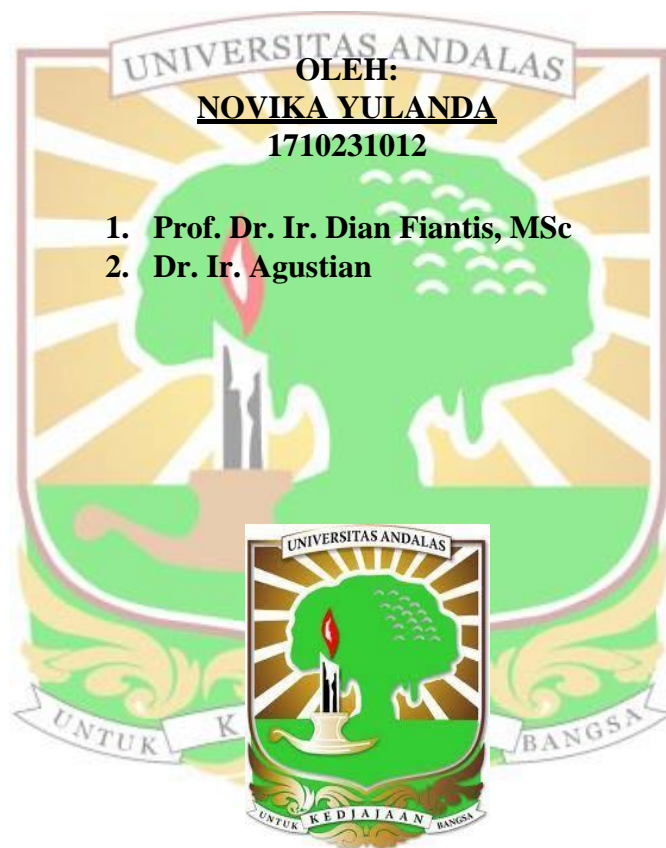


**PEMETAAN DIGITAL FRAKSIONASI KARBON (C) TANAH
VULKANIS PASCA ERUPSI BERKELANJUTAN GUNUNG
SINABUNG (2013-2020)**

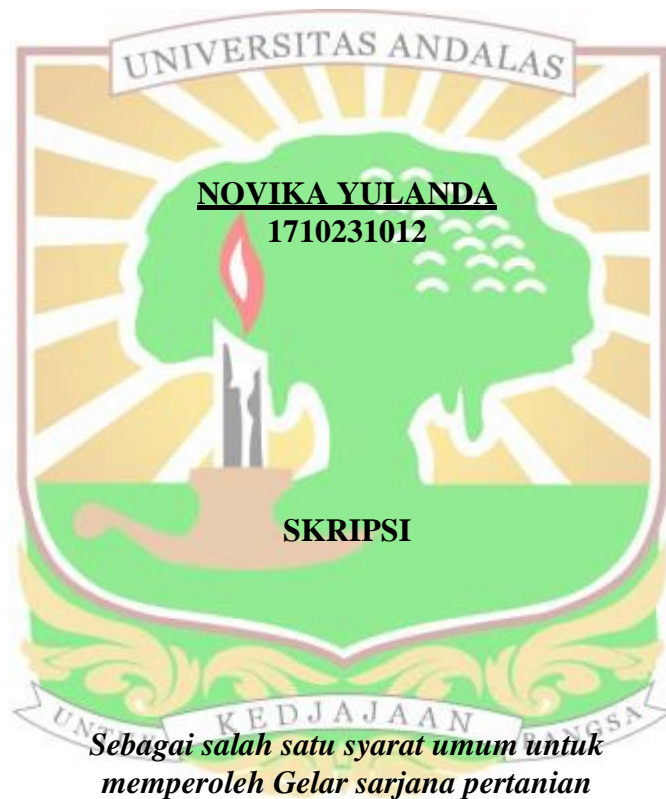
SKRIPSI



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OLEH:



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**PEMETAAN DIGITAL FRAKSIONASI KARBON (C) TANAH VULKANIS
PASCA ERUPSI BERKELANJUTAN GUNUNG SINABUNG
(2013-2020)**

ABSTRAK

Gunung Sinabung di Kabupaten Karo, Sumatera Utara dianggap sebagai gunung berapi aktif sejak 2010, dan setelah 3 tahun diam, aktivitas gunung berapi itu kembali pada 2013 hingga saat ini. Tercatat ada sekitar 34 kali erupsi Gunung Sinabung yang terjadi sejak kembali aktif pada tahun 2010. Endapan abu vulkanik menimbun segala sesuatu di permukaan tanah dengan ketebalan yang bervariasi. Abu vulkanik adalah bahan anorganik yang berharga dan sebagian besar terdiri dari mineral primer. Namun seiring berjalannya waktu, bahan-bahan tersebut mengalami proses pelapukan sehingga dapat menjadi sumber hara bagi tanah. Penelitian ini bertujuan untuk mengetahui nilai sebaran kandungan karbon (C) beserta fraksi-fraksinya pada daerah terdampak erupsi Gunung Sinabung Kabupaten Karo, Sumatera Utara. Sebanyak 34 sampel tanah pada kedalaman 0-20 cm diambil pada radius 3 sampai 7 km dari puncak gunung dengan luas daerah penelitian 4389,79 ha. Sampel dianalisis secara kimia untuk mendapatkan nilai C-organik, C-rekalsitran, C-labil, C-sangat labil, C-humus metal kompleks, C-rekalsitran, dan C-total. Metode *kriging* diterapkan untuk memprediksi nilai-nilai pada wilayah diluar titik sampel. Hasil penelitian menunjukkan bahwa C-organik tertinggi sebesar 7,42% terdapat di tanah bagian Timur Laut dan terendah 5,74% berada di tanah bagian Selatan. Nilai C-rekalsitran tertinggi berada di tanah bagian Timur (1,68%), nilai terendah di tanah bagian Selatan (0,93%). Nilai C-labil tertinggi (1,65%) dan terendah (1,20%) berturut-turut berada di tanah bagian Tenggara dan Selatan. Nilai C-sangat labil tertinggi pada tanah bagian Tenggara sebesar 1,20% dan terendah sebesar 0,46% berada di tanah bagian Timur. Nilai C-humus metal kompleks tertinggi adalah 0,88% di bagian Tenggara, dan terendah 0,36% di bagian Selatan. Untuk nilai C-liat non kristalin terendah ada di tanah bagian Timur Laut (0,60%), tertinggi di tanah bagian Tenggara (0,82%), dan nilai C-total tertinggi 11,66% pada tanah bagian Timur Laut dan terendah 8,84% tanah daerah Selatan. Hasil penelitian ini menunjukkan bahwa kawasan hasil erupsi gunung Sinabung memiliki daya yang kuat untuk berkembang kembali sehingga bagus untuk dijadikan lahan pertanian

Kata kunci: Fraksionasi Carbon, Gunung Sinabung, Tanah vulkanis

DIGITAL MAPPING OF CARBON FRACTION (C) VOLCANIC SOIL POST SUSTAINABLE ERUPTION OF MOUNT SINABUNG (2013-2020)

ABSTRACT

Mount Sinabung located at District Karo, North Sumatra is considered as an active volcano since 2010, and after 3 years of silence, volcanic activity returned in 2013 to the present. There have been about 34 eruptions of Mount Sinabung occur since it was active again in 2010. Volcanic ash deposits pile up everything on the ground surface with varying thicknesses. Volcanic ash is a valuable inorganic material and consists mostly of primary minerals. But over time, these materials undergo a weathering process so that they can become a source of nutrients for the soil. This study aims to determine the distribution of carbon content (C) and its fractions in the area affected by the eruption of Mount Sinabung, Karo Regency, North Sumatra. A total of 34 soil samples at a depth of 0-20 cm were taken at a radius of 3 to 7 km from the top of the volcano with a study area of 4389.79 ha. The samples were chemically analyzed to obtain C-organic, C-recalcitrant, C-labile, C-very labile, C-humus metal complex, C-non-crystalline clay, and C-total values. The kriging method is applied to predict the values in the region outside the sample point. The results showed that the highest organic C of 7.42% was in the Northeast soil part and the lowest 5.74% is in the Southern land. The highest value of C-recalcitrant is in the East soil (1.68%), the lowest value in Southern land (0.93%). The highest (1.65%) and lowest (1.20%) C-labile values respectively were in the Southeast and South land. The C-value is very unstable, the highest in the soil part Southeast at 1.20% and the lowest at 0.46% in the East land. The highest C-humus metal complex value was 0.88% in the Southeast land, and the lowest was 0.36% in the South land. For non-crystalline clay C values, the lowest was in the Northeast part of the soil (0.60%), the highest was in the southeast land (0.82%), and the highest total C-value was 11.66% in the Northeast land and the lowest was 8.84% in the northeast South area. The results of this study indicate that the area resulting from the eruption of Mount Sinabung has a strong power to develop again so that it is good for agricultural land.

Keywords: *Fractionation carbon, Mount Sinabung, Volcanic Soil.*