HARVEST: a multidisciplinary approach to understanding ancient hominin use of plants

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HARVEST: A multidisciplinary approach to understanding ancient hominin use of plants

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The evolutionary history of the modern human dietary repertoire is a major research challenge. However, for various reasons, existing information about ancient diets is heavily biased towards the consumption of animal foods. Plants are known to be important components of modern hunter-gather diets, and the inclusion of plant foods and the development of processing technologies have been implicated in grade shifts within the hominin lineage. Using a behavioral ecology framework, the ERC-funded HARVEST project has asked: What types of plants did hominins eat, and why did they choose the ones they did? Analyses of microremains and residues preserved in dental calculus has provided a snapshot of the kinds of foods consumed. We have furthermore developed a model dental calculus system that allows us to develop new analytical methods and address hidden biases associated with the extraction and analysis of microremains. Our studies of food preferences and energetic costs of various subsistence-related behaviors among the Baka have highlighted the interactions between cultural mores, individual preferences, and energetic constraints. Our analysis of variation in plant properties among microhabitats in African environments similar to those used by hominins has allowed us better model what nutritional qualities drive their food choices. Finally, we have assessed how the energetic costs of fire might influence food processing choices. Results from these studies have indicated that plants were an essential part of the hominin dietary repertoire throughout our evolutionary history, and that the consumption of plants is determined by environmental, caloric, cultural, and personal influences.

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