# Glazed pottery from the excavations in Akkerman (Bilgorod-Dnistrovskyi, Ukraine), preliminary results of archaeological and archaeometric studies

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**Abstract:** Archaeological and archaeometric studies of glazed ceramics from excavations in Bilhorod-Dnistrovskyi (former Akkerman, South of Ukraine) clarify the origin of three groups of pottery, as well as the upper chronological limit for the Byzantine imports in the Northern Black Sea region. It could be determined around the middle of the 15th c., which suggests that their production could continue in Constantinople until the Ottoman conquest.

**Keywords:** Akkerman – Bilhorod-Dnistrovskyi, 14th–15th century, glazed ceramics, archaeological and archaeometric approach.

**Resumen:** Estudios arqueológicos y arqueométricos de cerámicas vidriadas procedentes de excavaciones en Bilhorod-Dnistrovskyi (antigua Akkerman, sur de Ucrania) aclaran el origen de tres grupos de cerámicas, así como el límite cronológico superior de las importaciones bizantinas en la región septentrional del Mar Negro. Podría determinarse hacia mediados del siglo XV, lo que sugiere que su producción continuó en Constantinopla hasta la conquista otomana.

**Palabras clave:** Akkerman – Bilhorod-Dnistrovskyi, siglos XIV–XV, cerámica vidriada, aproximación arqueológica y arqueométrica.

Akkerman (Asprocastron, Moncastro, Maurocastrum, Bilhorod) is a medieval site on the estuary of the Dnister River leading to the Black Sea, in the modern Bilhorod-Dnistrovskyi town (Odesa region) in southwestern Ukraine (Fig. 1). It is situated on the top of the remains of ancient Tyras and has one of the largest surviving late medieval fortresses in Eastern Europe. There are three main stages in its history. Since the late 13th till the second half of the 14th c., there was large Golden Horde (Ulug Ulus) settlements and a Genoese trading post. From the late 14th c. it became a possession of Moldavian princes, who built the fortress in the early–mid 15th c. In 1484 the city was captured by the troops of Sultan Bayezid II. After some reconstructions it became one of the best-fortified point and largest commercial port of the Ottomans in the Northern Black Sea Region (Russev, 2015; Ostapchuk et al., 2008).

A significant number of ceramics of various origins came to the city (Kravchenko, 1986: 89-113). But despite the more than 120 years of archaeological study of the site, medieval potteries from these excavations are still poorly understood. Local and imported wares are not clearly distinguished, and the origins of many vessels are not identified.

These issues were studied for three groups of glazed wares from recent excavations, using a combined archaeological and archaeometric approach. Chemical analysis by X-ray fluorescence in Lyon laboratory (CNRS UMR 5138) was carried out on samples coming from layers

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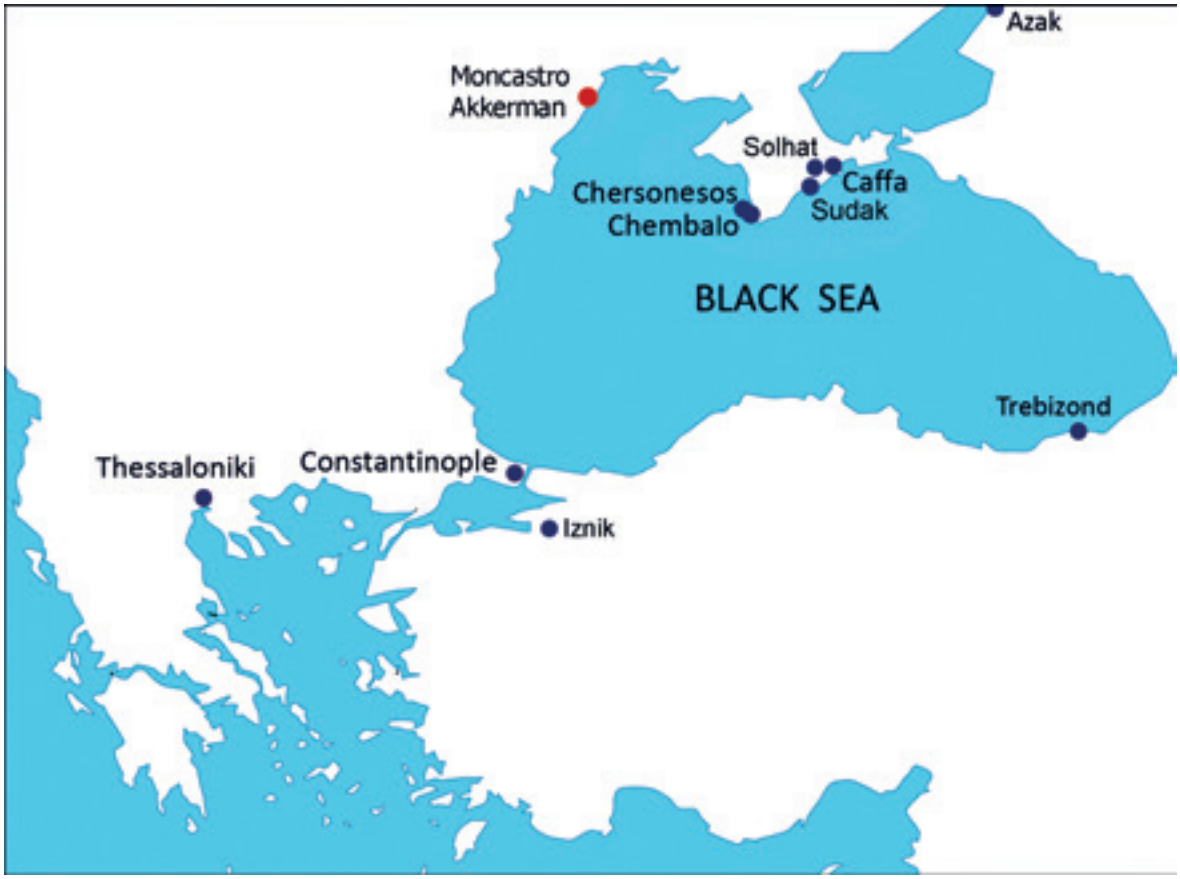


**Figure 1.** Map with the sites mentioned in the text.

related to the Moldavian and early Ottoman periods of the city in the area of Bayezid II mosque, excavated in 2017 under the direction of I. Teslenko. The chemical compositions of the samples from Akkerman were compared to reference data in Lyon database, for workshops in Istanbul, Thessaloniki, Iznik and in Crimea, where similar groups of wares were manufactured.

The first group includes Byzantine imports, whose fabric looks fairly heterogeneous to the naked eye (Fig. 2: I). It is quite common in the site and was previously dated to the 13th–14th or 14th c. without context detail, and clarification of the possible origin (Kravchenko, 1986: 102-114). The Byzantine imports studied are similar but come from 15th century contexts, well dated by Moldavian coins. Chemical analysis of 10 samples shows that they came from the Istanbul Sirkeci workshop (Fig. 3: a) (Waksman, 2012). So we can clarify both the origin and timeframe of their distribution in the Northern Black Sea Region on the basis of these new data.

The second group is related to the so-called 'Miletus Ware', which was produced in several workshops in Western Anatolia in the Early Ottoman period, including Iznik (Fig. 2: II) (Burlot, Waksman, 2021: 168-170). Previous analyses suggest that the majority of Miletus wares found in Crimea, and probably in the Northern Black Sea region, from the middle of 15th to the early 16th c. or even a bit later, came from Iznik (Teslenko, 2007; Guionova, 2015; Burlot et al., 2020: 2). The two samples from Akkerman analyzed are no exception (Fig. 3: b).

The third group is similar to the Crimean production of the so-called 'South-eastern Crimea Group', decorated mostly in the 'Caffa style' (Fig. 2: III). They are the most numerous in the glazed pottery assemblages and were associated with the local Bilhorod production before (Kravchenko, 1986: 63-77). One sherd, which is probably redeposited, could be dated to the 14th c. and be related to the other Crimean workshops (Solkhat or Sudak areas?) (Fig. 2: III, BZN446) (Teslenko, 2018: 9-13; 16-25). Genoese's Caffa


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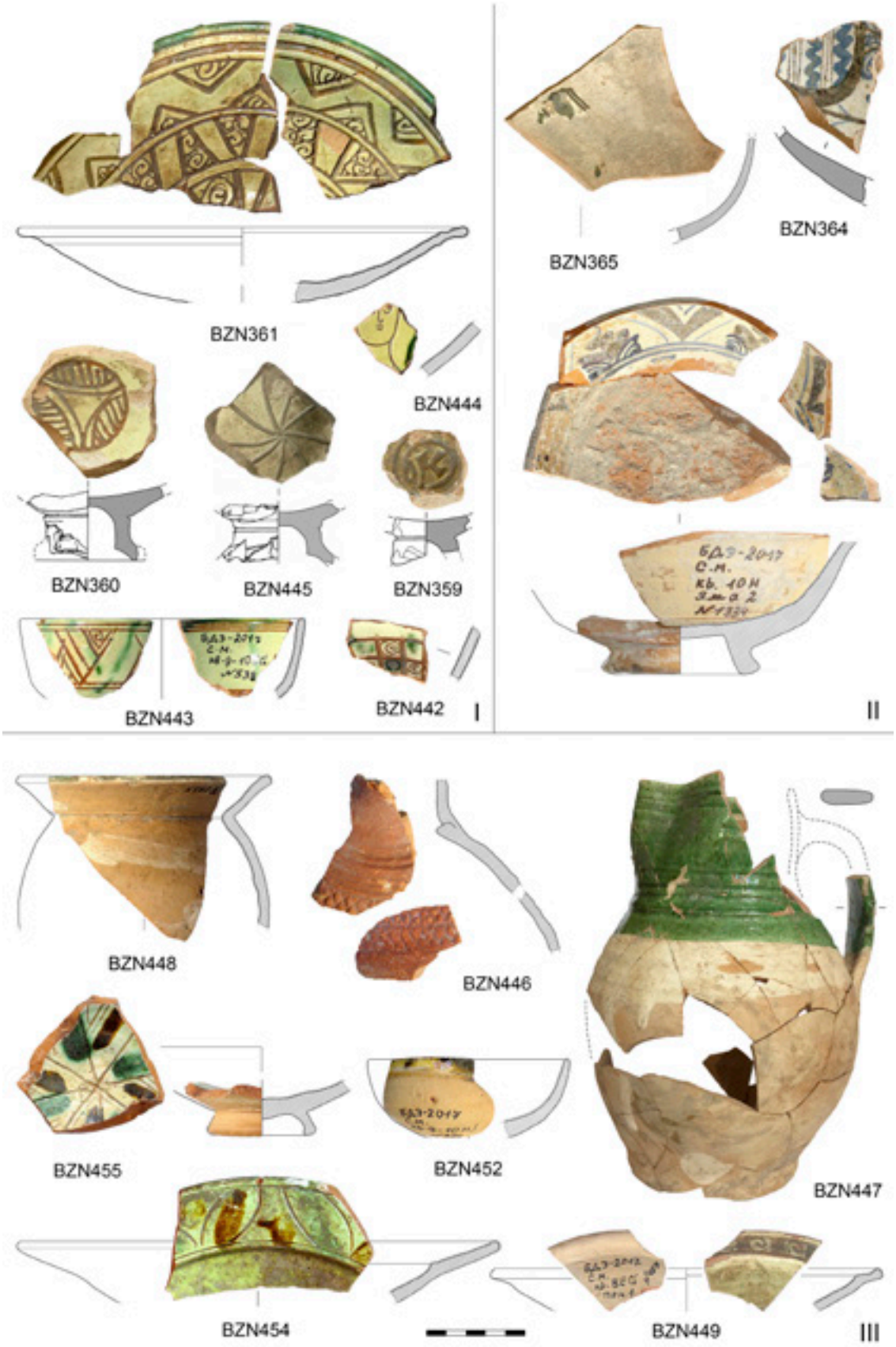


**Figure 2.** Glazed pottery from the 2017 excavations in Bilhorod-Dnistrovskyi analyzed samples are indicated by their Lyon laboratory id.: I – Byzantine imports; II – 'Miletus Ware'; III – 'South-eastern Crimea Group'.


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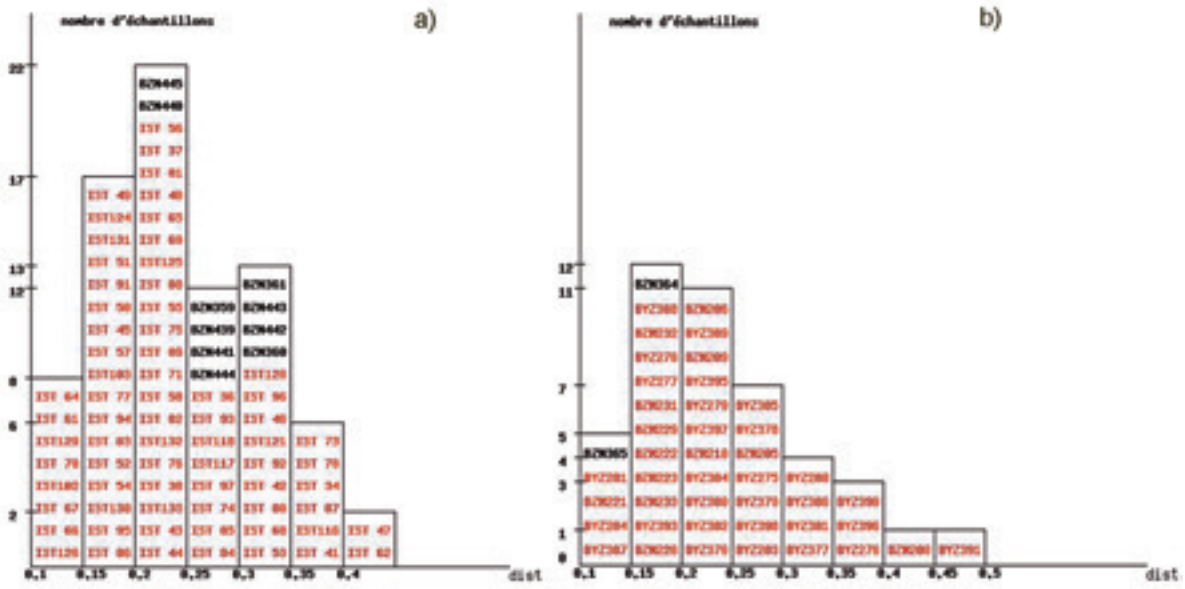


**Figure 3.** Histogram of Euclidean distances, between samples found in Bilhorod-Dnistrovskyi (in black) and reference samples for the workshops of Istanbul Sirkeci (a) and Iznik (b) (in red).

and Cembalo workshops were the main Crimean production centres of such glazed pottery in the 15th c. identified so far (Teslenko, 2021: 77-90). This does not exclude the possibility that imitations were manufactured in other sites of the Black Sea region, especially in medieval Bilhorod-Dnistrovskyi. However, chemical analysis of 15 samples supports the connection of this group with Crimean workshops, and shows at the same time its heterogeneity (Fig. 4).

## CONCLUSION

Our study suggests that glazed pottery arrived from different workshops to Moncastro/Bilhorod/Akkerman. All the Byzantine imports analyzed came from Constantinople (Sirkeci) probably till the Ottoman conquest of the city in 1453. This is particularly interesting since this production is not well dated in Istanbul. Also, similar wares present in other sites of the Northern Black Sea Region (Crimea, Azak) may have a different origin and stop arriving mainly by the turn of the 14th-15th c., with a few exceptions (Teslenko et al. 2021). Thus, they may represent the latest phase of the Byzantine glazed pottery production. 'Miletus ware' came from Iznik workshops possibly around or shortly after the capture of Constantinople by the Ottomans. The other samples are not so homogeneous and probably came from two or three Crimean workshops (Caffa, Chersonesos area including Cembalo for 15th c. exemplars, and maybe Solkhat or Sudak for the 14th c. one). So, the city at the mouth of the Dnister had a close connexion with Crimea, Constantinople and Western Anatolia over the Moldavian period, most likely through the Genoese as main trading agents. The Ottomans' involvement in the Black Sea trade may also have increased after the fall of Constantinople.

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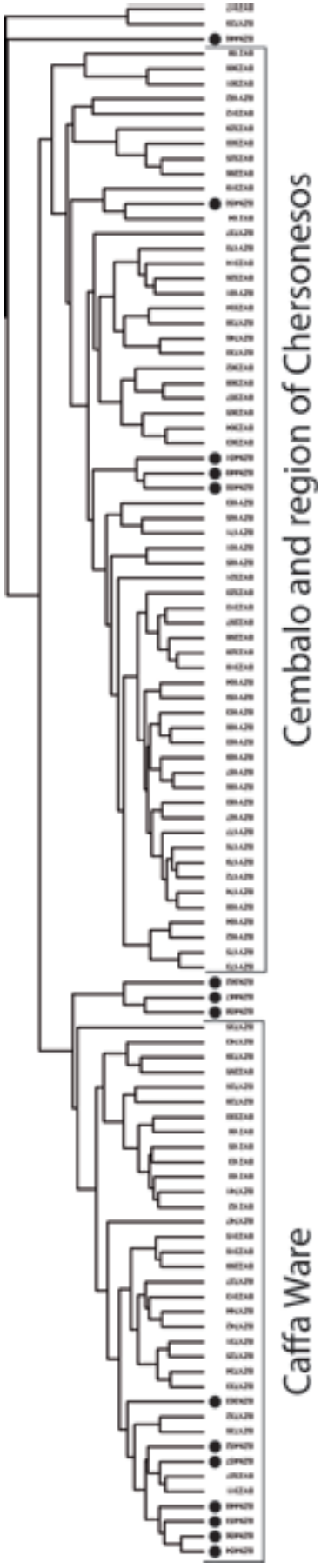


**Figure 4.** Classification of samples according to their chemical composition (HCA): Crimean imports in medieval Bilhorod (black dots) and related reference groups.

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