PRELIMINARY INVESTIGATIONS OF INLAND CORAL DEPOSITS TO RECONSTRUCT HOLOCENE SEA-LEVEL CHANGES

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Coral reefs are related to contemporary processes and sea-level changes over the geological time. Although corals can be dated from late Cambrian to Present, most modern reefs date approximately 5000-7000 years BP. Several Holocene inland coral reefs are preserved in the southern coastal belt of Sri Lanka as pocket deposits. These deposits can be used effectively as proxies to determine the paleo-sea level and environmental changes in Sri Lanka. Well preserved coral samples collected from the southern coastal area were investigated by X-Ray Imaging to identify the skeleton structure. Scanning electron microscope (SEM) combined with EDX and X-ray diffractometer (XRD) were used to identify the external morphology and elemental composition. Chemical composition of samples was analyzed using an inductively coupled mass spectrometer (ICP-MS). Samples were selected based on annual growth bands recognized by X-Ray imaging. SEM and XRD and analyses indicated the presence of aragonite crystal structure suggesting the growth of the skeleton at a deep ocean environment. Ratios of Mn/Ca, Fe/Ca and Pb/Ca indicated the sedimentation of the coral surface occurred after being exposed or at the termination of the coral colony. Mg/Ca (1.45×10^{-3}-1.58×10^{-3}), Sr/Ca (21.31-21.79) and Ba/Ca (10.93×10^{-3}-47.25×10^{-3}) ratios indicate 6 different ocean temperature variations. Therefore, inland corals of Sri Lanka can be used to identify sea level changes and detailed mapping combined with chemical compositional variation can be used to predict paleo-sea level changes.

Keywords: *Coral, ICPMS, Holocene, Sea level change, Sri Lanka*