UJI AKTIVITAS ENZIM SELULASE DAN AMILASE PADA BAKTERI EM-4 (*Effective Microorganism 4)*

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ABSTRAK

Efective microorganism 4 (EM-4) merupakan kultur campuran mikroorganisme menguntungkan. EM-4 mengandung 90% bakteri *Lactobacillus* sp., pelarut fosfat, bakteri fotosintetik, *Streptomycetes* sp., jamur pengurai selulosa dan ragi. EM-4 dapat mencerna selulosa, pati, gula, protein dan lemak. Penelitian ini bertujuan untuk mengetahui indeks aktivitas enzim selulase dan amilase pada mikroorganisme EM-4. Penelitian ini dilakukan secara deskriptif dengan mengamati aktivitas enzim selulase dan amilase menggunakan metode zona bening dengan menggunakan pewarnaan *congo red* pada media CMC dan iodin pada media pati. Selain itu, dilakukan beberapa variasi konsentrasi EM-4 yaitu dengan konsentrasi 20%, 60% dan 100%. Serta perlakuan suhu 12°C, 27°C dan 42°C. Indeks aktivitas enzim selulase paling tinggi adalah EM-4 dengan konsentrasi 100% pada suhu 12°C dan memiliki aktivitas yang baik pada suhu 42°C untuk semua konsentrasi, sedangkan indeks aktivitas enzim amilase paling tinggi adalah EM-4 dengan konsentrasi 60% pada suhu 27°C dan memiliki aktivitas yang baik pada suhu 42°C pada semua konsentrasi.

Kata kunci: Amilase, EM-4, selulase, zona bening

A CELLULASE AND AMYLASE ENZYME ACTIVITY TEST ON EM-4 (Effective Microorganism 4)

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ABSTRACT

EM4 is a mixed culture of beneficial microorganisms. It contains 90% of Lactobacillus sp., phosphate solvent, photosynthetic bacteria, Streptomyces sp., cellulose-degrading fungi, and yeast. As the bacteria contained in EM4 can digest cellulose, starch, sugar, protein, and fat, this culture becomes an additive to optimize food substances utilization. This research is aimed to reveal the cellulase and amylase enzyme activity indices on an effective microorganism 4 (EM4) bio-activator. This research was a descriptive research with a clear zone method by using Congo red staining on CMC media and by using iodine on starch media to observe the cellulase and amylase enzyme activities. Moreover, some EM4 concentration variations were done. The variations were 20%, 60% and 100% of EM4 concentration. Furthermore, some temperature adjustments were also done i.e. 12°C, 27°C and 42°C. The highest cellulase enzyme activity index is found in a-hundred-percent-concentrated EM4 stored at 12°C. All EM4 concentration stored at 42°C has a good growth. Besides, the highest amylase enzyme activity index is found in sixty-percent-concentrated EM4 stored at 27°C, and all EM4 concentration stored at 42°C has a good growth.

Keywords: Amylase, EM-4 (Effective Microorganism 4), cellulase, clear zone