

Original article

San Francesco d'Assisi (Apulia, South Italy): Study of a manipulated 13th century panel painting by complementary diagnostic techniques

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Abstract

The panel painting "S. Francesco d'Assisi" (Museo diocesano "Mons. A. Marena", Bitonto, Italy), executed around the half of the 13th century and manipulated at least two times in the following centuries, was studied by various complementary analytical techniques in order to characterise the original medieval painting technique and the subsequent editions. Optical microscopy (OM), scanning electron microscopy with energy dispersive X-ray spectroscopy (SEM-EDS), micro-Raman spectroscopy and pyrolysis–gas chromatography–mass spectrometry (Py-GC/MS) were applied on various samples taken from significant parts of the painting. Several *in situ* micro-Raman analyses were also performed. The results obtained confirm that the painting belongs to the 13th century Italian painting tradition. Furthermore, combination of various analytical techniques revealed that the 13th century original background, which now appears dark grey, was realised by applying a tin foil covered by a *mecca* layer composed of siccative oil and heated *Pinaceae* resin. Thus, originally the background should have had a gold-like appearance. The most important manipulation of the painting of S. Francesco probably dates back to the 16th century but shows a quite traditional technique.

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Keywords: Panel painting; Organic materials; Inorganic materials; Optical microscopy; Electron scanning microscopy; Micro-Raman; Py-GC/MS; Tin foil; Indigo; Red lead; Cinnabar

1. Research aims

The discovery of a unique 13th century panel painting figuring S. Francesco in the collection of the Museo diocesano

"Mons. A. Marena" (Bitonto, Italy) hidden by subsequent paint layers confronted the restoration team with the difficult task of gradually bringing to the light the original paint layers. While imaging techniques and cleaning tests had revealed the existence of a well preserved medieval version, microscopy and chemical analyses were used in order to characterise most of the organic and inorganic materials.

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The aim of the present research was to carry out a physico-chemical survey on the panel painting during the restoration intervention addressed to the characterisation of the original materials and those relative to subsequent manipulations.

2. Introduction

The restoration, which brought to light an inedited 13th century panel painting (138.5×58 cm) depicting S. Francesco, is in its final phase. The important finding took place in Bitonto (Apulia, Italy) where the painting, coming from the Capuchin church of this town, is actually part of the collection of the Museo diocesano “Mons. A. Marena”. The painting might be identified with the one Father Giovanni da Bitonto tells about in the 16th century [1]; the chronicle reports that the artwork, originally located in the Svevo Castle in Bari, had been commissioned by Frederic II, who in this way intended to testify his particular veneration for Francesco and for his recent canonisation. In fact, the chronicle tells

a legend about the passage of Francesco in Bari on his return from the Holy Land, hosted in this occasion by Frederic II.

The painting is characterised by numerous manipulations. Before the restoration the painting was covered by a coarse overpainting, which altered the artwork in such a way that it was difficult to read and to understand its importance. This edition probably dates back to the beginning of the 20th century, depicting San Francesco on a uniform dark grey coloured background just conserving the original open book (Fig. 1a). At the same time a huge picture frame with marble patterns has been applied. Therefore, the original frame excavated in the wooden panel was planed.

Some preliminary cleaning tests revealed in fact how the actual version was hiding a previous one. Successive examination with photographic and radiographic techniques confirmed the cleaning results: the existence of a first much older edition, which, after removal of the overpainting, appeared to be very well preserved.

During the restoration it became clear that, after the first 13th century edition, the painting had been manipulated



Fig. 1. The panel painting “S. Francesco d’Assisi” (138.5×58 cm) (a) during restoration showing the most recent dark edition, the 16th century and subsequent background overpaintings and some cleaning tests on the figure of the Saint revealing the 13th century paint layers; (b) in the final phase of restoration showing the 13th century figure of the Saint with some grey background and parts of the 16th century background. Locations of collected samples ($\square$) and micro-Raman *in situ* analysis points ($\circ$) are indicated and reported in Table 1.

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