Late Bronze Age Pigments: Characterization of Mycenaean Pottery with Multi-Analytical Approach

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Abstract : Throughout history, Cyprus has been involved in various commercial and cultural relationships with different civilizations, owing to its strategic location. Particularly during the Late Bronze Age, Cyprus emerged as a significant region engaged in interactions with the Mycenaeans and other Mediterranean civilizations. Presently, findings from archaeological excavations provide valuable insights into Cyprus' cultural history and its connections with other civilizations. Painted Mycenaean ceramics discovered during the excavations at Kaleburnu-Kral Tepesi (Galinaporni-Vasili), dated to the Late Bronze Age in Cyprus, are considered significant archaeological findings that carry traces of the art and culture of that era, reflecting the island's commercial and cultural connections. Considering these findings, there is a need for archaeometric studies to aid in the understanding of the commercial and cultural ties at Kaleburnu-Kral Tepesi. In line with this need, analytical studies have been initiated concerning the provenance and production techniques of the Mycenaean ceramics discovered in the excavations at Kaleburnu-Kral Tepesi, dated to the Late Bronze Age. In the context of origin analysis studies, it is advocated that understanding the techniques and materials used for the figures and designs applied on Mycenaean ceramics would significantly contribute to a better comprehension of historical contexts. Hence, the adopted approach involves not only the analysis of the ceramic raw material but also the characterization of the pigments on the ceramics as a whole. In light of this, in addition to the studies aimed at determining the provenance and production techniques of the Mycenaean ceramic bodies, the characterization of the pigments used in the decorations of the relevant ceramics has been included in the research scope. Accordingly, this study aims to characterize the pigments used in the decorations of Mycenaean ceramics discovered at Kaleburnu-Kral Tepesi, dated to the Late Bronze Age. The X-Ray diffraction (XRD), Fourier Transform Infrared Spectroscopy (FTIR), and Scanning Electron Microscopy with Energy Dispersive X-ray Spectroscopy (SEM-EDX) methods have been employed to determine the surface morphology and chemical properties of the Mycenaean pigments. The characterization has been conducted through the combination of multiple analytical methods. The characterization of the pigments of Mycenaean ceramics aims to enhance the scientific perspective adopted for understanding the contributions of Mycenaean ceramics found in Cyprus to the island's culture, by providing scientific data on the types and origins of pigments used during the Late Bronze Age.

Keywords : mycenaean, ceramic, provenance, pigment
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