Suitable biomolecular techniques for the field of archaeology in Sri Lanka

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Science has always played a vital role in archaeology, since 1950s, when techniques invented by nuclear physicists for measuring the decay of radioactive atoms were first used by archaeologists to date artefacts. Since 1985, the way in which biological remains have been studied by archaeologists has undergone a remarkable evolution. Osteology, archaeobotany, zooarcheology and other approaches that involve examination of the physical structure of remains are still effective, but they have been supplemented with techniques in which the biomolecular content of the artefact is analysed. Biomolecular archaeology is the study of the ancient biomolecules that are preserved in the archaeological contexts. Mainly three types of biomolecules; DNA, proteins and lipids are studied. Although the archaeologists around the world employ techniques of molecular biology to retrieve and interpret archaeological data more efficiently and they are used seldom in archaeology field of Sri Lanka. The aim of this study was to explore the potential of applying the techniques of studying ancient biomolecules in the archaeological environs of Sri Lanka. Information collected through literature survey was carefully analysed. The relevance and applicability of each biomolecular archaeology technique in Sri Lankan archaeology was considered. The environmental facts and the rate of degradation of biomolecules, skeletal remains and plant remains were identified as the most suitable sources of ancient biomolecules available in Sri Lanka. Stable isotope analysis appears to be the most appropriate biomolecular archaeological tool for Sri Lanka. Although there are several challenges to adopt biomolecular archaeology in Sri Lanka, such as unavailability and unaffordability of required equipment, lack of training and rapid degradation of biomolecules, there is a great potential in applying biomolecular techniques in Sri Lankan archaeological studies.

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