

ROMAN MORTARS FROM “OSTIA ANTICA”: ASSESSMENT OF RAW MATERIALS USED THROUGH ARCHAOMETRIC INVESTIGATIONS

C.M. Belfiore^{1,2*}, M. David³, G.V. Fichera¹, A. Macchia⁴, M.F. La Russa², S.A. Ruffolo², M. Turci³

¹ Università di Catania, Dipartimento di Scienze Biologiche, Geologiche e Ambientali, Sezione di Scienze della Terra, Catania, cbelfio@unict.it

² Università della Calabria, Dipartimento di Ecologia, Biologia e di Scienze della Terra (DIBEST), Arcavacata di Rende

³ Università di Bologna, Dipartimento di Storia, Culture e Civiltà, Bologna

⁴ Syremont S.p.A., Arcavacata di Rende

The present contribution, focused on the study of roman mortars taken out from the archaeological area of “*Ostia Antica*”, is part of a wider research, the “*Ostia Marina Project*”, carried out since 2007 by the Dipartimento di Storia Culture Civiltà, University of Bologna. *Ostia* was one of the most relevant cities during the roman age for its position on the Tiber and its economic role, as main harbour on the sea and the river. The oldest remains, represented by a little settlement, the so-called “*castrum*”, date back to the 4th century BC. However, the city began to expand since the 1st century AD when under the Emperors Augustus, Claudius and Trajan, became the main trading centre of Rome [1]. The mortar samples object of this study were collected from sector A, called *Terme del Sileno*, recently brought to light. It represents a thermal complex with a public function, dating back to the Hadrian age (about 130 AD) [2].

Nineteen mortar samples (10 bedding, 1 coating, 4 paving, 4 from different layers under the tesserae of two mosaic floors) were collected for archaeometric investigations. Figure 1 reports, as an example, two sampling sites.

After a preliminary macroscopic description including binder colour, abundance and size of the aggregate, and degree of cohesion, the mortar samples were analysed by using polarising optical microscopy (POM), X-ray powder diffraction (XRPD), scanning electron microscopy equipped with energy dispersive system (SEM-EDS) and laser ablation inductively coupled plasma mass spectrometry (LA-ICP-MS). The results allowed to completely characterize the examined mortars as well as to gain information on the technological process and the raw materials used. For this purpose, results were compared with local raw materials and recent literature data referred to coeval mortars collected from the monumental complex of “*Villa dei Quintili*” [3]. This archaeological site is also of great importance since it represented the imperial residence during the roman age [4].



Fig. 1. Two examples of sampled mortars: a) bedding mortar; b) paving mortar.

References

- [1] Pavolini, C., 2006. Ostia, Guide archeologiche Laterza, Roma-Bari.
- [2] David, M., Pellegrino, A., Orofino, G. A., Turci, M., 2009. “Ostia (Roma)”, *Ocnus*, 17, 198-202.
- [3] Fichera, G.V., Barca D., Belfiore C.M., La Russa M.F., Pezzino A., 2012. Technological and geochemical study of historical mortars from the Roman “Villa dei Quintili” (Rome, Italy). *Rend. Online Soc. Geol. It.*, 21: 659-660.
- [4] Rotondi, A., 2012. La Villa dei Quintili e i suoi antichi proprietari. In: *Forma Urbis*, Itinerari nascosti di Roma Antica, ANNO XVII n.2, 6–8.