

**PENGARUH APLIKASI *BIOCHAR* SEKAM PADI TERHADAP  
STABILITAS AGREGAT TANAH PADA BEBERAPA KELAS  
LERENG DI PERKEBUNAN KOPI SIBARASOK MANINJAU**

**SKRIPSI**



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**ABSTRAK**

Perkebunan kopi yang ada di Sibarasok Maninjau merupakan perkebunan milik masyarakat yang dahulu diprakarsai oleh Belanda (1936) dan telah diremajakan oleh petani setempat selama  $\pm 10$  tahun terakhir. Tanaman kopi di Sibarasok ini ditanam pada 4 tingkat kelerengan yang berbeda, yaitu 0-8%, 15-25%, 25-45%, dan  $>45\%$ . Tingkat kemiringan dan pengelolaan lahan perkebunan kopi tentu akan mempengaruhi kemantapan agregat tanah, terutama pada lahan dengan tanaman yang masih muda. Salah satu upaya yang dapat dilakukan adalah penambahan bahan organik berupa *biochar*. Kemampuan *biochar* salah satunya dapat meningkatkan daya pegang tanah terhadap air dan mampu meningkatkan agregasi tanah serta menurunkan berat volume tanah. Penelitian ini bertujuan untuk mengetahui pengaruh aplikasi *biochar* sekam padi terhadap stabilitas agregat tanah pada beberapa kelas lereng di perkebunan kopi Sibarasok Maninjau dari aspek fisika tanah. Penelitian ini telah dilakukan pada bulan April-September 2023 berlokasi di Nagari Tanjung Sani, Kecamatan Tanjung Raya, Kabupaten Agam. Penelitian ini merupakan eksperimen dengan mengaplikasikan *biochar* sekam padi sebanyak 12,5 kg/tanaman kopi berumur  $<9$  tahun pada lereng 0-8%, 8-15%, 15-25% dan 25-45% serta di inkubasi selama 3 bulan. Sampel tanah diambil dalam tiga bagian, salah satunya sampel tanah beragregat utuh. Parameter yang di analisis yaitu stabilitas agregat tanah, bahan organik tanah, tekstur, berat volume tanah, permeabilitas dan total ruang pori tanah. Hasil analisis Laboratorium dilanjutkan menggunakan tabel kriteria dan *software JMP*. Berdasarkan hasil penelitian diperoleh nilai bahan organik tanah meningkat dan berpengaruh nyata pada lereng 0-8% dan 25-45% sebesar 10,71% dan 37,97%. Pada lereng 25-45%, stabilitas agregat tanah meningkat dari 39,41% menjadi 58,41% dengan kriteria menjadi agak mantap.

*Kata kunci* : Perkebunan kopi, *biochar*, stabilitas agregat tanah, lereng, sifat fisika tanah,.

# THE EFFECT OF RICE HUSK BIOCHAR APPLICATION ON SOIL AGGREGATE STABILITY ON SEVERAL CLASSES OF SLOPE IN SIBARASOK MANINJAU COFFEE PLANTATION

## ABSTRACT

The coffee plantation in Sibarasok Maninjau is a community-owned plantation that was initiated by the Dutch (1936) and has been rejuvenated by local farmers over the last  $\pm$  10 years. The coffee plants in Sibarasok are planted at 4 different slope levels, namely 0-8%, 15-25%, 25-45%, and >45%. The level of slope and management of coffee plantation land will certainly affect the stability of soil aggregates, especially on land with young plants. One effort that can be made is adding organic material in the form of biochar. One of the abilities of biochar is that it can increase the soil's holding power against water can increase soil aggregation and reduce the volume of soil. This research aims to determine the effect of rice husk biochar application on the stability of soil aggregates on several slope classes on the Sibarasok Maninjau coffee plantation from the aspect of soil physics. This research was conducted in April-September 2023 located in Nagari Tanjung Sani, Tanjung Raya District, Agam Regency. This research was an experiment by applying 12.5 kg of rice husk biochar/coffee plant aged <9 years on slopes of 0-8%, 8-15%, 15-25%, and 25-45% and incubating for 3 months. Soil samples were taken in three parts, one of which was a whole aggregate soil sample. The parameters analyzed are soil aggregate stability, soil organic matter, texture, soil volume weight, permeability, and total soil pore space. Laboratory analysis results are continued using the criteria table and JMP software. Based on the research results, it was found that the value of soil organic matter increased and had a significant effect on slopes of 0-8% and 25-45% by 10.71% and 37.97%. On a slope of 25-45%, soil aggregate stability increased from 39.41% to 58.41% with the criteria being somewhat stable.

**Keywords:** *Coffee plantations, biochar, soil aggregate stability, slopes, soil physical properties.*