
Organic residue analysis of Neolithic ‘bog pots’ demonstrates mixed processing of foodstuffs

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Abstract

Stone Age wetland sites does not only contain well preserved bone, antler and wooden artefacts, but also organic remains on non-organic artefacts like lithics or ceramics. One example are the well preserved organic residues on Neolithic potsherds, which allow us to employ novel bioarchaeological methods to study the diets of the peoples at that time.

In this study we combined published and unpublished data for thirty Early to Middle Neolithic (ca. 3950-2350 cal BC) ‘bog pots’ that were sampled from the collections of The National Museum of Denmark, Copenhagen. Their organic residues were analysed using a combination of bulk carbon and nitrogen stable isotope analysis, solvent extraction followed by gas chromatography-mass spectrometry (GC-MS), and compound-specific carbon stable isotope analysis by gas chromatography-combustion-isotope ratio mass spectrometry (GC-c-IRMS). The organic residues included absorbed residues (from powdered sherds), partially carbonised cooking residues from the interior of some vessels (‘foodcrusts’) and sooted material from the exterior surfaces of some vessels (sooted residues). Detailed analysis of the composition and isotopic signatures of the residues revealed the presence of ruminant adipose fat, dairy fat and aquatic fats with some residues containing a mixture.

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