

English Abstract:

This work characterizes both tanning and colouring materials found in ancient Egyptian leather objects from the Metropolitan Museum of Art. The analytical investigations focused on assessing the development of the technology of ancient tanners using high-performance liquid chromatography (HPLC), surface-enhanced Raman spectroscopy (SERS), X-ray fluorescence (XRF), Fourier transform infrared spectroscopy (FT-IR), X-ray radiography and a scanning electron microscope connected to an energy-dispersive X-ray detector (SEM-EDX). Reference leather samples and archaeological leather objects were investigated to identify the animal skin species and the early use of hydrolyzable vegetable tannins for leather tanning. Different methods were used to colour the leather, including madder dyeing and staining with hematite, or painting with Egyptian blue and Egyptian green.

While further supporting the analysis of a wider corpus of leather artefacts, evidence of the use of vegetable tannins in leather tanning in the Middle Kingdom/New Kingdom of ancient Egypt was found for the first time based on chromatographic analysis of microsamples.