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Characterization of pottery at Oc Eo, Vietnam by multivariate statistical and neutron activation analysis

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Neutron activation analysis was used to evaluate the composition of 98 pottery samples excavated from the Oc Eo site in An Giang province. The possibility of provenance and technology of ancient pottery was investigated using Agglomerative Hierarchical Clustering (AHC) and Principal Component Analysis (PCA) in combination with archaeological data. The AHC dendrogram identified two primary groups: local and imported pottery. Local potteries are classified into two subgroups based on their compositions: fine-grained pottery and coarse-grained pottery. The fine-grained potteries are mostly made from fine clay, and some are made from fine clay mixed with fine sand while coarse-grained potteries are made mainly of fine clay mixed with coarse sand. Imported potteries were classified into three sub-groups including Chinese pottery (Han, Tang, Song Dynasty), Indian pottery, and unknown sources. The results of PCA analysis show the difference in composition between the elements in the pottery samples. For the rare earth elements: China > Oc Eo > unknown sources > India. For the major elements: India > unknown sources > Oc Eo > China.

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