



A study of the decorated binding of a 17th century Persian manuscript

Examining the binding in manuscripts, especially when decorated with colour and gilding, is important and can reveal information about the materials and techniques used or even the manuscript's origin.

The binding of a 17th-century Persian manuscript from the University of Melbourne Manuscripts Collection was studied using different techniques of UV fluorescence photography (UVF) and Synchrotron-based Scanning X-ray Fluorescence Microscopy (SXFm). The high-sensitivity technique of the SXFM method provides micron-resolution maps of elements, which helps identify the pigments used in decoration. This technique and UVF also provide insight into subsequent intervention and repairs on the surface.

In addition to its application in pigment identification, retouching and colour intervention, elemental mapping can also reveal traces of elements linked to processing methods. For example, potassium in the leather binding suggests the application of alum in the tanning process of leather and iron suggests an iron-based ink used as a dye.

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Nasim Koohkesh is a researcher who utilises her chemistry background in her passion for art conservation and material identification. She is a PhD candidate at The University of Melbourne in Material Conservation. Her research interests include investigating materials composition, the chemistry of pigments, pigment and paint production techniques and their potential degradation, and cellulose degradation and preservation. With over 15 years of experience in laboratory practice and research across various chemical sectors and cultural materials conservation, Nasim has employed advanced analytical techniques such as Raman microscopy, FTIR and ER-FTIR, XRF, XRD and SEM-EDS in investigating materials in manuscripts from the University of Melbourne Manuscripts Collection.

Beyond being a skilled researcher Nasim is also an innovator. She developed a groundbreaking method to improve the traditional herbal adhesive, serish (eremurus paste), a strongly adherent material that has been used for bookbinding and crafting in Iran for centuries. However, this adhesive naturally stains paper and negatively affects conservators' desire to use it. Nasim has utilised an innovative technique to eliminate its colour and increase its shelf life. Her interdisciplinary approach exemplifies her dedication to preserving cultural heritage while advancing scientific knowledge in art conservation.