KELIMPAHAN BAKTERI AMONIFIKASI DAN KADAR AMONIUM TANAH PADA PERTANAMAN Indigofera zollingeriana UMUR 18 BULAN DI DESA PITU, NGAWI, JAWA TIMUR
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Nur Khasanah[1], Arom Figyantika[2], Handojo Nurjanto[2]

INTISARI

Indigofera zollingeriana merupakan tanaman leguminosa yang berpotensi meningkatkan kesuburan tanah melalui penambahan bahan organik dan perannya dalam siklus nitrogen. Kelimpahan bakteri amonifikasi dan kandungan amonium (NH_4^+) merupakan indikator penting dalam proses mineralisasi nitrogen tanah, karena keduanya berperan dalam proses mineralisasi nitrogen yang menentukan ketersediaan hara bagi tanaman. Penelitian ini bertujuan untuk menganalisis pengaruh tanaman *Indigofera zollingeriana* umur 18 bulan setelah tanam terhadap kelimpahan bakteri amonifikasi dan kadar amonium tanah, serta menganalisis pengaruh kedalaman solum tanah terhadap jumlah bakteri amonifikasi dan kadar amonium.

Penelitian dilaksanakan pada bulan Januari hingga Juni 2026. Sampel tanah diambil pada dua jenis perlakuan yaitu plot dengan *I. zollingeriana* dan tanpa *I. zollingeriana* pada kedalaman 0-10 cm, 10-20 cm, dan 20-30 cm. Parameter yang diukur pada penelitian ini adalah kelimpahan bakteri amonifikasi dan kadar amonium tanah kemudian hasil pengukuran dianalisis menggunakan Analisis Varian (ANOVA). Pengujian parameter dilakukan di Laboratorium Fisiologi Pohon dan Tanah Hutan, Departemen Silvikultur, Fakultas Kehutanan, Universitas Gadjah Mada.

Hasil penelitian menunjukkan bahwa tanaman *I. zollingeriana* umur 18 bulan mampu meningkatkan kelimpahan bakteri amonifikasi secara signifikan, namun tidak dapat memberikan pengaruh nyata terhadap kadar amonium tanah. Kedalaman tanah juga memberikan pengaruh signifikan terhadap kelimpahan bakteri amonifikasi, namun tidak dapat memberikan pengaruh nyata terhadap kadar amonium tanah. Meskipun tidak berbeda nyata antar perlakuan, kadar amonium tanah pada seluruh plot penelitian masih tergolong tinggi hingga sangat tinggi.

Kata Kunci: *Indigofera zollingeriana*, kedalaman tanah, bakteri amonifikasi, kadar amonium

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ABUNDANCE OF AMMONIFICATION BACTERIA AND SOIL AMMONIUM LEVELS IN 18-MONTH-OLD *Indigofera zollingeriana* PLANTATIONS IN PITU VILLAGE, NGAWI, EAST JAVA

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ABSTRACT

Indigofera zollingeriana is a legume plant that has the potential to increase soil fertility through the addition of organic matter and its role in the nitrogen cycle. One important indicator of soil fertility is the abundance of ammonifying bacteria and ammonium (NH_4^+) levels, because both play a role in the nitrogen mineralization process that determines nutrient availability for plants. This study aims to analyze the effect of Indigofera zollingeriana at 18 months after planting on the population of ammonifying bacteria and soil ammonium levels, as well as to analyze the effect of soil solum depth on the number of ammonifying bacteria and ammonium levels.

The study was conducted from January to June 2026. Soil samples were taken from two types of treatments, namely plots with I. zollingeriana and without I. zollingeriana at depths of 0-10 cm, 10-20 cm, and 20-30 cm. The parameters measured in this study were the abundance of ammonifying bacteria and soil ammonium levels, then the measurement results were analyzed using Analysis of Variance (ANOVA). Parameter testing was carried out at the Tree and Forest Soil Physiology Laboratory, Department of Silviculture, Faculty of Forestry, Universitas Gadjah Mada.

The results showed that 18-month-old I. zollingeriana plants significantly increased the abundance of ammonifying bacteria, but did not significantly affect soil ammonium levels. Soil depth also significantly affected the ammonifying bacteria population, but did not significantly affect soil ammonium levels. Although there were no significant differences between treatments, soil ammonium levels in all research plots were still classified as high to very high.

Keywords: Indigofera zollingeriana, soil depth, ammonifying bacteria, ammonium levels