

Application of gas-chromatography to clarify the attribution of the ancient clay vessel

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Abstract

Since ancient times, people used ceramic vessels to transport and store food and drink. The chemical analysis of organic remains, preserved in archaeological sites, provides useful cultural information about ancient communities. In particular, the characteristic of the lipid fraction in archaeological material is of great importance for obtaining information on the use, habits and diet of people. The study of lipid residues of food products found on the outer and inner surfaces of ancient clay or ceramic vessels and their identification by chemical analytical methods can provide valuable information on the methods of using these vessels and food additions of ancient people.

The results of investigation of organic remains of the contents of an ancient molded vessel from raw clay found by the Central Asian Historical and Household Expedition of the GMM in 1951 in the city of Tashauz (Khiva Khanate), using gas chromatography are present in this paper. Samples of "dried fat" from the surface of the vessel were processed according to two-stage scheme. The extracts obtained were derivatized with methanol to produce fatty acid methyl ester (FAME), which were analyzed by gas chromatography. Based on the fatty acid profiles of test samples and on quantitative ratios of the mass fractions saturated fatty acids (palmitic and stearic, palmitic and myristic), it was suggested that the test vessel was used to store butter from camel milk.

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