Sampling strategies via statistical exploitation of morphometric data: Maximizing the assets of petrographic examination for a chronological review at the medieval town of Martorell (Barcelona, Spain)

Esther TRAVÉ ALLEPUZ1, Alfredo MAURI MARTÍ2, Rosario NAVARRO SÁEZ3, Pablo DEL FRESNO BERNAL4


Introduction

The archaeological site of Santa Margarida (Martorell, Barcelona) is placed below the ancient Via Augusta. The most ancient archaeological evidence is an Early Christian church with bipartite apses and its extensive necropolis. During the period between the 6th and the 12th centuries this site experienced a great transformation in accordance to the surrounding landscape articulation, the origin of the medieval village of Martorell and the refurbishment of the church, transformed into a Romanesque building (Navarro & Mauri 1993, 1997, Travé et al. 2019). Medieval greyware is the most abundant finding at the site. A morphometric and petrological study has been carried out recently. Greyware potsherds of four selected silos from different chronological horizons were subjected according to their morphometric characterization and examined via optical microscopy. Statistical exploitation of vessel shape compared to macroscopic paste examination led to a more precise sampling that has allowed us to interpret more accurately the chronological transformations of pottery of that site.

Results

This study includes 365 coarse-greyware pottery sherds found at silos 222, 453, 404 and 272. 120 samples were linos of bowls and wash-basins mainly. According to macroscopic and morphometric results described above, samples representing the entire assemblage were thin-sectioned and grouped according to the nature of inclusions: matrix and voids (Quinn, 2013) and compared to reference material. The earliest arcahological evidence is the Early Christian Church, mainly in silo 222, suggests the existence of an ancient monument, document. Quaderns científics i tècnics 9

Type B.1

WASH-BASINS

Type B

O.E1

O.E2

Type F.2a

Type F.2b

O.F1

O.F2a

O.F2b

O.F2c

O.D1

O.D2

O.D3a

O.D3b

O.D3c

Coarse Granitic Fabric

Coarse Keamorphic Fabric

Blonde-rich fabric

Fine quartz-and-hematite rich fabric

Slate-rich fabric

Quartz-tempered fabric

According to reference material and previous studies of pottery found at the medieval town of Martorell (Travé et al. 2017, Travé 2018), pottery was processed locally. Most samples (80%) were included within a Coarse Metamorphic fabric with numerous inclusions and Coarse+ Feldspar inclusions, probably related to a coarse schist. Few samples (25%), were related to the coarse silts of Cabrera d’Anoia (Travé 2018). The present study confirms this coherency and distribution 70% of them belong to the Coarse Granitic F.17a). Coarse Slate Fabric (5%) and Coarse Slate Fabric (5%) fabrics. Metamorphic fabrics show coarser or finer versions of the same paste recipe. Some new fabrics have been identified amongst these, the Blende-Rich Fabric (12%) exhibits inclusions of Quartz and Blende (~1 mm), probably included naturally in the clay. While biotite is a common mineral in Mediterranean slate, it is less common in Mediterranean biotite. It probably was a finer version of the previous fabric. A Coarse Slate Fabric (5%) exhibits very coarse (4-5 mm) inclusions of slate, clearly added as temper. Similar products were found near the monastery of Sant Quirze de Pedret, where archaeological features show strong similarities with Late Bronze Age productions in the area, which suggests the existence of an settlement nearby and the accidental occurrence of such pots within the abandonment fillings of medieval silos. Finally, a Coarse-Slate-tempered Fabric (10%) contains the same range of inclusions as the local metamorphic fabric, and it looks like a quartz tempered version of this.

Discussion

Silos 272 and 404 were filled with more recent deposits (c. 12th-13th centuries). While 222 and 453 are from an earlier period (8th-9th centuries). The first impression arising from data comparison is that pottery production (top) had changes and functional significance: ancient deposition contained masonry while most of individuals in silos 272 are basins. Both local products and imported vessels from Cabrera d’Anoia lasted for most of the medieval period at the site, while biotite-rich samples, mainly in silo 222, suggest the existence of an ancient production abandoned at some point within the site’s transformation. However, the wide range of data available increases the knowledge about greyware transformation and endurance, as explored in other areas (Tirón & Vicente 2009, Travé et al. 2018, 2019, Vicente & Travé 2018), profile measurement is a key element in order to classify vessel typologies, and sampling strategies are still in use.

References

1. TRAVÉ ALLEPUZ E, MAURI MARTÍ A, NAVARRO SÁEZ R, BERNAL DEL FRESNO P (2020) ‘Formación de un patrón de consumo de la cerámica de época medieval basada en los análisis morfométricos y petrográficos de la cerámica de Santa Margarida (Martorell, Barcelona)’. In Ollich I. (ed.) «Mauri A, Travé E, Del Fresno P (2012) ‘Morfometric approach combining raw or basic and maximum or maximum diameters, wall thickness, height and profile (Travé 2009, Vicente & Travé 2018) allowed the identification of more precisely vessel specific profiles. Profile measurement turned into a tool to find patterns and differences by means of a template (Larios & Vierge 1974, 1980) is really suitable to determine type and degree of breakage. Amongst these, Ollae wash-basin type Ll.D, which might be interpreted as a sink or receptacle (Amszegi & Leatma 2012)." 2. TRAVÉ ALLEPUZ E, MAURI MARTÍ A, NAVARRO SÁEZ R, BERNAL DEL FRESNO P (2020) ‘Formación de un patrón de consumo de la cerámica de época medieval basada en los análisis morfométricos y petrográficos de la cerámica de Santa Margarida (Martorell, Barcelona)’. In Ollich I. (ed.) «Mauri A, Travé E, Del Fresno P (2012) ‘Morfometric approach combining raw or basic and maximum or maximum diameters, wall thickness, height and profile (Travé 2009, Vicente & Travé 2018) allowed the identification of more precisely vessel specific profiles. Profile measurement turned into a tool to find patterns and differences by means of a template (Larios & Vierge 1974, 1980) is really suitable to determine type and degree of breakage. Amongst these, Ollae wash-basin type Ll.D, which might be interpreted as a sink or receptacle (Amszegi & Leatma 2012)."