

Characterization of Nuragic pottery from the Nuraghe Candelargiu Archaeological Site

Cassandra Savoldi¹, Marco Merlini¹, Chiara Mangano¹, Araceli Rodriguez Azogue², Oliva Rodriguez Gutierrez³, Manuela Puddu⁴, Giorgio Bais⁵, Maurizio Polentarutti⁵

¹Dip. di Scienze della Terra, Università degli Studi di Milano, Milano, Italy

² Arqueologia y Gestion S.L., Spain

³ Dep. Prehistoria y Arqueologia, Universidad de Sevilla, Spain

⁴ Ministero della Cultura, Italy

⁵Elettra Synchrotron, Trieste, Italy

Presenting author email: cassandra.savoldi@studenti.unimi.it

This study presents the characterization of pottery from the Nuraghe Candelargiu archaeological site, located in San Giovanni Suergiu (Cagliari, IT) [1-3]. Samples were selected based on archaeological context, historical period, aesthetic features, and small size, which made them unsuitable for museum display. Micro-invasive analyses, including thin section petrography and X-ray diffraction, provided insights into clay sources, tempers, firing conditions, and textural features relevant to reconstructing Nuragic production and trade dynamics. Approximately 100 micro-samples were ground and measured at the XRD1 beamline of Elettra Sincrotrone Trieste, using synchrotron X-ray powder diffraction in transmission geometry with an area detector. Quantitative phase analyses were performed via the Rietveld method, and results were subjected to multivariate statistical evaluation. Preliminary outcomes reveal a coherent mineralogical cluster encompassing all Bronze and Iron Age samples, suggesting a strong local technological tradition, likely tied to andesitic raw materials. Punic ceramics, in contrast, show dual behaviors: some match the earlier group, while others differ significantly in mineral composition—pointing to non-local provenance. These observations may reflect broader cultural and demographic changes occurring from the Punic period onward. Mineralogical data are being integrated with chemical analyses (XRF) to refine material provenance. Our approach exemplifies how synchrotron diffraction and PCA can discriminate ceramic groups and trace shifts in ancient material culture.

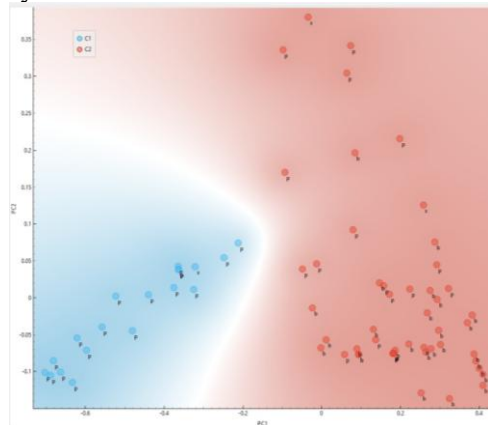


Figure 1. PCA results highlighting two main clusters of ceramic samples, one corresponding mainly with bronze/iron age and partial punic period, the second only to punic period

[1] Rodríguez Azogue A., Gómez Díaz A., Puddu, M. (2015) Proyecto Nuraghe: Revista PH, Instituto Andaluz del Patrimonio Histórico, 88, 13-16.

[2] Rodríguez Gutiérrez et al. (2015) In L’Africa Romana. XX Convegno internazionale di studi, Alghero, pp. 1921-1932.

[3] Rodríguez Azogue A. et al. (2020) Le ricerche archeologiche del Proyecto Nuraghe, in Notizie & Scavi della Sardegna Nuragica, Ed. Grafica del Parteolla, 209-217.