

INTISARI

Mineralisasi karbon dan nitrogen menjadi isu penting dalam upaya mitigasi emisi karbon di lereng selatan Gunung Merapi. Penilaian didasarkan pada sifat fisik tanah seperti tekstur dan sifat kimia tanah seperti pH, bahan organik, N Total, KPK, dan rasio C/N. Pengambilan sampel dilakukan di bawah vegetasi bambu, vegetasi non bambu dan tanpa vegetasi untuk membandingkan laju mineralisasi pada tutupan vegetasi yang berbeda. Analisis data untuk sifat kimia dan fisika tanah dilakukan menggunakan ANOVA dan untuk melihat pengaruh beda nyata dari perlakuan serta interaksi dilakukan uji beda nyata menggunakan Duncan Multiple Range Test pada taraf 5%. Mineralisasi Karbon dan Nitrogen dianalisis dengan beberapa persamaan kinetika: zero order, first order, second order, Elovich equation, dan power function equation. Mineralisasi tanah di bawah tegakan bambu lebih tinggi dibandingkan dengan jenis tutupan lahan lainnya yang menunjukkan laju mineralisasi yang tinggi. Mineralisasi Nitrogen pada tanah di bawah tegakan bambu memiliki nilai yang lebih tinggi dari tanah di bawah tegakan non bambu ataupun tanah non vegetasi. Faktor – faktor yang mempengaruhi mineralisasi karbon dan nitrogen yaitu cukupnya sumber energi (bahan organik), ketersediaan unsur hara, (C/N ratio) dari substrate, temperatur, pH, dan sifat dari tanah seperti struktur dan tekstur tanah.

Kata Kunci : Mineralisasi Karbon, Mineralisasi Nitrogen, Bambu dan Non Bambu

ABSTRACT

Carbon and nitrogen mineralization is an important issue in efforts to mitigate carbon emissions on the southern slopes of Mount Merapi. The assessment is based on soil physical properties such as texture and soil chemical properties such as pH, organic matter, Total N, CEC, and C/N ratio. Sampling was carried out under bamboo vegetation, non-bamboo vegetation and without vegetation to compare mineralization rates in different vegetation covers. Data analysis for the chemical and physical properties of the soil was carried out using ANOVA and to see the effect of real differences between treatments and interactions a significant difference test was carried out using the Duncan Multiple Range Test at the 5% level. Carbon (C) and Nitrogen mineralization data were tested using different kinetic equations: zero order, first order, second order, Elovich equation, and power function equation. Soil respiration under bamboo stands is higher compared to other types of land cover, indicating a high rate of mineralization. Nitrogen mineralization in soil under bamboo stands has a higher value than in soil under nonbamboo stands or non-vegetation soil. F actors - factors that influence carbon and nitrogen mineralization, namely sufficient energy source (organic material), availability of nutrients, (C/N ratio) of the substrate, temperature, pH, and soil properties such as soil structure and texture.

Keywords: Carbon mineralization, nitrogen mineralization, bamboo and non-bamboo