EFEKTIVITAS KOMBINASI ORGANO-CLAY PADA TANAH PASCA BANJIR LAHAR DINGIN DAN PENGARUHNYA TERHADAP PERTUMBUHAN TANAMAN JAGUNG MANIS (*Zea mays* L. saccharata)

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FAKULTAS PERTANIAN
UNIVERSITAS ANDALAS
PADANG

2025

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ABSTRAK

Banjir lahar dingin akibat erupsi Gunung Marapi di Nagari Bukik Batabuah menyebabkan kerusakan tanah, terutama meningkatnya fraksi pasir, rendahnya kandungan bahan organik, dan menurunnya pH tanah. Penelitian ini bertujuan untuk mengevaluasi efektivitas kombinasi *clay* dan pupuk kandang sapi dalam memperbaiki sifat fisik dan kimia tanah serta pengaruhnya terhadap pertumbuhan tanaman jagung manis (*Zea mays* L. saccharata). Penelitian dilakukan menggunakan Rancangan Acak Lengkap (RAL) dengan sepuluh kombinasi perlakuan *clay* dan pupuk kandang sapi C1PK0, C1PK1, C1PK2, C1PK3, C1PK4, C2PK0, C2PK1, C2PK2, C2PK3 dan C2PK4. Parameter yang diamati meliputi tekstur, berat volume, total ruang pori, pH, C-organik, tinggi tanaman, dan berat segar bagian atas tanaman. Hasil penelitian menunjukkan bahwa beberapa parameter seperti tekstur, berat volume, total ruang pori, dan pH tanah tidak menunjukkan perbedaan nyata antar perlakuan. Namun, kandungan C-organik serta pertumbuhan tanaman berupa tinggi dan berat segar bagian atas menunjukkan perbedaan nyata, mengindikasikan adanya respons positif terhadap perlakuan kombinasi organo-clay. Secara umum, pemberian klei dan pupuk kandang sapi menunjukkan arah perbaikan terhadap kualitas tanah pasca banjir lahar dingin dan berpotensi mendukung pertumbuhan tanaman.

Kata kunci: jagung manis, lahar dingin, organo-clay, pertumbuhan tanaman, sifat tanah

EFFECTIVENESS OF ORGANO-CLAY COMBINATIONS ON SOIL POST-COLD LAVA FLOODS AND THEIR EFFECTS ON SWEET CORN (*Zea mays* L. sacharata) GROWTH

ABSTRACT

Cold lava floods resulted from the eruption of Mount Marapi in Nagari Bukik Batabuah caused soil damage, particularly an increase in the sand fractions, a decrease in organic matter content and soil pH. This study was aimed to increase the effectiveness of clay and cow manure combinations in improving soil physical and chemical properties and their effect on sweet corn (*Zea mays* L. sacharata) growth. The study was conducted using a Completely Randomized Design (CRD) with ten treatment combinations between clay and cow manure C1PK0, C1PK1, C1PK2, C1PK3, C1PK4, C2PK0, C2PK1,C2PK2, C2PK3, C2PK4 with three replicates. Parameters analyzed were soil texture, bulk density, total pore space, pH, organic carbon (oc), crop height, and fresh weight of the aboveground part. The results showed that several parameters, such as texture, bulk density, total pore space, and pH, showed no significant differences between treatments. However, organic carbon content and plant growth, including height and fresh weight of the upper part, showed significant differences between treatments. However, organic carbon content and plant growth (in terms of height and fresh weight of the upper part) showed significant differences, indicating a positive response to the organoclay combination treatment. In general, the application of clay and cow manure showed improvement of soil quality affected by the cold lava flood, and had the potential to support plant growth.

Keywords: cold lava, organo-clay, plant growth, soil properties, sweet corn

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