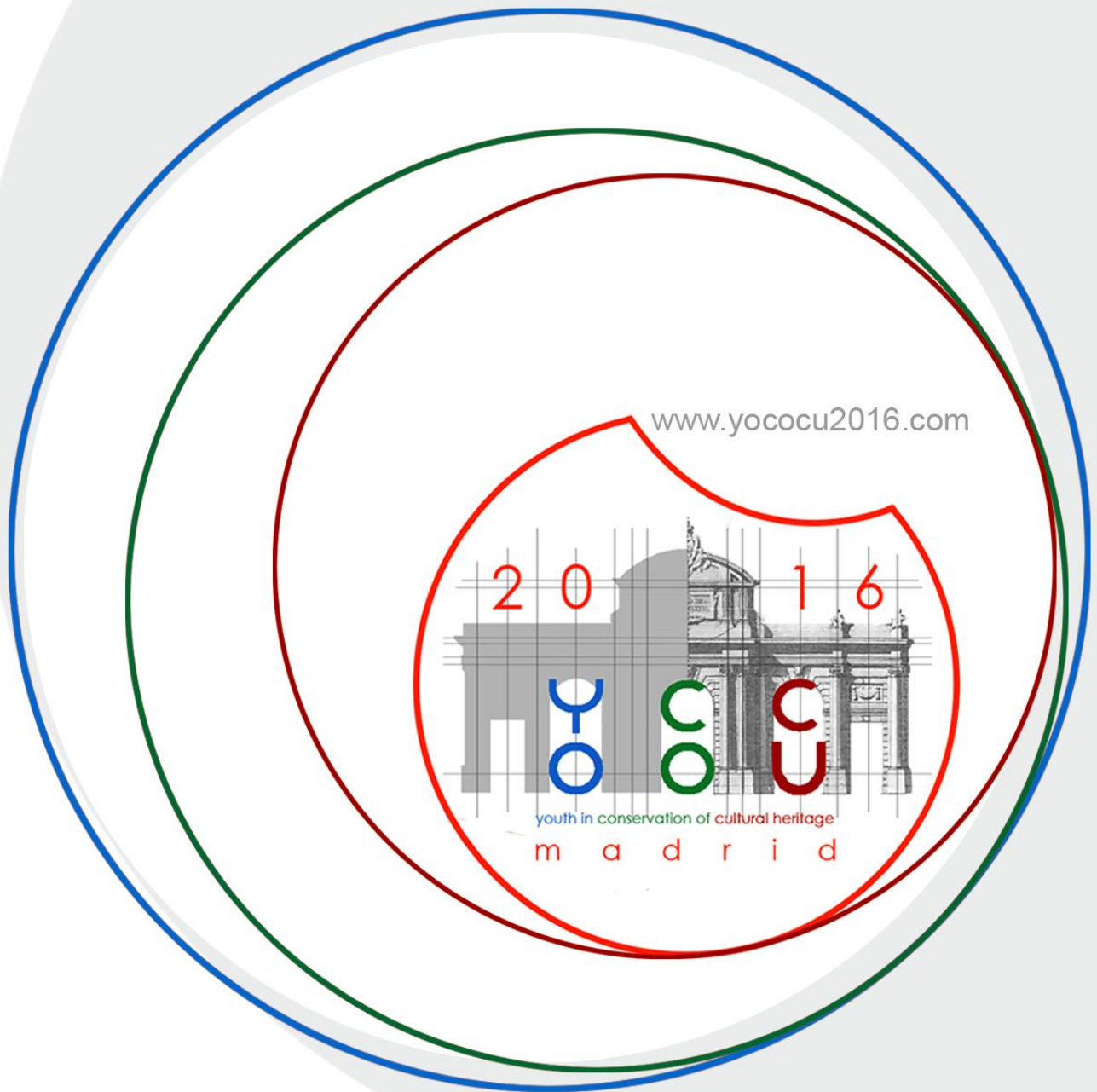


5th International Conference  
**Youth** in **Conservation** of **Cultural Heritage**  
21st-23rd September 2016 - Madrid -



**Book of abstracts**

ORGANIZED BY:



**Coordinated by:**

Instituto de Geociencias IGEO (CSIC, UCM)

**Co-organized by:**

Youth in Conservation of Cultural Heritage - YOCOCU España  
Museo Centro de Arte Reina Sofía MNCARS  
Fundación Reina Sofía

**Edited by:**

Mónica Álvarez de Buergo  
Beatriz Cámara Gallego  
Duygu Ergenc  
Sofía Melero Tur  
Elena Mercedes Pérez-Monserrat

**First edition Madrid**

© editorial work, the editors  
© texts, their authors  
© images, their authors  
© YOCOCU 2016 logo, Laura López  
© front cover image, Sofía Melero Tur

**ISBN:** 978-84-617-4237-0

## MODERN TECHNOLOGIES FOR CONSERVATION OF VILLA ZITO PAINTINGS COLLECTION (PALERMO – SICILY)

**Giordano, A.<sup>1</sup>; Schiavone, S.<sup>2</sup>; Rizzo V.<sup>3</sup>; Di Carlo, E.<sup>4</sup>;  
Barresi, G.<sup>4</sup>; Rotolo, V.<sup>4</sup>; Palla, F.<sup>4\*</sup>**

<sup>1</sup>Ambra Giordano, Conservator, <sup>2</sup>S.T.Art-Test sas, Italy, <sup>3</sup>Villa Zito – Paint Gallery, Palermo, Italy, <sup>4</sup>Laboratory of Biology and Biotechnology for Cultural Heritage (LBBCH), Dep. STEBICEF, University of Palermo, Italy

In this study we describe the conservative integrated approach performed on 40 paintings, dating from different period (XVII- XX century), belonging to “Fondazione Sicilia “ and exposed in Villa Zito paint gallery in Palermo (Mazzocca 2015). Through a multidisciplinary approach both constitutive materials and state of conservation have been determined. Particularly, pigments and executive techniques were identified by non-invasive diagnostic investigation (XRF analysis, UV fluorescence acquisition, and IR Reflectography) as well as previous restorations events.

The study has included the revealing of microbial colonization by using non-invasive sampling methods (Nylon membrane fragment) and molecular biology tools for the identification of microbial taxa (Palla et al 2010). For this reason another aim is the application of sustainable methods as alternative to traditional restoration procedures, which can sometimes be detrimental for artworks, humans and environment. In particular, *in vitro* culture (Nutrient, Sabouraud agar), optical microscopy observations (O.M.) and molecular biology investigations (genomic DNA extraction, PCR, sequencing and sequence analysis) reveal the presence of bacteria colonies belonging to *Micrococcus* sp., *Staphylococcus* sp. and *Bacillus* sp.

104

In order to remove undesired layers appropriate cleaning protocols have been tested, using gelled solutions at specific pH values or dry cleaning methods (Cremonesi 2011; Daudin-Schotte et al 2013). Agar-Agar or Gellan-Gum hard gels have been utilized in order to remove dirty or proteinaceous layers by adding specific enzymatic solutions in the gels. The enzymatic cleaning has been performed at room temperature (20-23°C); the removal (total/partial) has been obtained after 10 minutes of application (Barresi et al 2015). Instead, on unvarnished and water sensitive paintings, the RCE-dry cleaning method (Rijksdienst voor het Cultureel Erfgoed- Netherland Institute for Cultural Heritage) have been applied following *ad hoc* protocols (Giordano et al 2014; Daudin-Schotte et al 2013).

Mazzocca, S. 2015. *Le collezioni della Fondazione Banco di Sicilia*. Silvana Editoriale.

Cremonesi P. 2011. *L'ambiente acquoso per la pulitura di opere policrome*, Collana I Talenti, Padova, Il Prato.

Daudin-Schotte, M.; Bisschoff, M.; Joosten, I.; van Keulen, H.; van den Berg, K. J. 2013. *Dry cleaning approaches for unvarnished paint surfaces*. *New Insights into the Cleaning of Paintings*. Smithsonian contribution to museum conservation, 209-219.

Palla, F.; Billeci, N.; Mancuso, F.P.; Pellegrino, L.; Lorusso L.C. 2010 *Microscopy and molecular biology techniques for the study of biocenosis diversity in semi-confined environments*, *Conservation Science in Cultural Heritage*, 10, 185-194.

Giordano, A.; Casoli, A.; Selva Bonino V.E.. 2014. *Il metodo dry cleaning per la pulitura delle opere d'arte: il caso studio delle mensole lignee policrome del castello di Trabia*. *Progetto Restauro*, 68,42-48.

Barresi G.; Di Carlo E.; Trapani M. R.; Parisi M. G.; Chillè C.; Mulè M. F.; Cammarata M.; Palla F. 2015. *Marine organisms as source of bioactive molecules applied in restoration projects*, *Heritage Science*, 3, 17.

\* Corresponding author: F. Palla [franco.palla@unipa.it](mailto:franco.palla@unipa.it)