STATUS C-ORGANIK DAN UNSUR HARA (N, P, K) PADA TANAH SAWAH PASCA BANJIR BANDANG DI NAGARI DUKU UTARA KECAMATAN KOTO XI TARUSAN

SKRIPSI

Oleh:

ESA TRISFA LAURI
NIM. 2110233034

Dosen Pembimbing:

1. **Prof. Dr. Ir. Hermansah, MS., MSc**
2. **Prof. Dr. Ir. Azwar Rasyidin, M. Agr**

FAKULTAS PERTANIAN
UNIVERSITAS ANDALAS
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ABSTRAK

Lahan sawah di Indonesia umumnya berada di dataran aluvial yang subur karena kaya akan bahan organik dan mineral sehingga sangat potensial untuk budidaya padi. Namun, keberadaan sawah di dataran aluvial juga meningkatkan kerentanannya terhadap banjir bandang, seperti yang terjadi di Nagari Duku Utara, Kecamatan Koto XI Tarusan. Penelitian ini bertujuan untuk mengkaji pengaruh banjir bandang terhadap status C-organik dan unsur hara makro utama (N, P, K) pada tanah sawah pasca banjir. Metode yang digunakan dalam penelitian ini yaitu metode survei dengan sistem pengambilan sampel secara *systematic random sampling* pada tanah sawah terdampak banjir bandang dan tanah sawah tidak terdampak banjir bandang. Parameter yang diamati meliputi pH tanah, kadar C-organik, nitrogen total (N-total), fosfor total (P-total), fosfor tersedia (P-tersedia), kalium tersedia (K-tersedia), dan kalium total (K-total). Hasil penelitian menunjukkan bahwa banjir bandang menyebabkan pH tanah menjadi masam hingga sangat masam (3,87–4,90), kandungan C-organik tergolong rendah (1,26%–1,88%), N-total rendah (0,09%–0,23%), C/N rendah hingga tinggi (8,30-21,96), P-tersedia rendah (5,11 ppm–5,54 ppm), P-total rendah (15,36 mg/100 g–17,65 mg/100 g), K-tersedia rendah (0,16 mg/100 g–0,29 mg/100 g), dan K-total rendah (14,00 mg/100 g–18,21 mg/100 g). Sementara itu, pada tanah sawah yang tidak terdampak banjir, pH tanah masam (4,78–5,38), C-organik sedang (2,14%–2,64%), N-total sedang (0,25%–0,32%), rasio C/N rendah (8,20–9,86), P-tersedia sedang (8,30–8,93 ppm), P-total sedang (23,13–27,42 mg/100 g), K-tersedia sedang (0,44–0,49 mg/100 g), dan K-total sedang (21,22–28,05 mg/100 g). Secara umum, tanah sawah pasca banjir bandang menunjukkan penurunan kesuburannya dibandingkan dengan tanah sawah yang tidak terdampak banjir. Sawah yang terkena banjir kesuburannya cenderung rendah.

Kata kunci: Banjir bandang, C-organik, Kesuburan tanah, Tanah sawah, Unsur hara

STATUS OF ORGANIC CARBON AND NUTRIENT ELEMENTS (N, P, K) IN PADDY SOIL AFTER A FLASH FLOOD IN NAGARI DUKU UTARA KOTO XI TARUSAN SUBDISTRICT

ABSTRACT

Rice fields in Indonesia are generally located on fertile alluvial plains, which are rich in organic matter and minerals, causing them highly suitable for rice cultivation. However, the location of rice fields on alluvial plains has also high risk to flash floods, such as those that occurred in Nagari Duku Utara, Koto XI Tarusan Subdistrict. This study was aimed to assess the impact of flash floods on the status of organic carbon (organic-C) and major macronutrients (nitrogen, phosphorus, and potassium) in paddy soils after the flood. The research was conducted using a survey method with systematic random sampling on both flood-affected and unaffected rice field soils. The observed parameters included soil pH, organic carbon (organic-C) content, total nitrogen (total-N), total phosphorus (total-P), available phosphorus (available-P), available potassium (available-K), and total potassium (total-K). The results showed that the flash flood increased the soil acidity from acid to strongly acid (3.87 to 4.90), decreased the soil organic carbon content (from 1.26% to 1.88%), total nitrogen (from 0.09% to 0.23%), C/N low to high (8.30 to 21.96), available phosphorus (from 5.11 to 5.54 ppm), total phosphorus (from 15.36 to 17.65 mg/100 g), available potassium (from 0.16 to 0.29 mg/100 g), and total potassium (from 14.00 to 18.21 mg/100 g). Meanwhile, in rice fields that were not affected by flooding, the soil pH was acidic (4.78–5.38), organic carbon was moderate (2.14%–2.64%), total nitrogen was moderate (0.25%–0.32%), C/N ratio was low (8.20–9.86), available phosphorus was moderate (8.30–8.93 ppm), total phosphorus was moderate (23.13–27.42 mg/100 g), available potassium was moderate (0.44–0.49 mg/100 g), and total potassium was moderate (21.22–28.05 mg/100 g). In general, the post-flash flood rice fields showed a decrease in fertility compared to the unaffected rice fields. The flooded rice fields tended to have low fertility.

Keywords : Flash flood, Macronutrients, Organic carbon, Rice field, Soil fertility