

KARAKTERISTIK MIKROBIA *Alcaligenes* sp. LS2T DAN KEMAMPUANNYA DALAM MEREDUKSI SENYAWA AMONIA

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INTISARI

Penelitian ini bertujuan untuk mengetahui karakteristik isolat *Alcaligenes* sp. LS2T, dan kemampuan isolat tersebut dalam mereduksi senyawa amonia melalui proses nitrifikasi. Sumber amonia yang digunakan berasal dari bahan kimia berupa $(\text{NH}_4)_2\text{SO}_4$ dan bahan biologi berupa urin sapi. Penambahan senyawa $(\text{NH}_4)_2\text{SO}_4$ atau urin dilakukan pada level konsentrasi 0%, 1%, 3%, 5%, 7%, 10%, 15%,. Pengujian isolat *Alcaligenes* sp. LS2T yang dilakukan meliputi pengujian *optical density*, pengujian Nessler, pengujian diameter koloni, pengecatan Gram, pengujian katalase, dan pengujian *Scanning Electron Microscope* (SEM). Hasil yang diperoleh dianalisis secara deskriptif. Karakterisasi menunjukkan bahwa isolat *Alcaligenes* sp. LS2T mampu tumbuh dalam medium cair dengan baik pada penambahan $(\text{NH}_4)_2\text{SO}_4$ 3%, dan terhambat pada penambahan $(\text{NH}_4)_2\text{SO}_4$ 5%, 7%, 10%, dan 15% serta tumbuh baik pada penambahan urin sampai 15%. Pertumbuhan pada medium padat isolat hanya mampu tumbuh pada penambahan $(\text{NH}_4)_2\text{SO}_4$ 1%. *Alcaligenes* sp. LS2T memiliki bentuk sel batang, Gram negatif, katalase positif, berwarna putih, serta mampu mereduksi amonia pada medium dengan jumlah amonia yang sedikit pada medium pertumbuhan. Kesimpulan dari penelitian adalah penambahan amonia dapat berpengaruh pada pertumbuhan *Alcaligenes* sp. LS2T, yaitu dapat menghambat pertumbuhannya dengan penambahan $(\text{NH}_4)_2\text{SO}_4$, sedangkan penambahan urin *Alcaligenes* sp. LS2T dapat tumbuh semakin baik.

Kata kunci: *Alcaligenes* sp. LS2T, Reduksi Amonia, $(\text{NH}_4)_2\text{SO}_4$, Karakterisasi

CHARACTERISTICS OF *Alcaligenes* sp. LS2T AND THE ABILITY TO REDUCE AMMONIA

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ABSTRACT

This study aims to determine the characteristics of isolates *Alcaligenes* sp. LS2T, and the ability of this strain to reduce ammonia through the process of nitrification. Ammonia source used in this study was chemical by synthesized form of $(\text{NH}_4)_2\text{SO}_4$ and cow urine as organic from of nitrogen. The addition of $(\text{NH}_4)_2\text{SO}_4$ or urine was at concentration level 0%, 1%, 3%, 5%, 7%, 10%, and 15%. Testing isolates *Alcaligenes* sp. LS2T undertaken include optical density, testing Nessler, colony diameter, Gram stain, catalase test, and Scanning Electron Microscope (SEM) examination. The result obtained were analyzed descriptively. Characterization showed that *Alcaligenes* sp. LS2T able to grow in a liquid medium with the addition of 3% $(\text{NH}_4)_2\text{SO}_4$, and inhibited by the addition of 5%, 7%, 10%, and 15% $(\text{NH}_4)_2\text{SO}_4$. strain LS2T grew well in the addition of urine to 15%. Growing on the solid medium, strain LS2T only able to grow on the addition of 1% $(\text{NH}_4)_2\text{SO}_4$. *Alcaligenes* sp. LS2T have bacill cell shape belongs to, Gram negative bacteria, having catalase positive, white color, and it was able to reduce ammonia in the medium with a slight amount of ammonia in the growth medium. The conclusion of the study is the addition of ammonia can affect the growth of *Alcaligenes* sp. LS2T, which can inhibit the growth with the addition of $(\text{NH}_4)_2\text{SO}_4$, while the addition of urine *Alcaligenes* sp. LS2T can grow better.

Key word: *Alcaligenes* sp. LS2T, reduce ammonia, $(\text{NH}_4)_2\text{SO}_4$, Characterization