

## **Geochemical characterization of calcareous sediment from Kudat, Sabah**

### **ABSTRACT**

This paper discusses the physicochemical properties and geochemical characteristics of calcareous sediment from Kudat, Sabah. The pH analysis, soil moisture content and soil organic matter (SOM) analysis were carried out to determine the physico-chemical properties of the soil samples. The concentration of trace elements was determined using Inductively Coupled Plasma-Optical Emission Spectrometer (ICP-OES) analysis whereas X-Ray Diffraction (XRD) technique was conducted to study the mineral content within the soil. The results show that the soil is alkaline with an average pH that range from 8.41 to 9.31 and the moisture content range from 24.06% to 46.01%. The soil organic matter ranges from 0.46% to 3.16%. The ranking order of the concentration of trace elements are Rb>Zn>Cr>Ni>Li>V>Ba>Pb>Co>As. The Rb element has the highest concentration with the average of 112.47 ppm, followed by Zn with 86.42 ppm and Cr with 47.45 ppm. The average concentration of Ni is 40.20 ppm, Li is 32.43 ppm, V is 28.14 ppm, Ba is 19.97 ppm, Pb is 9.33 ppm, Co is 7.13 ppm and As is 7.08 ppm. The mineral contents in the soil are quartz, aragonite, calcite, magnesian and dolomite minerals which indicate that the carbonate sedimentary rock as source rocks.