ABSTRAK

Penelitian ini bertujuan untuk mengetahui jumlah isolat bakteri dekomposer bahan organik dari tanah mangrove Jenu Tuban, mengetahui indeks hidrolitik tertinggi, serta mengetahui genus bakteri dekomposer bahan organik paling potensial yang diperoleh dari tanah Mangrove Jenu Tuban. Metode pengambilan sampel tanah dilakukan secara *purposive sampling*. Bakteri dekomposer bahan organik yang diisolasi meliputi bakteri amilolitik, proteolitik, dan lipolitik. Sampel tanah yang telah dikomposit dilakukan tahap *pre-treatment* pada media *Bushnell Haas broth*+substrat selektif (amilum 1%, susu skim 2%, minyak zaitun 3%) dan diinkubasi menggunakan *shaker* inkubator selama 48 jam. Untuk mengisolasi bakteri dekomposer bahan organik, suspensi dari tahap *pre-treatment* dilakukan pengenceran sebesar 10^{-1} sampai 10^{-4}. Satu mililiter dari pengenceran 10^{-1}, 10^{-3}, dan 10^{-4} diinokulasikan pada media Bushnell Haas agar+substrat selektif (amilum 1%, susu skim 2%, minyak zaitun 3%) dengan metode *pour plate* selama 48 jam pada suhu 37°C. Media selektif yang digunakan pada tahap isolasi juga digunakan untuk uji secara kualitatif menggunakan metode totol dan diinkubasi selama 48 jam. Data yang diperoleh berupa karakter makroskopis, mikroskopis, dan karakter fisiologis isolat potensial dianalisis secara deskriptif. Hasil dari isolasi dan uji potensi didapatkan 3 bakteri amilolitik, 18 bakteri proteolitik, dan 5 bakteri lipolitik. Bakteri amilolitik yang paling tinggi yaitu isolat LI.3.12M dengan indeks hidrolitik sebesar 1,51, dimana menurut karakter uji fisiologis diduga *Bacillus cereus* dengan tingkat kesamaan sebesar 80%. Bakteri proteolitik yang paling tinggi yaitu isolat LI.3.17 dengan indeks hidrolitik sebesar 4,02, dimana menurut karakter uji fisiologis diduga *Bacillus anthrachis* dengan tingkat kesamaan sebesar 71%. Bakteri lipolitik yang paling tinggi yaitu isolat LI.1.2 dengan indeks hidrolitik sebesar 0,34, dimana menurut karakter uji fisiologis diduga *Listeria ivanovii* dengan tingkat kesamaan sebesar 85%.

Kata kunci: Indeks amilolitik, Indeks lipolitik, Indeks proteolitik, Mangrove Jenu Tuban

Zahrotul Jannah, 2019, **Isolation, Characterization and Potential Test of Organic Matter Decomposer Bacteria from Mangrove Jenu Tuban Soils,** This thesis under the guidance of Dr. Fatimah, S.Si., M.Kes. and Drs. Salamun, M.Kes. Bachelor Biology Study Program, Departement of Biology, Faculty of Sains and Technology, Airlangga University, Surabaya.

ABSTRACT

The purpose of this research was to know the amount of organic matter decomposer bacteria from mangrove Jenu Tuban soil, also to determine highest hydrolytic index and genera of the most potential organic matter decomposer bacteria. Sampling method was carried out using purposive sampling. Organic matter decomposer bacteria that isolated consist of amylolytic, proteolytic and lipolytic bacteria. Composited soil was then pretreated on Bushnell Haas broth + selective substrate (amylum 1%, skimmed milk 2%, olive oil 3%) and incubated using shaker incubator for 48 hours. To isolate organic matter decomposer bacteria, suspension from pretreatment stage then diluted by $10^{-1} - 10^{-4}$. One mililiter of each 10^{-1}, 10^{-3}, and 10^{-4} then inoculated on Bushnell Haas Agar media + selective substrate (amylum 1%, skimmed milk 2%, olive oil 3%) using pour plate method for 48 hours in 37°C. Selective media that used in isolated stage also used for qualitative tests using spot method and incubated for 48 hours. Data that obtained from this research are macroscopic, microscopic and physiologic character of potential isolate were analyzed descriptively. The result of isolation and potential tests were 3 amylolytic bacteria, 18 proteolytic bacteria, and 5 lipolytic bacteria. Most potential amylolytic bacterium was LI.3.12M isolate with 1,51 hydrolytic index, in which based on physiological test characteristic assumed as *Bacillus cereus* with similarity level of 80%. Most potential proteolytic bacterium was LI.3.17 isolate with 4,02 hydrolytic index, in which based on physiological test characteristic assumed as *Bacillus anthachis* with similarity level of 71%. Most potential lipolytic bacterium was LI.1.2 isolate with 0,34 hydrolytic index, in which based on physiological test characteristic assumed as *Listeria ivanovii* with similarity level of 85%.

Keywords : Amylolytic index, Lipolitic index, Proteolytic index, Mangrove Jenu Tuban