

**PEMANFAATAN KONSORSIUM *Bacillus cereus* LS2B DAN
Pseudomonas sp. LS3K SEBAGAI STARTER PUPUK
ORGANIK FESES SAPI POTONG TERHADAP
KUALITAS KIMIA DAN MIKROBIOLOGI**

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INTISARI

Tujuan penelitian ini adalah untuk mengetahui karakter kimia dan mikrobiologi pupuk kompos yang dihasilkan dengan penambahan *starter* bakteri *Bacillus cereus* LS2B dan *Pseudomonas* sp. LS3K. Penelitian ini dilakukan dengan lima perlakuan yaitu T0: tanpa penambahan *starter* sebagai kontrol; T1: konsorsium *starter Bacillus cereus* LS2B dan *Pseudomonas* sp. LS3K; T2: penambahan *starter Bacillus cereus* LS2B; T3: penambahan *starter Pseudomonas* sp. LS3K; dan T4: penambahan *starter* komersial EM4 dengan masing-masing perlakuan diberi ulangan sebanyak tiga kali. Hasil penelitian menunjukkan bahwa kelima perlakuan penambahan bakteri T0, T1, T2, T3, dan T4 menghasilkan perbedaan signifikan ($P < 0,05$) pada parameter kimia dan mikrobiologi. Kandungan air pupuk kompos yang dihasilkan yaitu 54,91%, 54,66%, 59,9%, 59,94%, dan 62,57% secara berturut-turut, sedangkan kandungan abu yaitu 19,75%, 15,8%, 17,52%, 17,14%, dan 16,45%. Kandungan N total pupuk kompos dari perlakuan yaitu 2,42%, 0,91%, 2,29%, 2,10%, dan 1,98% secara berturut-turut. Nilai C/N rasio yang diukur pada akhir masa pengomposan sebesar 14,68%, 50,22%, 16,80%, 18,29%, dan 20,97%. Hasil uji unsur hara mineral P total pada pupuk kompos sebesar 0,21%, 0,13%, 0,07%, 0,15%, dan 0,17%, sedangkan kandungan K total yaitu 0,15%, 0,30%, 0,15%, 0,14%, dan 0,16%. Selanjutnya hasil perhitungan *Total Plate Count* (TPC) bakteri pada pupuk kompos yang telah di produksi yaitu 6,04 Log CFU/ml, 6,21 Log CFU/ml, 6,09 Log CFU/ml, 5,78 Log CFU/ml, dan 5,88 Log CFU/ml. Kesimpulan penelitian ini yaitu konsorsium antara *Bacillus cereus* LS2B dengan *Pseudomonas* sp. LS3K mampu secara efektif digunakan sebagai *starter* alternatif pembuatan pupuk kompos karena dapat meningkatkan kualitas kimia dan kualitas mikrobiologi.

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

BENEFITS OF A CONSORTIUM of *Bacillus cereus* LS2B AND *Pseudomonas* sp. LS3K AS STARTER OF ORGANIC FERTILIZER FROM BEEF CATTLE FECES ON CHEMICAL AND MICROBIOLOGICAL QUALITY

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ABSTRACT

The purpose of this study was to determine the chemical and microbiological characteristics of compost produced by adding bacterial starter *Bacillus cereus* LS2B and *Pseudomonas* sp. LS3K. This study was conducted with five treatments, namely T0: without the addition of starter as control; T1: starter consortium of *Bacillus cereus* LS2B and *Pseudomonas* sp. LS3K; T2: addition of starter *Bacillus cereus* LS2B; T3: addition of starter *Pseudomonas* sp. LS3K; and T4: addition of EM4 commercial starter with each treatment replicated three times. The results showed that the five treatments of bacteria addition T0, T1, T2, T3, and T4 produced significant differences ($P < 0.05$) in chemical and microbiological parameters. The water content of compost produced was 54.91%, 54.66%, 59.9%, 59.94%, and 62.57% respectively, while the ash content was 19.75%, 15.8%, 17.52%, 17.14%, and 16.45%. The total N content of compost from the treatments was 2.42%, 0.91%, 2.29%, 2.10%, and 1.98% respectively. The C/N ratio values measured at the end of the composting period were 14.68%, 50.22%, 16.80%, 18.29%, and 20.97%. The test results of total P mineral nutrients in compost fertilizer were 0.21%, 0.13%, 0.07%, 0.15%, and 0.17%, while the total K content was 0.15%, 0.30%, 0.15%, 0.14%, and 0.16%. Furthermore, the results of the calculation of Total Plate Count (TPC) of bacteria in compost that has been produced are 6.04 Log CFU/ml, 6.21 Log CFU/ml, 6.09 Log CFU/ml, 5.78 Log CFU/ml, and 5.88 Log CFU/ml. The conclusion of this study is that the consortium between *Bacillus cereus* LS2B with *Pseudomonas* sp. LS3K can be effectively used as an alternative starter for making compost because it can improve chemical quality and microbiological quality.

Keywords: *Bacillus cereus* LS2B, Consortium, Organic fertilizer, *Pseudomonas* sp. LS3K