

## GEOARCHAEOLOGICAL STUDY ON LOCAL FINE CERAMICS FROM II-III CENTURY (NAPOCA SITE, ROMANIA)

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Ceramic pottery made in Roman times and found in the Napoca archaeological site (Transylvania, Romania) is analyzed to establish a real classification as well as sources of raw materials.

The colours of the ceramic body are quite homogenous: red to yellowish-red or gray. The surface of the pottery is smoothed and in general is not decorated, rarely vegetal motifs being carved or pressed. The pottery is covered with a black or white, glassy slip.

Granulometrically, the ceramics is lutitic-siltic, the maximum diameter of the particles being less than 0.1 mm. The porosity of the ceramic body is low.

The microscopic studies, performed on thin sections, identified a microcrystalline-vitreous fabric, as well as the main compounds: various clasts in a clayish matrix. The clayish matrix present sinterizing or vitrification processes, in various degrees, function of the firing temperatures and the composition of the raw materials (SHEPARD, 1976).

The lithoclasts (magmatic and metamorphic rocks), crystalloclasts (quartz, plagioclase feldspars, orthoclase, biotite, muscovite, heavy minerals), bioclasts (fragments of globigerinid forams, echinid plates, nannoplankton) and ceramoclasts (potsherds) indicate both the composition of raw materials and the temper used for ceramic paste.

The fabric (the arrangement of lamellar minerals) is in general oriented, as the ceramics is a wheel-made one.

The changes in the microscopic characteristics of the minerals, the diffraction spectra and the SEM analyses indicate the temperatures of firing, which reached various domains, between 850 and 1000°C for the red ceramics and about 1100 °C for the gray one. With few exceptions, the calcite is partly or totally decomposed. The feldspars and clay minerals show changes of their optical properties. The ceramics fired over 950°C contains high amounts of glass as the result of melting processes. In the gray ceramics, fired at higher temperatures, around 1100°C, mullite crystals are also present.

The provenance studies, based on the comparison of the mineralogical-petrographical compounds (as temper, lithoclasts, bioclasts) and the features of the clayish rocks found nearby the location of the ancient city suggest the using of a kaolinitic-illitic clay, with calcite content. Similar rocks of Badenian age occur to the north of the archaeological site.

### Reference

SHEPARD, O. A. (1976): *Ceramics for the archaeologist*. 9th ed. Carnegie Inst. of Washington, 414 p.