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Islamic ceramics in Portugal found at Silves Castle (8th to 13th c.): An archaeometric characterization

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ABSTRACT

Silves Castle is located in the Algarve, South of Portugal. Archaeological excavations provided numerous remains of the Islamic presence in this area from the 8th to the 13th c., which could be traced back to the Ommiad, Caliphal, Taifa, Almoravid and Almohad periods. The spectroscopic study of the ceramics, enabled us to discuss their provenance and production techniques.

A clear difference in the diffraction patterns of the sherds from the Ommiad period (8th to 9th c.), and the Caliphal period (10th–11th c.) was observed, pointing to imported ceramics in both groups, the latter most likely from Medinat al-Zahra. The origin of the Ommiad ceramics still remains controversial. The samples from the Taifa kingdoms (11th c. period) were characterized as Lisbon productions. The blue and white ceramics studied here (12th–13th c.) are most probably the first samples showing the use of cobalt blue onto a white tin oxide layer made in Portugal.

1. Introduction

Under the Ommiad caliphs, Arabic culture and Islamic rule spread to the Iberian Peninsula (Silverstein, 2010). Islamic arrival at the Iberian Peninsula dates back to 711 and Lisbon's military occupation occurred in 714. Silves town, conquered in 713, is located in the South of Portugal (Algarve) and was an important center of development and culture in our country, since the 8th to the 13th c., when the Portuguese Christian king Afonso III defeated the Muslim armies in 1248. In Spain only in 1492, about two hundred years later, were the Muslims defeated by Fernando and Isabel. The remarkable legacy from the Islamic culture in Portugal can still be seen in many ways: the large number of words in the spoken Portuguese, architectural influences, agriculture techniques among others.

The Silves Castle archaeological excavations (Varela Gomes, 1992, 2003) provided numerous remains of its occupation from the 8th to the 13th centuries, which could be traced back to the Ommiad (8th–9th c.), Caliphal (10th–11th c.), Taifa (11th c.), Almoravid (12th c., 1st half) and Almohad (2nd half of the 12th and the 13th c.) periods and clearly show the splendor of this culture, as Figs. 1a shows.

Perez-Rodriguez recently pointed out that there is no known ceramic production in Seville before the 11th c., and that in the following centuries a great variety of ceramic types was produced in that city (Garofano et al., 2015). The production of tin-glazed ceramics in the Iberian Peninsula started in the 10th c., with green and black decorations on white glazes characteristic of the Caliphal period. This green and black ceramics are also associated with the Madinat al-Zahra productions (located near Cordoba), 10th c., which from then on spread all over the al-Andalus (Garofano et al., 2015; Molera et al., 2001; Gonzalez Garcia et al., 1999).

Taking into account these well dated and documented production sites in the Iberian Peninsula, and also the fact that a local production of high quality ceramics is unlikely to have started immediately after the arrival of Islamic people to the Algarve, one is led to conclude that the green and black ceramics found at Silves castle, archaeologically dated to the 8th–9th c., are most probably imported ceramics, namely from the Middle East, Iran or Egypt (Varela Gomes, 1992, 2003; Molera et al., 2001, 2013; Ballirano et al., 2014). A similar assumption was made by F Gonzalez Garcia (Gonzalez Garcia et al., 1999), relative to some of the ceramics found at Medinat al-Zahra.

The sherds from the Castle of Silves excavation site (Fig. 1b) were studied with the use of non-invasive (or almost non-invasive) spectroscopies, correlating information from different techniques, namely: Ground State Diffuse Reflectance absorption (GSDR), micro-Raman

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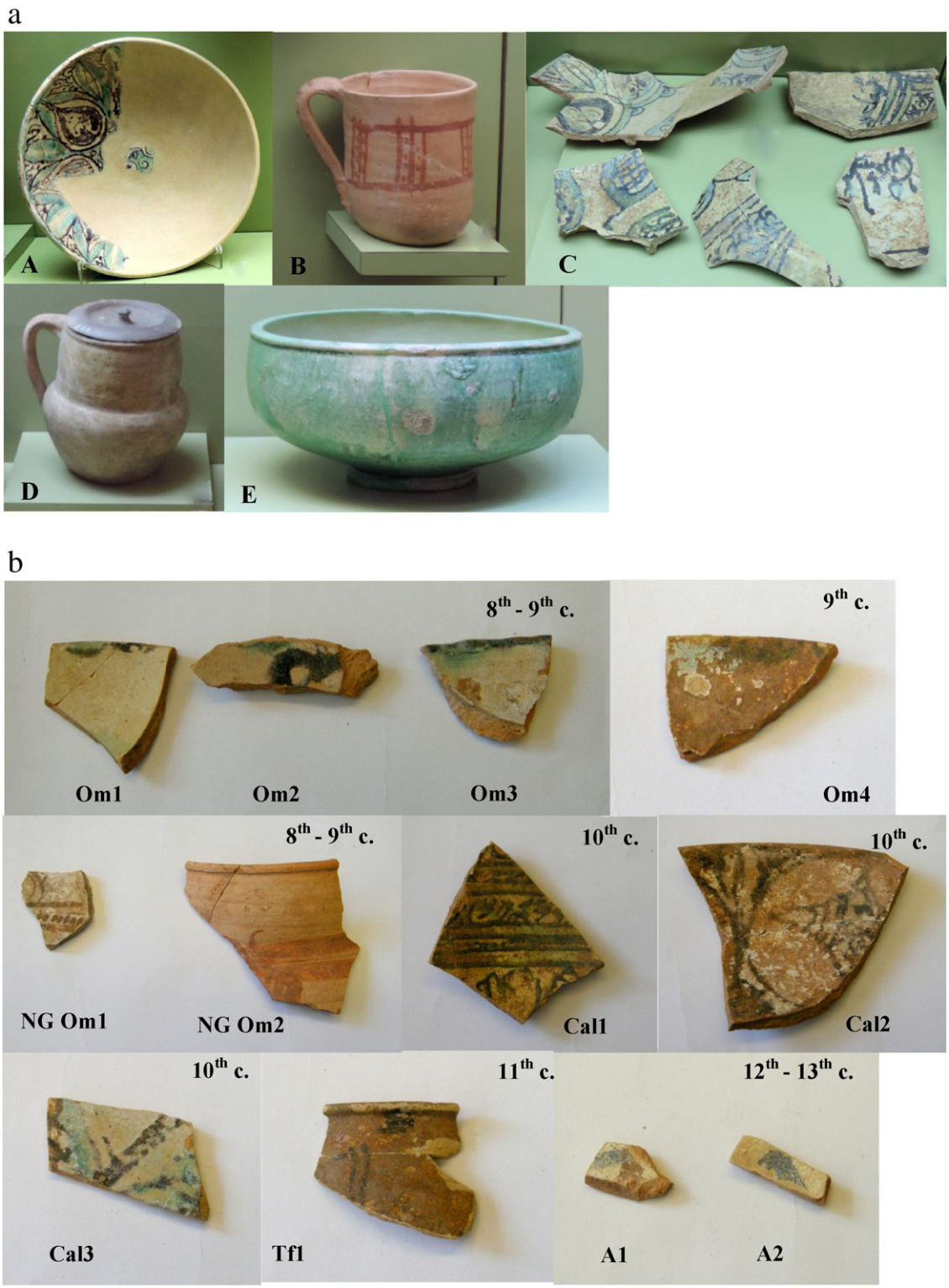

Fig. 1. (a) Islamic ceramics from Silves Castle: A) 8th–9th c. Ommiad Glazed; B) 8th–9th c. Ommiad Non-glazed C) 10th c.–Caliphal; D) 11th c. Taifas; E) 12th–13th c. Almoravid, Almohad, all belonging to the Museum of Silves collection. (b) Studied ceramic sherds from the Castle of Silves excavation selected for this work. Om1 to 4 are Ommiad, glazed samples; NG Om1 and 2 are Ommiad, but non-glazed samples; Cal1 to 3 are Caliphal, glazed; Sample Tf1 is from the Taifa period; Samples A1 and 2 are Almoravid/Almohad, glazed

and X-Ray Fluorescence emission (XRF). X-Ray Diffraction (XRD) experiments were also performed. This multidisciplinary approach to the archaeometric study of Portuguese faiences was recently applied to 16th and 17th c. ceramics by our group (Vieira Ferreira et al., 2014, 2015a, 2015b, 2016).

Micro-Raman is probably the most powerful non-destructive method to characterize archaeological artefacts, namely glazed ceramics and coloured glasses and has been extensively used to investigate ancient ceramic art objects (Colomban, 2003, 2008, 2012; Colomban and Paulsen, 2005; Colomban et al., 2006; de Waal, 2004, 2009; Kirmizi et al., 2010). Micro-Raman can be used to obtain information regarding the crystalline or glassy structures, which are built from covalent bonds between the SiO_4 tetrahedra in different modes. The ratio of the stretching (i.e. ~1000 cm^{-1}) and bending (~500 cm^{-1}) Raman