

## ABSTRAK

Aktinomisetes berhasil diisolasi dari lingkungan payau hutan mangrove Wonorejo Surabaya menggunakan medium selektif *Starch M-Protein Agar* yang disuplementasi dengan nystatin 0,002%. Semua isolat aktinomisetes hasil isolasi diperoleh dari tiga sampel tanah rhizosfer tanaman mangrove yang berbeda dan diambil secara acak di hutan mangrove Wonorejo Surabaya dan dianalisis aktivitas antagonisnya dalam memproduksi senyawa metabolit sekunder antimikroba terhadap pertumbuhan mikroorganisme uji yang digunakan dalam penelitian ini, yaitu jamur *Candida albicans* dan bakteri *Methicillin Resistant Staphylococcus aureus* (MRSA). Pre-treatment sampel berdasarkan metode pengeringan panas pada suhu 90°C selama 60 menit. Seleksi isolat yang memiliki aktivitas antagonis senyawa antimikroba berdasarkan metode difusi agar padat (*Diffusion Agar Plate Methode*) atau metode difusi keping agar. Penelitian ini dilakukan pada bulan Desember - Juni 2019 di Laboratorium Mikologi dan Bakteriologi Jurusan Analis Kesehatan Poltekkes Kemenkes Surabaya. Aktivitas antagonis ditandai dengan pembentukan zona hambat disekitar keping agar isolat aktinomisetes. Diameter zona hambat dan diameter koloni aktinomisetes diukur untuk menentukan besar zona hambat. Dengan hasil isolat aktinomisetes yang berhasil diisolasi dan diidentifikasi dari sampel rhizosfer tanah hutan mangrove Wonorejo Surabaya sebanyak 40 isolat dan berdasarkan hasil pengujian aktivitas antagonis senyawa antimikroba isolat aktinomisetes terhadap mikroorganisme uji diperoleh 13 isolat dengan 11 isolat yang memiliki daya hambat total dengan diameter zona hambat isolat A8 (12,5 mm), isolat B1 (15,0 mm), isolat B2 (14,0 mm), isolat B6 (8,0 mm), isolat B8 (13,0 mm), isolat C1 (12,0 mm), isolat C6 (11,0 mm), isolat C7 (11,5 mm), isolat C8 (10,5 mm), isolat E2 (8,0 mm), isolat E3 (11,0 mm), dan 2 isolat yang memiliki daya hambat parsial dengan diameter zona hambat isolat D1 (10,0 mm), isolat D8 (12,5 mm) terhadap mikroorganisme uji bakteri *Methicillin Resistant Staphylococcus aureus* (MRSA) serta tidak diperoleh isolat yang memiliki daya hambat terhadap mikroorganisme uji jamur *Candida albicans* ATCC 10231.

**Kata kunci :** *Aktinomisetes, hutan mangrove Wonorejo Surabaya, medium Starch M-Protein Agar, aktivitas antagonis, Methicillin Resistant Staphylococcus aureus (MRSA), Candida albicans.*

## ABSTRACT

Actinomycetes were successfully isolated from the brackish environment of the mangrove forest Wonorejo Surabaya using a selective medium *Starch M-Protein Agar* supplemented with nystatin 0.002%. All isolated actinomycetes isolates were obtained from three different rhizosphere soil samples of mangrove plants and were randomly taken in the mangrove forest Wonorejo Surabaya and analyzed their antagonistic activity in producing antimicrobial secondary metabolites against the growth of test microorganisms used in this study, namely *Candida albicans* and bacteria *Methicillin Resistant Staphylococcus aureus* (MRSA). *Pre-treatment* samples were based on the method of heat drying at 90°C for 60 minutes. Selection of isolates that have antimicrobial antagonistic activity based on the solid agar *diffusion method (Diffusion Agar Plate Method)* or agar chip diffusion method. This research was conducted in December - June 2019 at the Laboratory of Mycology and Bacteriology of the Department of Health Analyst of Health Ministry Surabaya. Antagonistic activity is characterized by the formation of inhibitory zones around the chip so that the actinomycetes isolates. The diameter of the inhibition zone and the diameter of actinomycetes colonies were measured to determine the size of the inhibition zone. With the results of actinomycetes isolates that were isolated and identified from rhizosphere samples from mangrove forest Wonorejo Surabaya as many as 40 isolates and based on the test results of antimicrobial antagonistic activity of actinomycetes against test microorganisms, 13 isolates were found with 11 isolates having total inhibitory zone inhibition diameter A8 isolates (12,5 mm), B1 isolates (15,0 mm), B2 isolates (14,0 mm), B6 isolates (8,0 mm), B8 isolates (13,0 mm), C1 isolates (12,0 mm), C6 isolates (11,0 mm), C7 isolates (11,5 mm), C8 isolates (10,5 mm), E2 isolates (8,0 mm), E3 isolates (11,0 mm), and 2 isolates which has partial inhibition with inhibitory zone diameter isolates D1 (10,0 mm), D8 isolates (12,5 mm) against microorganisms test *Methicillin Resistant Staphylococcus aureus* (MRSA) and no isolates that have inhibitory power to fungal test microorganisms *Candida albicans* ATCC 10231.

**Keywords :** *Actinomycetes, Surabaya Wonorejo mangrove forest, medium Starch M-Protein Agar, antagonistic activity, Methicillin Resistant Staphylococcus aureus (MRSA), Candida albicans.*