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Multi-analytical non-destructive investigation of pictorial apparatuses of “Villa della Piscina” in Rome

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ABSTRACT

Here we present a multi-analytical approach, that makes use of spectroscopic and imaging techniques, aiming at characterising the wall paintings of the “Villa della Piscina”, a Roman archaeological site in Rome. More specifically, we focus the attention on plaster fragments dated in the narrow temporal window bounded between the second half of I century and the first half of II century A.D., according to stylistic and archaeological standpoint. This investigation aims at supporting archaeologists in the reconstruction of the decorative motif of the Roman Villa, by studying the composition, the provenance and the style of the decorative phases of the analysed fragments. The presence of conservation and restoration treatments, as protective materials, is also investigated. Our study evidences a rich color palette and a refined use of mixtures of minerals and pigments.

1. Introduction

The archaeometric investigation of Roman wall paintings still represents an attractive research field, since a comprehensive knowledge on the materials and techniques used has not been completely achieved, although several studies have been performed under the archaeological perspective. Since Roman wall paintings have been found in a wide geographic area, the identification of pigments and pictorial composition constitutes an important tool for the identification of communication and trade routes developed over different periods [1–5]. Moreover, Roman wall paintings are often found as incoherent fragments in the archaeological contexts, and virtual reconstruction, which makes use of colour rendering, fragment morphology and modelling is often employed to speculate about the original artwork [6–8]. On the other hand, archaeometric investigations can be very helpful for the reconstruction of the decorative walls, due to their capability of accessing the chemical composition of materials.

In the period between 1996 and 1999 the *Sovrintendenza Capitolina ai Beni Culturali di Roma* lead an archaeological investigation involving the suburban district of Centocelle. During those excavations, three large building complexes have been brought to light, one of these being the so called *Villa della Piscina*. Among the others, this building is of particular interest since it has returned a copious amount of fragments of painted plasters [9].

This villa, whose building events date back from the second half of the I century to the IV century A.D., during the imperial age was characterised by installations denoting a considerable luxury: a couple of examples are a 50 m long fish-nursery pool, located towards the north-east bound of the vast garden, and a *psctna calida*, within the *thermae* located at the south-western quadrant of the complex (cf. [9] p.342 fig.60 for the planimetry). This latter area has been the subject of a complete renovation during the II century A.D., when the *psctna calida* was demolished and the service rooms were filled with obliteration deposits connected to the building transformations of the

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