BOOK OF ABSTRACTS

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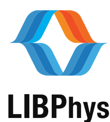

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NOTES

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ATTEMPTS IN ENZYMATIC DEGRADATION OF THE PIGMENTATION PRODUCED BY FUNGI ISOLATED FROM PORTUGUESE WALL PAINTINGS

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Wall paintings are prone to different types of deterioration, including of biological origin. Our study focuses on the chromatic alterations of the paintings' surfaces related to the presence and growth of microorganisms.
The removal of the dark coloured stains from wall paintings is extremely difficult. Although treatment with biocides can eliminate microorganisms, these compounds are ineffective in cleaning the black pigmentation resulting of their growth. Therefore, it is necessary to understand which organisms are present, the characteristics of the compounds they generate, and in which conditions they produce it.
The aim of this study was to isolate the pigment that is the source of the black stains in the studied wall paintings in order to, in a broader scope, eliminate or attenuate their visual impact.
Wall paintings presenting black stains from three case studies – Igreja de Santa Eulália/Igreja de São Salvador de Arnoso (V.N. Famalicão), Igreja Paroquial de Valadares (Baião) and Igreja de Santa Cristina de Serzedelo (Guimarães) were dully studied from the conservation point of view.
Fungi were isolated from selected areas that displayed dark pigmentation of the pictorial layer. Samples were collected with wet swabs and grown on solid culture medium, e.g. Potato Dextrose Agar (PDA). Isolates were further identified by classical and molecular biology methodologies.
Three fungal isolates were selected for further studies due to their pigmentation and growth characteristics, mainly: blackening of solid culture media, dark or black hyphae growth, or a presence of black exudates produced by colourless hyphae.
Enzymatic degradation of pigmentation resulting from a selected fungal isolates was attempted both in solution and on solid support and tested with fungal versatile peroxidase from Bjerkandera adusta. Changes in colour were detected by UV-Vis spectrophotometry and with a CIE L*a*b system colorimeter.