

**KARAKTER PERTUMBUHAN DAN KEMAMPUAN *Candida* sp. LS3T
DALAM MEREDUKSI AMONIA PADA LEVEL PENAMBAHAN
(NH₄)₂SO₄ YANG BERBEDA**

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INTISARI

Bau yang ditimbulkan oleh amonia pada kotoran ternak menimbulkan dampak negatif bagi kesehatan dan lingkungan. Penelitian ini bertujuan untuk mengetahui pengaruh level penambahan (NH₄)₂SO₄ yang berbeda terhadap karakter pertumbuhan *Candida* sp. LS3T pada medium padat dan medium cair serta untuk mengetahui kemampuan *Candida* sp. LS3T dalam mereduksi amonia. Penelitian ini menggunakan *Candida* sp. LS3T yang diperoleh dari isolasi sampel tanah di sekitar kandang ayam petelur. *Candida* sp. LS3T ditumbuhkan pada medium agar dengan kondisi aerob, selanjutnya dilakukan pengujian jumlah koloni, pertumbuhan pada medium padat (diameter koloni) dan medium cair (*Optical Density*) dengan level penambahan (NH₄)₂SO₄ yang berbeda (0%, 2,5%, 5%, 7,5% dan 10%), pengukuran konsentrasi amonia (ppm), karakterisasi (pengamatan morfologi koloni, uji motilitas, uji katalase, pengamatan bentuk sel dengan *Scanning Electron Microscope* (SEM)). Analisis data yang digunakan adalah analisis deskriptif dan analisis Rancangan Acak Lengkap pola searah. Analisis deskriptif digunakan untuk data jumlah koloni, pertumbuhan pada medium cair, pengukuran konsentrasi amonia (ppm) dan karakterisasi. Analisis Rancangan Acak Lengkap pola searah digunakan untuk data diameter koloni, dilanjutkan dengan uji DMRT. Jumlah koloni paling banyak diperoleh pada penambahan (NH₄)₂SO₄ 7,5% yaitu 8,8x10⁶ CFU/ml. Penambahan (NH₄)₂SO₄ berpengaruh nyata (P<0,05) terhadap ukuran diameter koloni. Konsentrasi amonia mengalami penurunan dari 54,262 ppm menjadi 51,994 ppm. Koloni *Candida* sp. LS3T mempunyai bentuk bulat dengan tepi bergelombang, ukuran sedang, warna putih kekuningan, semi tembus cahaya, permukaan halus, dan mempunyai elevasi datar. *Candida* sp. LS3T bersifat fakultatif, motilitas negatif (-) dan katalase positif (+). *Candida* sp. LS3T mempunyai bentuk sel bulat dengan diameter 1 µm. Berdasarkan hasil penelitian dapat disimpulkan bahwa *Candida* sp. LS3T mampu tumbuh hingga penambahan (NH₄)₂SO₄ 10% dan berpotensi sebagai agen bioremediasi.

(Kata kunci: Amonia, Asimilasi amonia, *Candida* spp.)

GROWTH CHARACTER AND ABILITY OF *Candida* sp. LS3T IN REDUCING AMMONIA AT ADDITION OF (NH₄)₂SO₄ WITH DIFFERENT LEVEL

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Abstract

Odor caused by ammonia in livestock manure has a negative impact on health and the environmental problem. The aim of this research is to investigate the effect of addition (NH₄)₂SO₄ at different levels to the growth character of *Candida* sp. LS3T in solid medium and liquid medium and to determine the ability of *Candida* sp. LS3T in reducing ammonia. This research used *Candida* sp. LS3T obtained from isolation of soil samples around the laying hens industry. *Candida* sp. LS3T was cultivated on agar with aerobic condition then observed the number of colonies and the growth in solid medium (colony diameter) and liquid medium (Optical Density) with addition of (NH₄)₂SO₄ at different level (0%, 2.5%, 5%, 7.5% and 10%), concentration of ammonia (ppm), characterization (colony morphology, motility test, catalase test, and the shape of cell by Scanning Electron Microscope (SEM)). The research data was analyzed by descriptive analysis and Completely Randomized Design by one-way ANOVA. Descriptive analysis used for the number of colonies, liquid medium growth, concentration of ammonia (ppm) and characterization. Completely Randomized Design by one-way ANOVA was used for colony diameter, and the difference between means were continued by DMRT. The highest number of colonies obtained at addition of (NH₄)₂SO₄ 7.5%, it was 8.8x10⁶ CFU/ml. The addition of (NH₄)₂SO₄ significantly affected (P<0.05) to the size of colony diameter. Ammonia concentration decreased from 54.262 ppm to 51.994 ppm. Colony morphology of *Candida* sp. LS3T have circular shape with undulate margin, medium in sized, cream, semi-translucent, smooth, and has a flat elevation. *Candida* sp. LS3T has a facultative character, motility negative (-) and catalase positive (+). *Candida* sp. LS3T has round shape with a diameter size about 1 µm. Based on the results of this study concluded that *Candida* sp. LS3T able to growth 10% of (NH₄)₂SO₄ addition and it has potential as bioremediation agent.

(Keywords: Ammonia, Ammonia assimilation, *Candida* spp.)