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New Insight of Kings Vault of Alhambra (Granada, Spain)

by combination of XRD and XRF portable.

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The vault of the Kings, in front of Lion's Court in Alhambra (Granada) is a painted scene carried out on leather that shows different Lords on their seats. This artwork is a masterpiece for the substrate (leather) and for the presence of human representation in 14th century in Muslim buildings.

We have assessed the color palette of paints without sampling, thanks to the prototype used that allows simultaneously X-ray Diffraction (XRD) and X-ray fluorescence (XRF) measurements. The combination of these X-rays techniques allows performing the elemental chemical and mineralogical characterization of the studied areas.

The studied areas correspond to a variety of color range, curvature of the dome and device dimensions, making it necessary to perform the analyses on the flattest parts and most accessible vault of kings.

The results show that reds are formed by cinnabar and hematite, the flesh colour is a mixture of cinnabar and hydrocerussite, while malachite was used on green. Blues are formed by lazurite and ochre by clays. Also, this technique has detected the presence of red lead in the red-ocher and oranges, while gold is present in the gold, along with titanium and iron. Moreover, strontium is associated with the plaster preparation and a compound with As and S has been observed on the greens.

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KEY WORDS

XRD-FRX Portable, Painting on Leather, Diagnosis