PETRO-ARCHAEOOMETRIC CHARACTERIZATION OF KILN POTTERY WASTES FROM ADRANO, SICILY

E. Aquilia¹, G. Barone¹, P. Mazzoleni¹, S. Raneri¹*, G. Lamagna²

¹ University of Catania, Department of Biol., Geol. and Environmental Sciences, C.so Italia 59, 95129 Catania – Italy sraneri@unict.it
² Regional Archeological Museum Paolo Orsi, V.le Teocrito 66, 96100 Siracusa – Italy

This work is part of a wide scientific project finalized to characterizing the Sicilian pottery productions from Greek to Roman Age [1-2]. In this prospective, imported [3-5] and local reference groups [6] have been analyzed in order to create a database of the circulation and production centers in Sicily during this period. In particular, reference groups represent an important procedure in archeometric provenance studies of archaeological pottery [7]. In this framework, a set of 28 medium-coarse kiln pottery wastes (III-II century B.C.) from a pit excavated at the fortification of Adrano (Sicily) [8] have been studied (Fig. 1). The importance of the Greek settlement is primarily due to the presence of a flourishing craft center from IV to II century B.C. Characterization of the samples has been obtained by petrographic (OM), mineralogical (XRD) and chemical (XRF) analyses with the aim of provide a technological study of local pottery production through also to the comparison with locally outcropping clay sediments (PRIN 2005-2007). Macroscopic analysis allow to distinguish four groups on the basis of grain size, porosity and clay paste color. Petrographic analysis are carried out on a selection of representative samples. All analyzed samples are characterized by dominant quartz and low groundmass birefringence; however, further features allow to identify three sub-fabrics (see Fig. 1): i) micaceous and poorly fossiliferous groundmass (samples AD8, AD10, AD13, AD21 - coarse pottery); ii) fossiliferous and poorly micaceous groundmass (AD19 - coarse pottery); iii) micaceous groundmass (AD22 - very fine pottery).

Mineralogical analyses have been carried out on a selection of 12 representative samples. All the samples show similar mineralogical composition with dominant quartz and presence of new formed Ca-silicates, suggesting high firing temperatures, according to petrographic data. About chemical analyses, a first group of samples namely A (AD1-9, AD 11-15, AD 17-22, AD 27-28) is characterized by high CaO (6.5 - 9.5 wt%), high TiO₂ and Fe₂O₃ and low SiO₂

Fig. 1. Macro- and microphotographs of representative samples (a) sub fabric i; (b) sub fabric ii; (c) sub fabric iii;
content. A second group namely B (AD 10, AD 16, AD 23- 26) is characterized by low CaO (5- 6%), low TiO2 and Fe2O3 and high SiO2 content; moreover, the second group shows low Sr, V, Cr, Ni, Co, Rb, Y, Zr, La e Ce content.

Finally, data have been treated with multivariate statistical approach [9] and have been compared with locally outcropping clay sediments (PRIN 2005-2007). The obtained results (Fig. 2) allowed to hypothesize that samples of chemical group A were made with a local CaO-rich clayey sediments and group B with a Ca-poor sediments.

![Fig. 2. Biplot of the two principal components.](image.png)

In conclusion, petrographic and mineralogical results suggest a good technological level of local production considering the high firing temperature esteemed. Furthermore, chemical data suggest a local provenance of raw materials for the specimens made with Ca-rich clays sediments (Terravecchia Fm.), while Ca-poor clays sediments have not identified until now. Therefore, this work provide a valuable contribute in defining the local scenario of ceramic production in Sicily during the Hellenistic Age and in producing a reference local group in petro-archaeometric studies of archaeological pottery. In particular, the obtained data may validate the hypothesis on the local production of the relevant red-figure vase painting pottery class widely found in the Adrano archeological site.

**References**


