PEMETAAN DIGITAL SIFAT KIMIA TANAH VULKANIK PASCA LETUSAN BERKELANJUTAN GUNUNG SINABUNG (2013-2020)

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ABSTRAK

Letusan Gunung Sinabung berkelanjutan sejak tahun 2013-2020 mengeluarkan material piroklastik yang menutupi permukaan tanah vulkanik disekitarnya. Penelitian bertujuan untuk memetakan sifat kimia tanah vulkanik pasca letusan Gunung Sinabung dari tahun 2013-2020. Sebanyak 34 titik pengambilan sampel pada kedalaman 0-20 cm dengan sistem *grid* interval 1 km x 1 km pada luasan sekitar 4.389,79 ha. *Ordinary kriging* diterapkan untuk memprediksi sifat kimia tanah dan distribusinya secara spasial. Sampel tanah dianalisis di Laboratorium meliputi; pH tanah (H_2O dan KCl) 1:2,5 ; P-tersedia (Bray II); P-retensi (Blackmore, *et.al,* 1987) ; C-organik (Walkley and Black); N-total (Kjeldahl); Kapasitas Tukar Kation (KTK) dan kation yang dipertukarkan (Pencucian NH_4OAc pH 7 1N); Al, Fe dan Si Oksalat (Blackmore, *et.al,* 1987). Hasil penelitian menunjukkan bahwa nilai pH tanah (H_2O) 1:2,5 (4,14-6,52) dan pH (KCl) 1:2,5 (3,89-5,26); P-tersedia (3,46-382,01 ppm); P-retensi (90-99%) ; C-organik (1,73-13,05%); N-total (0,13-0,60 %); KTK (11,78-97,71 cmol/kg); kation basa tertukar yaitu K (1,60-2,98 cmol/kg); Na (3,72-7,45 cmol/kg); Mg (5,79-12,15 cmol/kg); dan Ca (2,489-4,517 cmol/kg); Al_o (0,85-2,36 %); Fe_o (0,31-0,91 %); serta Si_o (0,45-0,80 %). Hasil letusan material piroklastik Gunung Sinabung tersebut meningkatkan kesuburan tanah serta bermanfaat bagi tanaman dan dianjurkan dapat dikelola dengan baik, terutama pada lereng Timur Laut.

Keywords*: Bahan piroklastik, Kesuburan Tanah, Tanah Vulkanis*

MAPPING VOLCANIC SOIL CHEMICAL PROPERTIES WITH DIGITAL SOIL MAPPING AFTER PROLONG ERUPTION OF MT. SINABUNG (2013-2020)

ABSTRACT

The prolong eruptions of Mt. Sinabung from 2013-2020 eject pyroclastic materials which blanketed and altered the surrounding volcanic soil. The objective of this study is to map the chemical properties of volcanic soils after prolong eruption of Mt. Sinabung from 2013-2020. A total 34 soil samples were collected at a depth of 0-20 cm according to grid sampling system with an interval of 1 km x 1 km covering an area about 4.389,79 ha. Ordinary kriging was applied to spatially predict the soil chemical properties and their distribution. The soil samples analyzed in laboratory to determine soil pH (H_2O and KCl) 1:2,5; P-available (Bray II); P-retention (Blackmore, *et.al*, 1987); Organic C (Walkley and Black); N-total (Kjeldahl); Cation Exchange Capacity (CEC) and exchangeable basic cations (Leaching NH_4OAc pH 7 1N); Al, Fe dan Si Oxalate (Blackmore, *et.al*, 1987). The results showed that the value of soil pH (H2O) 1:2.5 (4.14-6.52) and pH (KCl) 1:2.5 (3.89-5.26); available P (3.46-382.01 ppm); P-retention (90-99%); organic carbon (1.73-13.05%); total nitrogen (0.13-0.60%); cation exchange capacity (11.78-97.71 cmol/kg) and exchangeable base cations is K (1.60-2.98 cmol/kg); Na (3.72-7.45 cmol/kg); Mg (5.79-12.15 cmol/kg); and Ca (2,489-4,517 cmol/kg); Al_o (0,85-2,36 %); Fe_o (0,31-0,91 %) dan Si_o (0,45-0,80 %). The results of the eruption of Mount Sinabung pyroclastic material increase soil fertility and are beneficial for plants and are recommended to be managed properly, especially on the Northeast slopes.

Keywords: *Pyroclastic material, Soil Fertility, Volcanic Soil*