



ABSTRACT SUBMISSION

An archaeometric study of early Islamic glass from Iran (5th-7th c. AD) along the Silk Road, by SEM-EDXS, LIBS and HSI

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Abstract

Glass production is a significant technical and technological achievement in human history, with artefacts reflecting the fragility, beauty and knowledge. This research will focus on the prominent artefacts dating from the Sassanid era to the early Islamic period in Iran. The fragments studied have been collected from the ancient sites of Istakhr, Jurjan and Ray. The classification and typology of the historical glassware has provided crucial insights into the manufacturing techniques and related chemical composition in different production centres.

Scanning_electron_microscopy with energy-dispersive X-ray spectroscopy (SEM-EDXS), laser-induced_breakdown_spectroscopy (LIBS) and Hyperspectral_imagery (HSI) were used in the study.

The results indicate that they belong to the category of ancient Iranian glasses associated with plant ash compounds. The glasses from these sites have similar textures and colours, including olive green and cobalt blue. Comparison of these results with preliminary investigations along the Royal Road revealed a correlation between the chemical composition and micro-textures of the raw materials in the three areas, despite the distance of over 1,500 kilometers between them. This suggests that the findings may provide a basis for identifying a trade route from the north-east of Iran to the south to Persian_Gulf, and possibly as a part of the Silk Road.

Keywords

Ancient Glass of Iran, SEM-EDXS, LIBS, HSI, Silk Road

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