

PENGARUH STARTER *Bacillus cereus* LS2B DAN *Pseudomonas* sp. LS3K TERHADAP KUALITAS FISIK DAN KIMIA PUPUK ORGANIK CAIR URINE SAPI

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INTISARI

Penelitian ini bertujuan untuk mengetahui pengaruh starter *Bacillus cereus* LS2B dan *Pseudomonas* sp. LS3K terhadap kualitas fisik dan kimia pupuk organik cair (POC) urine sapi. Lima perlakuan starter dalam penelitian ini, yaitu P0: tanpa penambahan starter sebagai kontrol; P1: EM4 Pertanian; P2: *Bacillus cereus* LS2B; P3: *Pseudomonas* sp. LS3K; dan P4: konsorsium *Bacillus cereus* LS2B dan *Pseudomonas* sp. LS3K dengan rasio 1:1. Tiap perlakuan direplikasi tiga kali. Parameter uji fisik meliputi temperatur, nilai pH, dan analisis padatan, sedangkan parameter uji kimia meliputi kadar N-total, C-organik, P, dan K. Temperatur dan nilai pH diukur tiga hari sekali dari hari ke-0 hingga ke-30. Analisis padatan dilakukan terhadap sampel POC yang telah dipanen. Uji N-total dilakukan dengan metode Kjeldahl. Uji C-organik dilakukan dengan metode Walkley-Black. Uji P dan K dilakukan dengan analisis spektrofotometri. Hasil pengukuran temperatur selama pengomposan berkisar di 26 sampai 28,33°C. Nilai pH POC berturut-turut adalah 9,35; 9,03; 9,02; 9,11; dan 8,94. Nilai *Total Solid* (TS) berturut-turut adalah 12620 mg/L; 15506,67 mg/L; 15986,67 mg/L; 14913,33 mg/L; 14966,6 mg/L. Nilai *Total Volatile Solids* (TVS) berturut-turut adalah 1206,67 mg/L; 2680 mg/L; 3006,67mg/L; 1820 mg/L; dan 3073,33 mg/L. Nilai *Total Fixed Solids* (TFS) berturut-turut adalah 11413,33 mg/L; 12826,67 mg/L; 3006,67mg/L; 13093,33 mg/L; dan 11893,33 mg/L. Kadar N-total berturut-turut adalah 0,09%; 0,149%; 0,105%; 0,152%; dan 0,199%. Kadar C-organik berturut-turut adalah 1,037%; 3,019%; 2,434%; 2,696%; dan 2,331%. Kadar P berturut-turut adalah 0,0005267%; 0,0006767%; 0,0005733%; 0,00035%; dan 0,0000867%. Kadar K berturut-turut adalah 0,811%; 0,776%; 1,143%; 0,688%; dan 0,628%. Kesimpulan penelitian ini yaitu starter *Bacillus cereus* LS2B dan *Pseudomonas* sp. LS3K mampu meningkatkan kualitas pada pupuk organik cair urine sapi. Kedua bakteri tersebut dapat digunakan sebagai alternatif starter komersial. Perlakuan konsorsium bakteri menghasilkan POC dengan kualitas fisik dan kimia terbaik.

Kata kunci: *Bacillus cereus* LS2B, Konsorsium, *Pseudomonas* sp. LS3K, Pupuk organik cair, Urine sapi

***Bacillus cereus* LS2B AND *Pseudomonas* sp. LS3K AS STARTERS ON PHYSICAL AND CHEMICAL QUALITY OF COW URINE LIQUID ORGANIC FERTILIZER**

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ABSTRACT

This study aims to determine the effect of *Bacillus cereus* LS2B and *Pseudomonas* sp. LS3K starters on the physical and chemical quality of cow urine liquid organic fertilizer (LOF). The five treatments used are as follows: P0: no starter addition as control; P1: EM4 Pertanian; P2: *Bacillus cereus* LS2B; P3: *Pseudomonas* sp. LS3K; and P4: consortium starter of *Bacillus cereus* LS2B and *Pseudomonas* sp. LS3K 1:1 ratio. Each treatment was replicated three times. The physical parameters include temperature, pH, and solids analysis, while the chemical parameters include total-N, organic-C, P, and K. Temperature and pH were measured every three days from day 0 to day 30. Solids analysis was performed on harvested LOF samples. The total-N was conducted using the Kjeldahl method. The organic-C test was performed according to the Walkley-Black method. P and K tests were conducted by spectrophotometric analysis. The temperature measured during composting ranged from 26 to 28,33°C. The pH values of POC were 9,35; 9,03; 9,02; 9,11; and 8,94. The Total Solid (TS) were 12.620 mg/L; 15.506,67 mg/L; 15.986,67 mg/L; 14.913,33 mg/L; and 14.966,6 mg/L. The Total Volatile Solids (TVS) were 1.206,67 mg/L; 2.680 mg/L; 3.006,67 mg/L; 1.820 mg/L; and 3.073,33 mg/L. The Total Fixed Solids (TFS) were 11.413,33 mg/L; 12.826,67 mg/L; 3.006,67 mg/L; 13.093,33 mg/L; and 11.893,33 mg/L. The total-N were 0,09%; 0,149%; 0,105%; 0,152%; and 0,199%. The organic-C were 1,037%; 3,019%; 2,434%; 2,696%; and 2,331%. The P values were 0,0005267%; 0,0006767%; 0,0005733%; 0,00035%; and 0,0000867%. The K values were 0,811%; 0,776%; 1,143%; 0,688%; and 0,628%. The conclusion of this study is that *Bacillus cereus* LS2B and *Pseudomonas* sp. LS3K starters can improve the quality of liquid organic fertilizer from cow urine. Both bacteria can be used as alternative commercial starters. The consortium treatment produced LOF with the best physical and chemical quality.

Keywords: *Bacillus cereus* LS2B, Consortium, Cow urine, Liquid organic fertilizer, *Pseudomonas* sp. LS3K.