Application of XRF spectroscopy to discriminate ink and paper on illuminated manuscripts of the Algerian heritage.

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Abstract:

Material knowledge of heritage objects is an important branch of art history and the analytical investigations on artefact cast new light on them. Indeed, the identification of their constituent materials provides valuable and critical information in multiple related areas. The preservation of this wealth has to tackle inter alia the identification, localization, classification and restoration of all kinds of heritage objects. In this work, we established a methodology for the analysis and characterization of the paper and pigments on ancient Algerian illuminated manuscripts using mainly X ray flurescence.

The nine considered manuscripts, written on handmade traditional paper, are held by Afniq n Ccix Lmuhib, one of the richest and most studied private libraries from Kabylia region – Algeria. They date back from the 14th to the 19th century and treat disciplines ranging from astronomy to poetry. In this work, we present results related to all the different colors identified; data are discussed for each foil investigated. For each shade, we measured points in both written or decorated areas and on plain paper. Obtained data allow a comparison between different manuscripts, historical periods and colors. For a more complete characterization, beside XRF analysis, we also applied FORS and Raman spectroscopy, inferring the nature of pigments and inks used.