

Phytolith Analysis of Đa Bút and Phùng Nguyên Cave Sites in Tràng An, Northern Vietnam

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Abstract

The focus of phytolith research in Vietnam has been orientated towards understanding silica leaching and uptake with regards to modern rice agriculture; phytolith analysis in an archaeological or palaeoenvironmental context is under-researched. Phytoliths are less affected by taphonomic processes such as temperature and humidity than macrofossils and preserve well under varying soil pH levels, making them a valuable resource for investigating vegetation exploitation and the appearance of domesticates in the tropics. Here we present results of phytolith analysis conducted at Hang Moi and Thung Binh 1, within the Tràng An World Heritage Property, Ninh Binh province, northern Vietnam. Middle Holocene deposits associated with Đa Bút and Phùng Nguyên archaeological assemblages were targeted. Evidence from overlying hearth deposits in Hang Moi, confirm the exploitation of wood for fuel and is associated with proportionally high levels of palm phytoliths and low-levels of phytoliths from wetland, evergreen forest and arid tropical/sub-tropical grasslands, attesting to the utilization of a range of habitats by the Đa Bút. At Thung Binh 1, phytolith counts were extremely low, but a small number of phytoliths, indicative of reeds and sedges were recovered, suggesting that the area surrounding the isolated hill in which the cave is situated, may have been open wetland during Phùng Nguyên use of the site. In Vietnam, phytolith analysis has only been conducted at a few sites with little of this work being published. This research identified two main factors to be addressed if the use of phytoliths is to be expanded in Vietnamese archaeology; the amount of sediment sampled needs to be increased to account for the taphonomic degradation associated with highly alkaline environments and a public, regionally specific, modern reference collection is required to facilitate more researchers to conduct analysis and allow the identification of morphotypes to a higher taxonomic affinity.