

ABSTRACT

PAINTING TECHNIQUE AND STATE OF CONSERVATION OF WALL PAINTINGS IN AGHIOS DIMITRIOS CHURCH AT KLIMATIA, IOANNINA-GREECE

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Introduction:

The scientific investigation of materials and techniques used in Byzantine and Post-Byzantine wall paintings is rapidly gaining interest among researchers, as the synergistic use of various physicochemical techniques allows a more detailed inspection in the chemical composition and the degree of degradation of the various paint layers.

The present study refers to the physicochemical study of the mural paintings of the very important cross shaped post- byzantine church Aghios Dimitrios situated at Klimatia (region of Epirus, near Ioannina, North Western Greece. The terminus post quem of Aghios Dimitrios construction year is considered to be 1558. According to literature the mural paintings cover the entire surface of the church and are dated from 1558-1568. However the iconography is very difficult to be discerned due to the existence of a thick carbon layer from the candles burning on their surface. Furthermore, both the paint layers and substrate are very brittle.

Pigment analysis was done with scanning electron microscopy combined with energy dispersive X-ray microanalysis (SEM/EDX). A number of pigments have been identified on the paint layers (red ochre, cinnabar, lime, carbon black), which were applied using the secco technique. The mortar found to be calcitic (CaCO₃).

Binding media detection and identification was conducted with fluorescence microscopy, μ -FTIR and analysis of amino acids by HPLC-FLUO. Authentic samples contain mixtures of egg yolk and gelatin.

Free aminoacids, due to hydrolytic decomposition of the binding media, have been identified by HPLC–RP.

Gypsum and in some cases, nitrate salts have been identified by FTIR. Minor quantities of sulphur apparently attributed to the presence of gypsum in the mortars have also been detected by the microanalysis with SEM-EDX.

The information gained from the physicochemical characterisation of materials and the scientific assessment of preservation condition of wall paintings, underlines the necessity for immediate restoration action in Aghios Dimitrios church, a notable post-Byzantine monument. This also offers an valuable asset to the conservator in the proper decision-making towards efficient treatments.