

ABSTRAK

PENGARUH APLIKASI CAMPURAN PUPUK KIMIA DAN HAYATI TERHADAP POPULASI DAN KEANEKARAGAMAN ZOOPLANKTON DALAM AIR GENANGAN PADI SAWAH (*Oryza sativa* L.)

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Penggunaan pupuk anorganik dalam jangka waktu yang panjang dapat menyebabkan kerusakan tanah, pencemaran lingkungan dan mempengaruhi ekosistem organisme air pada genangan air sawah. Organisme air memiliki peran dalam siklus unsur hara air genangan padi sawah. Tujuan dari penelitian ini adalah untuk mengetahui bahwa pemberian kombinasi pupuk kimia dan pupuk hayati cair dapat meningkatkan populasi dan keanekaragaman zooplankton serta kesuburan tanah dibandingkan dengan hanya pemberian pupuk kimia (kontrol). Penelitian ini dilakukan di lahan sawah Desa Pujoasri, Trimurjo, Lampung Tengah. Analisis sampel genangan air dilakukan di Laboratorium Ilmu Tanah, Fakultas Pertanian, Universitas Lampung, analisis tanah dilakukan di Laboratorium Cogen PT. Great Giant Pineapple, Lampung Tengah, pada bulan Oktober 2020 - Maret 2021. Penelitian disusun dengan Rancangan Acak Kelompok (RAK), terdiri dari 4 perlakuan yaitu P₁ (Pupuk kimia 100%), P₂ (pupuk kimia 100% + pupuk hayati cair 100%), P₃ (pupuk kimia 75% + pupuk hayati cair 100%), P₄ (pupuk kimia 50% + pupuk hayati cair 100%) dan masing-masing perlakuan diambil sampel genangan air 60 HST, 70 HST, 80 HST, 90 HST, 100 HST dan tanah pada 50 HST dan 100 HST secara diagonal sebanyak 3 titik (genangan air) dan 5 titik (tanah). Data dilakukan uji Beda Nyata Jujur (BNJ) pada taraf 5%, Box Plot, SPSS 26 dan Minitab 19. Untuk menghitung keanekaragaman digunakan Indeks Shannon-Wiener. Hasil menunjukkan bahwa populasi dan keanekaragaman zooplankton menunjukkan hasil yang lebih tinggi pada perlakuan P₄, zooplankton dominan di semua plot yaitu *Cladocera*, *Podocopida*, *Cyclopoida*, *Gerris* sp., *Epitchea stella/sepia* dan *Milipede*. C-organik menunjukkan hasil yang lebih tinggi pada perlakuan P₁ dan P-tersedia menunjukkan hasil yang lebih tinggi pada perlakuan P₄.

Kata kunci: padi, pupuk hayati, pupuk kimia, zooplankton

ABSTRACT

THE EFFECT OF THE APPLICATION OF CHEMICAL AND BIOLOGICAL FERTILIZER TO POPULATION AND DIVERSITY OF ZOOPLANKTON IN WATER PADDY FIELD (*Oryza sativa* L.)

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The use of inorganic fertilizers in the long term can cause soil damage, environmental pollution and affect the ecosystem of aerial organisms in the accumulation of paddy air. Air organisms have a role in the cycle of air nutrients to collect paddy rice. The purpose of this study was to find out that the application of a combination of chemical fertilizers and liquid biological fertilizers can increase the population and diversity of zooplankton and soil fertility compared to only the application of chemical fertilizers (control). This research was conducted in the paddy fields of Pujoasri, Trimurjo, Central Lampung. Analysis of air collection samples was carried out at the Laboratory of Soil Science, Faculty of Agriculture, University of Lampung, soil analysis was carried out at the Cogen Laboratory of PT. Great Giant Pineapple, Central Lampung, in October 2020 - March 2021. The research was packaged in a Randomized Block Design (RAK), consisting of 4 treatments, namely P₁ (100% chemical fertilizer), P₂ (100% chemical fertilizer + 100% liquid biological fertilizer), P₃ (75% chemical fertilizer + 100% liquid biofertilizer), P₄ (50% chemical fertilizer + 100% liquid biofertilizer) and for each treatment a sample of air accumulation was taken 60 HST, 70 HST, 80 HST, 90 HST, 100 HST and soil at 50 HST and 100 HST diagonally as many as 3 points (puddles) and 5 points (soil). The data were tested for Honest Significant Difference (BNJ) at the 5% level, Box Plot, SPSS 26 and Minitab 19. The Shannon-Wiener Index was used to calculate the width. The results showed that the population and diversity of zooplankton showed higher results in the P₄ treatment, zooplankton were dominant in all plots namely *Cladocera*, *Podocopida*, *Cyclopoida*, *Gerris* sp., *Epitchea stella/sepia* and *Milipede*. C-organic showed higher yields in the P₁ treatment and available-P showed higher yields in the P₄ treatment.

Key words: chemical fertilizer, liquid biofertilizer, rice, zooplankton