



Screening of *Actinomycetes* that Produce Antibiotics from Rhizosphere of Medicinal Plants in West Lombok , Indonesia as Anti-MRSA(*Methicilin Resistant Staphylococcus aureus*)

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Abstract: Infectious diseases caused by MRSA attract attention worldwide and become a great problem for the hospital clinician as a cause of nosocomial infection and its increased 20 % every year. Therefore, antibiotics that work specifically against MRSA is urgently needed. *Actinomycetes* is one of the most promising sources of antibiotics. This study aims to explore the potential of *Actinomycetes* from rhizosphere Suranadi Forest, Indonesia in inhibiting MRSA. In this study, 20 isolates were isolated from the rhizosphere Suranadi Forest, West Lombok then selected for their anti-MRSA activity. Antibacterial compounds from *Actinomycetes* isolates observed including inhibitory activity against pathogens, Minimal Inhibition Concentration (MIC) and spectrum analysis. VFD4 and LDE5 isolates showed the highest inhibition activity against pathogens. Inhibition zone formed by VFD4 against MRSA, *V. Cholera*, and EPEC sequentially are 38 ± 1 mm, $19.3 \text{ mm} \pm 1.53$ and 1.3 ± 0.58 mm, whereas the inhibition zone formed by LDE5 were 10.5 ± 1.73 mm, 16.3 ± 1.53 mm, and 5 ± 1.73 mm respectively. Based on MIC test on five selected isolates, VFD4 and LDE5 showed great inhibitory activity, with 40% in inhibiting MRSA and *V. cholerae*. Spectrum analysis showed that ECM from LDD1, LDE3 and LDE5 have narrow spectrum that is specific to gram positive while LDE2 and VFD4 have broad spectrum. Based on this study, VFD4 and LDE5 can be concluded to have high antimicrobial activity against pathogens. Based on sequence analysis of 16S rDNA, LDE5 isolates identified as *Streptomyces aurantiacus* which is known to produce antibiotics aurantimycin.

Keywords : *Actinomycetes*, Anti-MRSA, Antibiotics, Antimicrobes.