

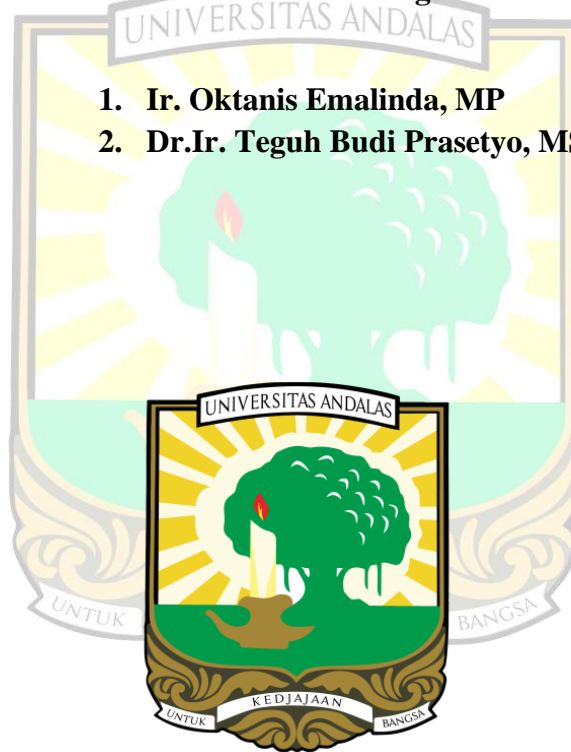
**KAJIAN SIFAT BIOLOGI TANAH SAWAH DENGAN DUA
SISTEM OLAH TANAH DI KENAGARIAN KASANG
KECAMATAN BATANG ANAI KABUPATEN PADANG
PARIAMAN**

SKRIPSI

**OLEH:
LENGGOGENI LIMASRIT
NIM. 2010233023**

Dosen Pembimbing

- 1. Ir. Oktanis Emalinda, MP**
- 2. Dr.Ir. Teguh Budi Prasetyo, MS**



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KAJIAN SIFAT BIOLOGI TANAH SAWAH DENGAN DUA SISTEM OLAH TANAH DI KENAGARIAN KASANG KECAMATAN BATANG ANAI KABUPATEN PADANG PARIAMAN

ABSTRAK

Sistem olah tanah yang berbeda dapat mempengaruhi kualitas tanah sawah. Kualitas tanah dapat mengalami peningkatan dan penurunan yang tercermin dari sifat fisika, kimia dan biologi tanahnya. Penelitian ini bertujuan untuk mengkaji sifat biologi tanah pada lahan sawah dengan sistem olah tanah konvensional dan sistem olah tanah minimum. Penelitian ini menggunakan metode survei, sampel tanah diambil secara *purposive sampling* pada sawah tadah hujan berdasarkan sistem olah tanah. Sampel diambil pada kedalaman tanah 0-20 cm pada musim tanam yang sama dengan tiga kali ulangan. Parameter yang dianalisis adalah nilai pH, C-Organik, N total, BV, TRP, populasi makrofauna, populasi mikroorganisme, dan respirasi. Hasil penelitian menunjukkan bahwa tanah di lahan sawah dengan sistem olah tanah minimum memiliki kualitas yang lebih baik dibandingkan dengan tanah di lahan sawah konvensional. Pada sistem olah tanah minimum nilai pH tergolong masam, nilai C-Organik rendah, nilai N total rendah, BV sedang dan TRP sedang. Sementara pada sistem olah tanah konvensional, nilai pH tergolong sangat masam, nilai C-Organik sangat rendah, nilai N total sangat rendah, BV tinggi dan TRP rendah. Dari segi sifat biologi tanah, lahan sawah dengan sistem olah tanah minimum menunjukkan populasi makrofauna rata-rata 21 ekor/monolit dengan 4 keragaman, populasi bakteri $8,01 \times 10^6$ cfu/g dengan 7 keragaman dan populasi jamur $7,05 \times 10^5$ cfu/g dengan 7 keragaman, serta nilai respirasi tergolong sedang. Sedangkan lahan sawah dengan sistem olah tanah konvensional menunjukkan populasi makrofauna rata-rata 5 ekor/monolit dengan 2 keragaman, populasi bakteri $7,63 \times 10^6$ cfu/g dengan 4 keragaman, populasi jamur $6,58 \times 10^5$ cfu/g dengan 2 keragaman, serta nilai respirasi tergolong rendah.

Kata kunci: Biologi tanah, sawah, sistem olah tanah

STUDY ON THE BIOLOGICAL PROPERTIES OF PADDY FIELDS WITH TWO TILLAGE SYSTEMS IN KENAGARIAN KASANG, BATANG ANAI DISTRICT, PADANG PARIAMAN REGENCY

ABSTRACT

Different tillage systems can affect the quality of paddy soil. Soil quality can be improved and decreased which is reflected by the physical, chemical and biological properties. This study was aimed to examine the biological properties of soil in rice fields with conventional and minimum tillage systems. This study used a survey method, soil samples were taken by *purposive sampling* in rainfed rice fields based on the tillage system. Samples were taken at 0-20 cm, soil depth in the same growing season with three replicates. The parameters analyzed were soil pH, organic carbon content, total nitrogen content, DB, TSP, macrofauna population, microorganism population, and respiration. The results showed that the soil in paddy fields under the minimum tillage system has better quality compared to those under the conventional. In the minimum tillage system, the pH value was classified as acidic, organic carbon content was low, total nitrogen content was low, BD was medium, and TSP was moderate. Meanwhile, in conventional tillage systems, the pH value was classified as very acidic, organic carbon content was very low, total nitrogen content was very low, BD was high, and TSP was low. In terms of soil biological properties, paddy fields with a minimum tillage system had 21 animals/monolith with 4 diversity macrofauna population, 8.01×10^6 cfu/g with 7 diversity bacterial population, and 7.05×10^5 cfu/g with 7 diversity fungal population, and moderate respiration value. Meanwhile, rice fields with conventional tillage systems had 5 animals/monolith with 2 diversity, macrofauna population, 7.63×10^6 cfu/g with 4 diversity bacterial population, 6.58×10^5 cfu/g with 2 diversity fungal population, and low respiration value.

Keywords: Rice fields, soil biology, tillage systems