

ARCHAEOMETRIC INVESTIGATIONS OF COARSE POTTERY FROM ROMAN-TIMES SETTLEMENT AREAS IN STYRIA AND BURGENLAND, AUSTRIA

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In general, coarse pottery of the Roman period has been believed to have been produced at the place where it was used, but recent evidence based on the optical similarity of the potteries suggests that even these ceramics were made in production centres specialized for coarse ware and were traded like fine ware (LAMM, 2011). This hypothesis has also been postulated for coarse ceramics produced during the first and second centuries and found at the Roman sites of Gleisdorf, Hörbing, Retznei, Saazkogel and Sankt Martin an der Raab. To scientifically test this hypothesis, 41 ceramic fragments from these five sites were analysed more closely using mineralogical and chemical methods (CL, EMPA, FTIR, OM, XRD, XRF). The samples were subdivided into three types of pottery: Fragments of dolia (storage containers), tripod bowls and cups. However, cup fragments from the Saazkogel and tripod bowls as well as cup fragments from Hörbing were not analysed, as they were not available from these localities. In contrast to the results of earlier investigations on Roman coarse potteries (PICHLER et al., 2017), the results of this mineralogical investigation show that all ceramic fragments from these regions have similar compositions. Quartz, mica and feldspar minerals, mainly of plagioclase composition, are the main components, but the quantitative content of these minerals in the shards differs, especially that of the plagioclase. The chemical compositions of the fragments specifically differ depending on the type and the sites in which they were found. By applying the Principal Component Analysis (PCA) method, three different chemical groups were determined: a SiO₂-rich group with slightly higher amounts of Fe₂O₃, MgO and K₂O; a second group with a slightly lower SiO₂ content but slightly higher CaO, Na₂O and MnO contents; and at least a third group characterised by its low SiO₂ content and higher Al₂O₃ and TiO₂ contents. The minor and rare element contents also supported the formation of these groups but with less precision. To collect more information about the provenience of the analysed shards, the Optimal Foraging Theory model, used in Stone Age archaeology, was also used. By combining the results of these analyses with the available archaeological information, initial conclusions about the provenience of the analysed shards could be made. The evidence shows that at least three different production places for Roman coarse ware existed during the first and second centuries in the regions of Styria and Burgenland: one in Hörbing, one for Retznei, perhaps in Flavia Solva, and one for the others, possibly in Gleisdorf. In addition, it seems as though no standardized formulation for all ceramics existed, although formulations existed for certain equal types of ceramics (cup, dolia and tripod bowl). In contrast, all the ceramics were fired at temperatures between 700 and 800 °C.

LAMM, S. (2011): Die römische Villa von Grünau. Funde und Befunde der Grabungssaisonen 1991, 1992, 2001 und 2002. Dissertation zur Erlangung des Doktorgrades der Philosophie, Karl-Franzens-Universität Graz, Österreich.

PICHLER, R., HASPL, E., LAMM, S., KLAMMER, D. (2017): Mitt. Österr. Miner. Ges., 163, 71.