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Chemical and mineralogical investigations on clay minerals deposited in Sanothimi area of Kathmandu valley

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Clay mineral is one of the important groups of natural minerals which are formed by chemical weathering & hydrothermal activities on different types of rocks. Clay minerals are being used for various purposes from pre-historic times to modern age. They are naturally occurring fine-grained hydrated aluminosilicates of mostly monocline or triclinic symmetry which may contain sodium, calcium, potassium, magnesium, iron, titanium and other ions. Clay minerals show a large variety of uses depending on their basic properties like physical properties, chemical-mineralogical composition, structure & their small grain size. Clay minerals deposit in Nepal has been studied by a few researchers in the past. Most of the research works was concerned with physical properties, chemical as well as mineralogical studies & geological studies. As far as the author knows, the first comprehensive study of ceramic properties of porcelain raw materials of Nepal was carried out in detail. However, there is no research work carried out yet on the clay minerals deposited in Sanothimi area of Kathmandu valley. In this context, the main objective of this research is to characterize the clay minerals (locally known as Kamero Mato) deposited in Sanothimi area using chemical & mineralogical analyses, X-ray diffraction (XRD), infrared (IR) spectroscopy and differential thermal analysis (DTA) techniques. Major clay minerals identified in the clays were mica (mostly of muscovite), vermiculites, feldspars and quartz based on the chemical, mineralogical, XRD (Fig. 1), IR & DTA analyses. The detail about the characterizations will be discussed during the presentation in the conference.

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