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**GEOCHEMICAL CHARACTERIZATION OF VOLCANIC SOILS
FROM TAWAU, SABAH**

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ABSTRACT

This paper discussed the geochemical characterization of volcanic soils from Tawau, Sabah. The concentration of major elements and trace elements were determined using XRF analysis whereas mineralogical study was determined using XRD and SEM techniques. The result of the analysis showed that SiO_2 and Al_2O_3 were abundant constituents in volcanic soils with their concentrations between 43.06% -

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67.96% and 12.55% - 29.92% respectively. The concentration of Fe_2O_3 was next in abundance with the concentration between 6.82% and 11.29%. The concentration CaO , K_2O , MgO , Na_2O , P_2O_5 , and TiO_2 is less than 5%. The high concentrations of SiO_2 and Al_2O_3 are due to the high abundances of kaolinite and quartz as detected from XRD, while the high concentration of Fe_2O_3 is due to the appearance of goethite. The average concentrations for Ba, V, Zr and Zn in volcanic soils are 341 ppm, 314 ppm, 239 ppm, and 124 ppm respectively. The strong correlation between Zn - Al_2O_3 , Zn - Fe_2O_3 and Zn - SiO_2 , indicates that Zn is been adsorb by secondary minerals especially kaolinite and goethite.