Nikmatus Solikha, 2019. Isolasi dan Uji Potensi Actinomycetes Penghasil Enzim Selulase dari Tanah Mangrove Jenu Tuban. Skripsi ini di bawah bimbingan Prof. Dr. Ir. Tini Surtiningsih, DEA. dan Dr. Ni'matuzahroh. Program Studi S-1 Biologi, Departemen Biologi, Fakultas Sains dan Teknologi, Universitas Airlangga, Surabaya.

ABSTRAK

Penelitian ini bertujuan untuk mengetahui genus isolat Actinomycetes yang berpotensi menghasilkan enzim selulase yang diisolasi dari tanah mangrove Jenu Tuban. Penelitian ini dilakukan dengan cara isolasi sampel tanah yang diambil dari rhizosfer mangrove Jenu Tuban pada dua lokasi secara *purposive sampling*. Metode pemanasan digunakan untuk mengisolasi Actinomycetes dengan mengeringkan dan memanaskan sampel selama 32 jam pada 30^0C. Sepuluh gram sampel tanah ditimbang secara akurat dan dipindahkan ke 90 mL air fisiologis steril dan dihomogenkan selama 10 menit. Suspensi dimasukkan dalam cawan petri dengan metode *pour plate* dan ditambahkan media SCA (*Starch Casein Agar*). Koloni tunggal Actinomycetes di uji menggunakan media selektif CMC (*Carboxyl methyl Cellulose*) untuk melihat potensi isolat yang menghasilkan enzim selulase. Setiap isolat Actinomycetes di inkubasi selama tujuh hari pada suhu kamar. Zona bening dihasilkan oleh isolat penghasil enzim selulase. *Congo Red* digunakan untuk pengamatan aktivitas selulolitik. Hasil positif dari aktivitas selulolitik ditunjukkan oleh pembentukan zona bening. Empat isolat menunjukkan hasil positif aktivitas selulolitik, dan yang tertinggi adalah isolat L1A.10 dengan indeks selulolitik 2,56 mm. Identifikasi isolat berdasarkan karakteristik makroskopis, mikroskopis, dan fisiologis. *Bergey's Manual of Determinative Bacteriologi* digunakan untuk menentukan genus isolat L1A.10. Isolat ini diduga *Nocardia.*

Kata kunci: Mangrove Center Tuban, Actinomycetes, Indeks Selulolitik, CMC

Nikmatus Solikha, 2019. Isolation and Potential Assay of Actinomycetes Producing Cellulase Enzymes from Mangrove Lands in Jenu Tuban. This thesis under the guidance of Prof. Dr. Ir. Tini Surtiningsih, DEA. and Dr. Ni'matuzahroh. Bachelor Biology Study Program, Department of Biology, Faculty of Science and Technology, Airlangga University, Surabaya.

ABSTRACT

This study aims to determine the genus of Actinomycetes isolates that have the potential to produce cellulase enzyme isolated from Jenu Tuban mangrove soil. This research was conducted by isolating soil samples technique from the Jenu Tuban mangrove rhizosphere at two locations by purposive sampling. The dry-heating method was used to isolate Actinomycetes by drying and heating the sample for 32 hours at 30^0C. Ten grams of soil samples were accurately weighed and transferred to 90 mL of sterile physiological water and homogenized for 10 minutes. The suspension was puted into Petri dish using pour plate method and added SCA (Starch Casein Agar) media. The single colony of Actinomycetes was assayed using selective media of CMC (Carboxyl methyl Cellulose) to see the potency of the isolates to produce cellulase enzym. Each Actinomycetes isolate was incubated for seven days at room temperature. Clear zone was produced by cellulase enzym producing isolate. Congo Red solution was used to observe cellulolytic activity. The positive result of cellulolytic activity was indicated by formation of clear zone. Four isolates showed positive result for cellulolytic activity, and the highest is L1A.10 isolate with cellulolytic index 2.56 mm. Isolate identification based on macroscopic, microscopic, and physiological characteritics. Bergey's Manual of Determinative Bacteriology was used to determine the genus of L1A.10 isolate. This isolate was suspected as *Nocardia*.

Keywords: Mangrove Center Tuban, Actinomycetes, Cellulolytic Index, CMC