Lipid residue analysis of Middle Palaeolithic lithic remains from El Salt (Alicante, Spain)

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Abstract

The analysis of lipid residues preserved in archaeological materials has yielded a large amount of valuable data about past human populations. However, lithics, which are the most ubiquitous objects of Palaeolithic/African Stone Age sites have not yet been extensively studied through this analytical approach. Important issues such as the lipid retention potential in archaeological lithics, as well as the effects of post-depositional lipid migration from sediment to objects and vice versa remain unaddressed. In this study, we extracted lipid biomarkers from a set of flint flakes and limestone pebbles from El Salt Middle Palaeolithic site (Alicante, Spain) and analysed them using gas chromatography-mass spectrometry combined with compound-specific carbon isotope analysis. The lipid composition of the sediment surrounding each of the lithic objects was also analysed for comparison. Preliminary results suggest that the lithic remains preserve lipid biomarkers, and that these are different than those present in the sediment around them. Lithic objects also yielded smaller amounts of lipids than the sediment samples. These results highlight the preservation potential of the biomolecular Palaeolithic record and the importance of exploring it in different contexts, both in sediments and in other kinds of material record.

Keywords: lipid biomarkers, lipid residues, stable isotopes, lithics, Middle Palaeolithic

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