

SARI

Batuan beku di daerah Godean, Yogyakarta menghasilkan lapukan berupa material lempung. Hasil lapukan tersebut termanifestasi pada horizon-horizon tanah. Dalam penelitian ini, horizon-horizon tersebut dikarakteristik secara fisik (kualitatif) maupun kuantitatif. Karakteristik fisik dari pelapukan tersebut diidentifikasi dengan pengamatan megaskopis berupa warna dan dominasi ukuran butir sedangkan karakteristik kualitatif dihitung menggunakan Indeks Kimia Pelapukan. Sampel batuan induk maupun hasil lapukan dianalisis menggunakan instrumen ICP-AES (*Inductively Coupled Plasma Atomic Emission Spectroscopy*) untuk mendapatkan prosentase senyawa oksida utama. Analisis petrografi dilakukan untuk sampel batuan induk. Hasil penelitian ini menunjukkan di daerah penelitian dijumpai 4 horizon tanah di G. Berjo dan 3 horizon tanah di G. Butak, dimana horizon A di Gunung Butak tidak berkembang. Secara fisik Horizon A memiliki warna yang lebih merah, ukuran butir didominasi oleh ukuran halus (ukuran lempung). Horizon B memiliki warna coklat cerah dengan tekstur yang sedikit lebih kasar, ukuran butir berupa pasir sampai lempung, fragmen batuan masih dapat terlihat walaupun dalam keadaan yang sangat lapuk. Horizon C memperlihatkan warna coklat, ukuran mineral masih dapat teramati utamanya mineral plagioklas yang sudah terubah berwarna putih, sedangkan batuan induk memperlihatkan warna abu-abu hingga coklat tua, sebagian memperlihatkan pelapukan mengkulit bawang, struktur masif, porfiritik, teramati kehadiran mineral yang didominasi oleh plagioklas sebagai fenokris. Nilai Indeks Kimia Pelapukan pada horizon A relatif diatas 80 yaitu berkisar 80,53 – 95,86, untuk nilai tersebut pada horizon B berkisar 73,99 – 89,7, selanjutnya untuk horizon C nilainya berkisar 63,58 hingga 88,15. Untuk nilai Indeks Kimia Pelapukan yang tinggi pada horizon B dan C yang dijumpai di G. Berjo menunjukkan bahwa horizon-horizon tersebut sudah mengalami pelapukan yang lebih intensif dibandingkan dengan horizon-horizon sama yang dijumpai pada G. Butak dan G. Gedang. Batuan induk memperlihatkan nilai Indeks Kimia Pelapukan yang relatif rendah berkisar 60,30 hingga 68,63 dibanding horizon-horizon di atasnya. Karakteristik fisik dan geokimia (Indeks Kimia Pelapukan) material hasil lapukan batuan beku mempunyai korelasi positif, yaitu semakin batuan mengalami pelapukan maka nilai Indeks Kimia Pelapukannya semakin besar.

Kata kunci: pelapukan kimia, Indeks Kimia Pelapukan

ABSTRACT

Igneous rock in the Godean area, Yogyakarta produces weathered material in the form of clay materials. The weathered results are manifested in soil horizons. In this research, these horizons are characterized physically (qualitatively) and quantitatively. The physical characteristics of weathering were identified by megascopic observations in the form of color and grain size dominance observations, while the quantitative characteristics were calculated using the Chemical Index of Weathering. Both the source rock samples and the weathered samples were analyzed using the ICP-AES (Inductively Coupled Plasma Atomic Emission Spectroscopy) instrument to obtain the percentage of the major elements oxide. Petrographic analysis was performed on the source rock samples. The results of this study indicate that in the study area there are 4 soil horizons in Mount Berjo and 3 soil horizons in Mount Butak, whereas horizon A in Mount Butak does not develop. Physically, horizon A has a redder color dominated by fine (clay) grain size. Horizon B has a light brown color with a slightly coarser texture, the grain size ranged from sand to clay, and the rock fragments can still be seen even in a very weathered condition. Horizon C shows a brown color, the size of the minerals can still be observed especially plagioclase minerals that have changed to white color, whereas the source rock shows gray to dark brown colors, some of which shows the spheroidal weathering, has a massive structure, porphyritic, and the presence of minerals dominated by plagioclase as a phenocryst. The Chemical Index of Weathering value on horizon A is relatively above 80, which ranges from 80.53 to 95.86, for the value on horizon B ranges from 73.99 to 89.7, furthermore for horizon C the value ranges from 63.58 to 88.15. The high values of Chemical Index of Weathering on the B and C horizons found at Mt. Berjo indicate that these horizons have experienced more intensive weathering compared to the same horizons found on Mt. Butak and Mt. Gedang. The source rock shows relatively low Chemical Index of Weathering value's ranging from 60.30 to 68.63 compared to the horizons above them. Physical and geochemical characteristics (Chemical Index of Weathering) of weathered material from the igneous rocks have a positive correlation, namely the more weathered the rock is, the greater the value of its Chemical Index of Weathering.

Keywords: chemical weathering, Chemical Index of Weathering