

**Title: FILAMENTOUS FUNGI DETECTION OF PAINTING TO TEMPERA ON THE CHURCH OF SÃO GONÇALO, SERRO, MG**

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**Abstract:**

The Church of São Gonçalo building dates of the last decades of the XVIII century and it stands out in the architectural design of the small town set called São Gonçalo do Rio das Pedras, Serro district, Minas Gerais state. The interior saves significant works of the period, such as the main chapel of the lining of the painting showing a composition of architectural web perspective, ornamented with flower garlands, occupied by angels and the patron saint in central picture. Performed to tempera with the use of organic substances on wooden support, the painting, dated from 1787, was executed by a disciple of the Portuguese painter José Soares de Araújo, who served in the region of Diamantina from the year 1766. This study aimed at checking for the presence of species of filamentous fungi that emerged in forms of black colonies on the wooden lining paintings. Then, samples were collected at 5 different points – corbels, right baluster, left baluster, garland, and volute - in triplicate and, on painting with sterile swabs and then the serial dilution procedure between  $10^{-1}$  and  $10^{-5}$  in saline solution 0,85% supplemented with Tween 80 0,001%, seeded on Czapek Dox Agar by spread plate method, and incubated for 14 days at 27 °C. The obtained colonies were isolated and identified by micro-cultivation through inoculation on Potato Dextrose Agar, viewing on optical microscopy and photographic record. The results showed the dominance of the species *Cladosporium cladosporioides* possibly the causative agent aspect of black points seen on the paintings, especially where there was a layer of organic resin that gave a satin aspect to painting. Their presence was not detected where there was not such of this resin. Other genera, *Alternaria* sp., *Penicillium* sp., *Aspergillus* sp., and *Rhizopus* sp. were found and the occurrences of these fungi could be directly related to the presence of other organic substances present in tempera, like rabbit glue, commonly used in this type of painting. Thus, the development of these fungal colonies compromises the aesthetic appreciation lining with painting and compromise the structural support in wood. It was not recommended a removal of fungal colonies with organic solvents as they can change the look of the original painting.

**Keywords:** Cultural heritage, paint, filamentous fungi

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