



INDIAN INSTITUTE OF TECHNOLOGY GUWAHATI
SHORT ABSTRACT OF THESIS

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SHORT ABSTRACT

Study of ancient pottery provides information on many aspects of past, which includes the chronology, trade and technology and it helps to identify the different cultural groups and their influence on one another. The main objective of this thesis will be to analyze a representative assembly of pottery from the various archaeological sites of Northeast India of Neolithic and historical period. Mineral characterization of clay, identification of tempering material, and ascertaining firing range are some of highlights of study. This will help in reconstructing manufacturing techniques of pottery samples studied. This work is part of study that aims to build a broad regional sequence in Northeast India of pottery traditions in prehistoric and historical period.

Various analytical techniques have been used in present study to achieve these objectives: Powder X-Ray Diffraction (XRD), Thin Section Petrography, micro-Raman Spectroscopy, Scanning Electron Microscope (SEM)-coupled with Energy-dispersive X-ray spectroscopy (EDX), Micro Hardness Tester (MHT), Mohs' Scale and Laser Induced Breakdown Spectroscopy (LIBS).

The content of this thesis have been divided into five chapters based on results of experimental work carried out during research period.

The combining results demonstrated that the production techniques of Neolithic potters and Historical potters. The results of applied various techniques revealed that all neolithic potsherds were fired in the range of 500-700 °C. The tempering materials such as sand, quartz grit and organic substances were used. Open Firing techniques have been used. While historical pottery samples were fired in the range of 650-900 °C under oxidizing atmosphere. Sand, quartz grit and organic substances might have been used as tempering materials. The results also demonstrated that the historical potters of studied region are used open firing, oven firing and sometimes kiln firing techniques.

The present study is able to draw attention of scholars to the way in which studies of this type can provide facts which is valuable and vital for understanding pottery. As highlighted by the present study, the application of archaeometric methods provided here will expose new paths for the analysis of ceramic technology and the archaeology of Northeast India.

An application of a combination of archaeometric and ethnoarchaeological approach to traditional potters groups and tribes may provide an explanation of other archaeological issues such as site formation, depositional processes and settlement patterns in Northeast India which is outside the scope of this thesis.