ROMAN THIN-WALLED WARE FROM ERCOLANO: AN ARCHAEOMETRICAL INVESTIGATION

A. Mangone[1] -- L. Giannossa[1] -- R. Laviano[2] -- L. Sabbatini[1] -- A. Traini[1]

[1]*Dipartimento di Chimica, Università di Bari, via Orabona 4, 70126 Bari, Italy*
[2] *Dipartimento Geomineralogico, Università di Bari, via Orabona 4, 70126 Bari, Italy*

Samples of Roman thin-walled ware from Ercolano were studied by Optical Microscopy (OM) and Scanning Electron Microscopy (SEM) with Energy Dispersive Spectrometry (EDS) with the aim of validating the archaeological hypothesis of local production. Thin-walled ceramic forms a widespread class in Roman Mediterranean area between 2th cent. BC and 3th AD. Traditionally, production centres are hypothesized on the base on quantity and homogeneity of recovered material in the different archaeological sites, or on the comparison with other objects of certain provenance. The production indicators are few and, up to now, this class of Roman fine tableware has only occasionally been evaluated archaeometrically. In the Vesuvian area a production centre of these ceramics has been supposed on the base of macroscopic observations and morphologic peculiarities of the pastes. An archaeometrical investigation we have carried out on samples, classified by the archaeologists as campanian production, with the aim of, on the basis of unambiguous elements, validating or excluding the hypothesis of Vesuvian production.

Morpho-mineralogical analysis showed that all fragments are characterized by fine texture paste with a large degree of sintering and by the presence of pyroxenes, feldspars, volcanic rocks and opaque minerals - made up mainly by Mg, Si and Fe- as tempering materials. On most samples an engobe layer was applied by using the same clay utilized for the ceramic body, refined and applied on vessels after drying.

As concern coloured surface areas, in some samples an evident morphological and compositional continuity between the red or black coloured surface and the bulk was found, that allows us to exclude an intentional addition of pigments. In other samples, however, a distinct layer with an average thickness of about 20 μm on the ceramic body was revealed. This layer shows a very compact structure with no voids and a large degree of sintering, with no clay structure evident. ED spectra revealed larger quantities of Al, Fe, K and lower quantities of Si and Ca, with respect to the ceramic body, with different Al/Si and Al/Fe ratios for red and black coloured areas respectively. These data clearly indicate that a finer - and

very probably different clay - was used in the production of the black and red layers than that utilized for the ceramic body. Probably, moreover, wood ash, illite and K-feldspars were added to lower the temperature at which sintering takes place and to improve the sintering properties of clay.