

IL CONTRIBUTO DELLA METAGENOMICA ALLA CONSERVAZIONE. UN CASO APPLICATIVO: LE PATINE BIOLOGICHE DELLA CHIESA DEL CARMINE A MELPIGNANO (LE)

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ABSTRACT

Cultural heritage surfaces are subject to attacks by biological agents, that could cause biodeterioration with aesthetic and structural damages. The biodeteriogenic microorganisms use the artefact as a nutritional substrate to carry out metabolic reactions and grow in life cycle favourable conditions. Their appropriate identification permits a focused and effective action and a good design of the prevention from future attacks. The paper presents the results of an investigation about the characterization of biodeteriogenic microorganisms (Fungi) in the biological patina of historic architectural surfaces using a metagenomic approach. The method is culture-independent and provides the genetic identification of all microorganisms in a sample by DNA sequencing and bioinformatics analyses. These analytic approach is now possible thanks to the availability of very sophisticated molecular databases and new technologies with very high performances that have allowed to overcome previous methods based on cultivation. Unlike culture based methods, modern approaches are able to identify all species, even non-cultivable ones, present in a community. Further benefits of these technologies are the fast analysis times and the extremely low costs compared to the huge amount of data produced. The paper presents the results of the analysis of dust samples taken on the walls of the façade and the nave of *Madonna del Carmine* Church in Melpignano (Lecce, Italy).

Key-words: Metagenomics, Fungal communities, Biodeterioration, Prevention, Chiesa del Carmine, Melpignano.