

ABSTRACT

The traditional Taiwan polychrome include a wide range of materials, with very different behaviors showing problems of different nature that sometimes requires the application of appropriate adherence and/or consolidation treatment.

From this, a study has been conducted aimed to identify these materials and their behaviors as well as, the proposal of a proper adhesive/consolidant with physico-chemical stability and low toxicity. The identification of the materials confirms the use of porcine blood as binder in the preparation layer and tung oil as the binder in the paint layer. Besides, the multi-technical approach by using FTIR, GC-MS and VMP allow the dating of the polychrome under study.

The application of a proper treatment on paintings will depends on the adherent/consolidant properties that could appear during and/or post the treatment as: i) mechanical properties (strength, flexibility); ii) hydric (permeability to water vapor and other gases); iii) the physico-chemical stability one the adhesive/consolidant has been apply.

Here we propose, the use of an andhesive/consolidant based on technical gelatin, in combination with the correct concentration of additives: glycerol as plasticizer and citronella as natural fungicide, for the conservation and restoration of the polychrome decoration present on different places in the architectural complex of the Longshan Temple in Lukang, Taiwan belonging to the XVIII century.

In a second step the study of the chemical and morphological changes demonstrate that the use of glicerol and citronella as additives improves the physic-mechanical properties and slows the ageing process of the adhesive/consolidant. Moreover, the citronella oil inhibits proliferation of fungi *Aspergillus niger* (CECT-2088), *Chaetomium globosum* (CECT-2701), *Fusarium oxysporum* (CECT-2154), *Mucor rouxii* (CECT-2655), *Penicillium chrysogenum* (CECT-2655) y *Trichoderma pseudokoningii*. (CECT-2937).