

Advanced Characterizations of Sri Lankan Roof Tile Clays for more over Industrial Uses

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1. Introduction

Clay is a specific soil variety among other common soil types because of the distinguished characteristics of such clays and a series of multidisciplinary applications of such clays. Roof clay industry is a frequent process in Sri Lanka at around the locations of adequate clay deposits for that. Dankotuwa area is famed in the roof tile manufacturing because of the wealthy of clay deposits around such area. The chemical characterizations of such clays and disclosing of advanced applications were the major expectations of this research.

2. Materials and Methodology

The collected representative clay samples were dried under 110C temperature and the final representative samples were chosen using coning and quartering method for the analysis of X-ray diffraction (XRD) spectrometer, X-ray fluorescence(XRF) spectrometer and Fourier transform infrared (FT-IR) spectrometer.

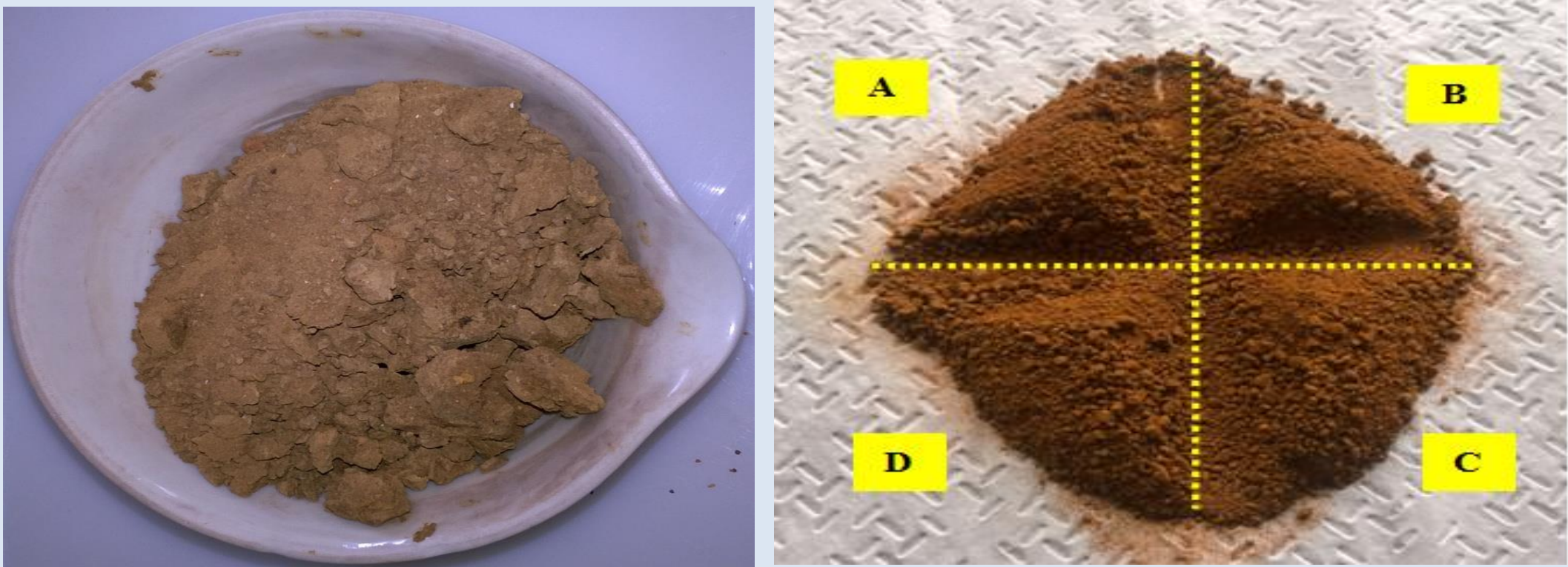


Figure 1. Representative clay sample and coning and quartering method

3. Results and Discussion

Table 1. Remarks on the chemical composition and mineralogy of roof tile clay

Chemical Composition	Mineralogy
Fe- 75.72%, Zr- 3.36%, Ba-5.30%, Ti- 2.95%, and K-12.67%	Kaolinite, quartz, muscovite, glauconite and marcasite
<ul style="list-style-type: none">• Ba²⁺ is toxic in aqueous solutions• Possible to present large amount of Fe compounds (Baranowski , Rybak and Baranowsk et al., 2002)	<ul style="list-style-type: none">•Strong adsorbers for some other metals such as the heavy metals (Maina , Wanyika , and Gacanja et al. , 2015)

4. Conclusion and Recommendations

This clay variety may have a strong role in the water treatment applications, electrical applications (muscovite) and catalytic activities (Ferrous) in advanced chemical processes. The advanced chemical analysis of overall chemical composition will be recommended as a future research activity using an advanced analytical method such as the Neutron activation analysis (NAA) method.

5. Acknowledgement

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6. References

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