THE ROMAN ARCHAEOLOGICAL SITE OF PIETRATONDA (SOUTHERN TUSCANY, ITALY): AN ARCHAEOMETRIC STUDY OF BRICKS

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Until now the archaeological excavations carried out in Pietratonda (Southern Tuscany) show a Roman site in which three different sectors can be identified: the baths, an housing and a production area. On the basis of archaeological data the building of the production area can be attributed to a more recent period than the other two sectors.

In order to characterize the bricks of all sectors several samples were collected from different ruins of the archaeological site. In particular the sampling was focused on a *opus spicatum* floor located in the housing area, on the *sospensurae* of the baths and on the drain-tiles of the channel in the production sector. Two clays different in colour (red and yellow), sampled between the bricks of the *sospensurae*, were also examined.

The specimens were investigated by means of different analytical methodologies, such as optical microscopy in transmitted polarised light (OM), X-ray diffractometry (XRD), X-ray fluorescence spectrometry (XRF) and differential and gravimetric thermal analyses simultaneously performed DTA-TGA.

The bricks of the *opus spicatum* floor showed composition and texture very similar. These bricks were made with the same carbonate clay. Their characteristics are different from the other bricks samples. The specimens coming from the *sospensurae* and from the channel highlighted chemical compositions and microstructure similar. These bricks were obtained by not very different pastes. Therefore a re-use of bricks can be supposed for the channel. The firing temperatures of all the bricks can be valuated between 850 and 900°C approximately. The temper composition of the samples are in agreement with the lithotypes present in Pietratonda area. A local provenance of the raw materials can be supposed.

The red and yellow clays showed chemical compositions very different. In fact, the CaO concentration in red clay is about 1%, while in yellow one is 19%. In addition their compositions are not compatible with the bricks ones. The bricks were not produced with these clays.