STATUS C-ORGANIK DAN UNSUR HARA (N, P, K) PADA LAHAN SAWAH DATARAN ALUVIAL PASCA BANJIR DI NAGARI BARUNG-BARUNG BALANTAI KECAMATAN XI KOTO TARUSAN

SKRIPSI

OLEH:

FADILA ZAHARA
NIM. 2110232022

1. Prof. Dr. Ir. Hermansah, Ms. MSc
2. Dr. Ir. Gusnidar, MP

FAKULTAS PERTANIAN
UNIVERSITAS ANDALAS
PADANG
2025

STATUS C-ORGANIK DAN UNSUR HARA (N, P, K) PADA LAHAN SAWAH DATARAN ALUVIAL PASCA BANJIR DI NAGARI BARUNG-BARUNG BALANTAI KECAMATAN XI KOTO TARUSAN

Abstrak

Lahan sawah dataran aluvial merupakan ekosistem produktif yang rentan terhadap gangguan banjir. Banjir tidak hanya menyebabkan kerusakan fisik tanah, tetapi juga mengganggu keseimbangan unsur hara melalui pencucian, perendaman, dan perubahan kondisi redoks tanah.Penelitian kandungan unsur hara makro utama pada lahan sawah pasca banjir telah dilaksanakan di Nagari Barung-Barung Balantai, Kecamatan Koto XI Tarusan dari bulan Maret hingga Mei 2025. Penelitian ini bertujuan untuk mengkaji C-organik serta unsur hara makro utama (N, P, K) pada lahan sawah dataran aluvial yang terdampak banjir. Penelitian dilakukan dengan metode survei. Pengambilan sampel tanah dilakukan secara *systematic random sampling* pada beberapa titik lokasi terdampak banjir (SS1, SS2, SS3, SS4, SS5, SS6, SS7, SS8, TS1, TS2, TS3 dan TS4) dan sebagai pembanding lahan sawah yang tidak terdampak banjir (TB). Sampel diambil sebanyak satu kali ulangan pada kedalaman 0-20cm. Parameter yang dianalisis meliputi pH, C-organik, N-total, P-tersedia, P-total, K-tersedia dan K-total. Hasil penelitian menunjukkan bahwa Pasca banjir, kondisi tanah menunjukkan variasi antar lokasi. Pada lahan sejajar sungai (SS), sebagian besar parameter seperti C-organik, N-total, dan K-total cenderung lebih rendah akibat pencucian dan pengendapan material bertekstur kasar. Lahan tegak lurus sungai (TS) memiliki fluktuasi yang lebih tajam, dengan beberapa titik menunjukkan C-organik tinggi namun unsur hara makro seperti P-total rendah, yang mengindikasikan perbedaan distribusi sedimen dan dinamika aliran banjir. Sementara itu, lahan tidak terdampak banjir (TB) mempertahankan kandungan hara yang relatif stabil dan lebih seimbang, mencerminkan kondisi tanah yang tidak terganggu oleh proses pencucian atau pengendapan ekstrem. Perbedaan ini menunjukkan bahwa arah dan intensitas aliran banjir, serta posisi lahan terhadap sungai, sangat memengaruhi sifat kimia tanah pasca banjir.

Kata Kunci : Banjir, C-organik, Lahan Sawah, Ultisol, Unsur Hara Makro

STATUS OF ORGANIC-C AND NUTRIENTS (N, P, K) IN THE ALUVIAL PLAIN RICE FIELDS POST-FLOOD IN NAGARI BARUNG-BARUNG BALANTAI, XI KOTO TARUSAN DISTRICT

Abstract

Alluvial lowland rice fields are productive ecosystems that are highly vulnerable to flooding disturbances. Floods do not only cause physical damage to the soil but also disrupt nutrient balance through leaching, prolonged inundation, and changes in soil redox conditions. This study in Nagari Barung-Barung Balantai, Koto XI Tarusan Subdistrict. The research was aimed to assess organic carbon (Organic-C) and major macronutrients (N, P, and K) in alluvial lowland rice fields after flooding. The study employed a survey method, with soil samples collected using systematic random sampling at several flood-affected sites (SS1 to SS8 and TS1 to TS4), and one unflooded site (TB) as a comparison. Soil samples were taken at 0–20 cm soil depth. Parameters analyzed were soil pH, Organic-C, total-N, available and total-P, as well as available and total-K. The results showed that Organic-C content in several locations was low to moderate criteria. Total-N, available-P, and total-K were generally low. After the flood, soil conditions showed significant variation among locations. In the parallel-to-river (SS) fields, most nutrient parameters such as organic C, total N, and total K tended to be lower due to leaching and deposition of coarse-textured materials. The perpendicular-to-river (TS) fields exhibited sharper fluctuations, with some points showing high organic C but low total P, indicating differences in sediment distribution and flood flow dynamics. Meanwhile, the non-flooded (TB) fields maintained relatively stable and more balanced nutrient contents, reflecting soil conditions unaffected by extreme leaching or deposition processes. These differences indicate that the direction and intensity of flood flow, as well as the field's position relative to the river, greatly influence post-flood soil chemical properties.

Keywords: Floods, Organic-C, Paddy Field, Ultisol, Macro Nutrient