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Phytolith Environments from Olduvai Gorge (Bed II)

Makarius Itambu¹, Robert Patalano¹, Fernando Diez-Martín², Manuel Domínguez-Rodrigo³, Charles Egeland⁴, Julien Favreau¹, Patrick Lee¹, Audax Mabulla⁵, Alfredo Pérez González⁶, Manuel Santoja Gomez⁶, Laura Tucke¹, Julio Mercader¹

1 - University of Calgary · 2 - University of Valladolid · 3 - Complutense University · 4 - University of North Carolina · 5 - The National Museums of Tanzania · 6 - CENIEH-Centro Nacional de Investigación sobre la Evolución Humana, Burgos, Spain

Hominin adaptations to changing environments and increasing aridity in East Africa are central to current palaeoanthropological debate, particularly in regards to the Oldowan-Acheulian transition. Reconstructions of past vegetation landscapes require a multi-disciplinary approach that includes paleoethnobotany, archaeology, and geoarchaeology to illustrate long term environmental trends observed in sedimentary sequences. Olduvai Gorge (Tanzania) contains bedded deposits of recognized value to address questions such as the habitat types that existed along paleo-lake Olduvai during the deposition of upper Bed II (1.5-1.3 Ma). Phytoliths are silica bodies that form within and between cells of different plant parts. When preserved, they can be used as a marker of plant family and ecosystem. These silica particles are morphologically distinct, consistent, and resistant to decomposition. Opal silica has been used to understand phytolith production by modern plants in various ecosystems, the correlation between subsurface assemblages and overlying analog vegetation, and Plio-Pleistocene ecosystems. In Olduvai Gorge, phytolith analysis has focused on reconstructing the diversity of landscapes that framed hominin evolution during Bed I and lowermost Bed II. However, almost no information exists about the middle to upper part of Bed II. This poster introduces ongoing doctoral phytolith work on three sites: 1) Sam Howard Korongo (SHK) (1.5-1.34 Ma), 2) Bell's Korongo (BK) (1.3-1.1 Ma), and 3) Thiongo Korongo (TK) (1.3-1.1 Ma). The lithofacies represented in these sites include both lacustrine, fluvial, and low energy channels and paleosols. SHK is found in a fluvial context that was an integral part of a wider lacustrine system, while BK contains both alluvial and fluvial deposits, and TK supports low energy paleosols and several channel facies. Sampling procedures involved both a site specific and landscape approach; horizontally (spatial) and vertically (temporal) to reconstruct paleovegetation at each of the three locations. Sediments were also collected from trenches, according to stratigraphic layering and features. In the laboratory, sediment samples were sieved, dispersed, and treated with acids prior to heavy liquid separation. After phytolith extraction, counting and classification ensued. Morphometric characteristics are recorded as the basis to making ecological inferences and explain the environmental context of upper Bed II.