

Hyper-spectral Acquisition on Historically Accurate Reconstructions of Red Organic Lakes

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Abstract. Our cultural heritage is constituted by irreplaceable artworks that must be known and preserved. Their study and documentation should be in principle carried out using non-invasive approaches. The technological advances in spectroscopic imaging acquisition devices made it possible to apply this methodology to such purpose. In this context, the present paper discusses a particularly challenging task within the conservation field, which is the identification of red lake pigments in artworks, applying Vis-NIR hyper-spectral imaging spectroscopy. The latter was used to characterize and discriminate between historically accurate paint reconstructions of brazilwood (vegetal) and cochineal (animal) lake pigments. The same paints were also analyzed with Fiber Optic Reflectance Spectroscopy to validate the data obtained with the imaging method. The requirements for a successful identification of these pigments are addressed, and future research is suggested in order to increase the usefulness of the technique's application.

Keywords: Hyper-spectral imaging • Non-invasive approach • Red lake pigments • Brazilwood • Cochineal