SARI

Daerah Papua terdapat adanya dua kompleks wilayah batuan granodiorit, yaitu kompleks Kepala Burung dan Papuan Fold, serta tersusun atas batuan beku granodiorit yang memungkinkan dengan adanya kandungan unsur tanah jarang yang tinggi. Tujuan dari penelitian ini adalah mengetahui kondisi geologi daerah penelitian, karakteristik geokimia pembawa unsur tanah jarang, mengetahui pengayaan unsur tanah jarang, dan genesis pengayaan unsur tanah jarang. Metode yang digunakan berupa analisis petrografi, analisis *X-ray Fluoronscence* (XRF) dan *Inductively Couple Plasma Mass Spectrometry* (ICP-MS) dari total 8 sampel batuan granitoid di daerah Manokwari, Papua Barat.

Hasil analisis petrografi didapatkan jenis batuan antara lain granit kuarsa, syenogranit, monzogranit, granodiorit, dan anorthosit. Studi khusus yang dilakukan berupa geokimia batuan berdasarkan hasil data XRF yang menghasilkan unsur utama atau unsur oksida mayor berupa SiO_2, TiO_2, Al_2O_3, Fe_2O_3, FeO, MnO, MgO, CaO, Na_2O, K_2O, and P_2O_5. Berdasarkan diagram afinitas magma (Peccerillo and Taylor, 1976) menghasilkan jenis magma *tholeiite series, calc – alkaline,* dan *high – k calc – alkaline series.* Tingkat saturasi alumina (Shand, 1943) tergolong kedalam *metaluminous* dan *peraluminous* dengan tipe granitoid termasuk ke dalam tipe I untuk kelompok *metaluminous* dan tipe S untuk kelompok *peraluminous.*

Data berdasarkan hasil ICP-MS analisis untuk mengetahui pengayaan unsur jejak dan unsur tanah jarang yang disajikan dalam diagram normalisasi terhadap kondrit yang menunjukkan pola fraksinasi unsur tanah jarang yang semakin menurun dari unsut tanah jarang ringan (LREE) hingga unsur tanah jarang berat (HREE). Pengkayaan unsur tanah jarang berdasarkan diagram spider yang telah dinormalisai terhadap kondrit (Sun and McDonough 2985) terlihat adanya positif terlihat pada unsur Sm (Samarium) dan Lu (Lutetium), namun terjadi pola negatif yang ditunjukkan oleh unsur Zr (Zirconium).

Kata kunci : Papua Barat, granitoid, geokimia, oksida mayor, unsur tanah jarang.

ABSTRACT

The Papua region contains two complexes of granodiorite rock formations, namely the Head Complex and Papuan Fold complexe. These complexes consist of granodiorite igneous rocks that may contain high levels of rare earth elements. The purpose of this research is to understand the geological conditions of the study area, the geochemical characteristics of rare earth element-bearing rocks, to determine the enrichment of rare earth elements, and to investigate the genesis of rare earth element enrichment. The methods employed include petrographic analysis, X-ray Fluorescence (XRF) analysis, and Inductively Coupled Plasma Mass Spectrometry (ICP-MS) analysis on a total of 8 granite rock samples from the Manokwari area in West Papua.

Petrographic analysis revealed various types of rocks, including quartz-rich granite, syenogranite, monzogranite, granodiorite, and anorthosite. A specific study focused on the geochemistry of the rocks based on XRF data, which produced major elements or oxides such as SiO_2, TiO_2, Al_2O_3, Fe_2O_3, FeO, MnO, MgO, CaO, Na_2O, K_2O, and P_2O_5. According to the magma affinity diagram (Peccerillo and Taylor, 1976), the rocks fall into the tholeiite series, calc-alkaline, and high-K calc-alkaline series. The aluminum saturation level (Shand, 1943) classifies them as both metaluminous and peraluminous, with the granitoid types are type I for the metaluminous group and type S for the peraluminous group.

Data based on the results of ICP-MS analysis to determine the enrichment of trace elements and rare earth elements presented in a normalization diagram against chondrites, indicating a decreasing pattern of rare earth elements from light rare earth elements (LREE) to heavy rare earth elements (HREE). Enrichment of rare earth elements based on a normalized spider diagram against chondrites (Sun and McDonough 1985) shows positive trends in elements such as Sm (Samarium) and Lu (Lutetium), but a negative pattern is observed in the element Zr (Zirconium)

Keywords: West Papua, granitoid, geochemistry, major oxides, Rare Earth Elements (REEs).