SUMMARY

Actinomycetes, one of the highest bioactive producing bacterium, is potentially produce antibiotics, antifungal, antiprotozoal, antiviral, anticholesterol, antihelminth, anticancer, immunosuppressant, and antiangiogenics which can be used for treating such infectious disease and cancer. The development of bioactive screening on actinomycetes became a challenge. There are still many species whose existence and function in nature have not been studied. It is possible to discover and study the further potency related to new bioactive agents such as antiangiogenic properties, potentially reducing tumor or cancer cell growth.

Streptomyces sp. SAE4034 is an actinomycetes isolated from Segara Anakan mangrove sediment, which showed inhibition to *P. aeruginosa*. The antibacterial compounds and their inhibitory mechanisms against *P. aeruginosa* are still unknown. Therefore, it is essential to know the class of compounds and the inhibition mechanism. Other bioactive properties are potential to be discovered, such as antiangiogenic. This research was conducted to know the type of antibacterial and antiangiogenic compound produced by *Streptomyces* sp. SAE4034, to observe the inhibition mechanism of *Streptomyces* sp. SAE4034 crude extract against *P. aeruginosa*, and to observe the antiangiogenic activity *Streptomyces* sp. SAE4034 crude extract on chicken embryo.

The research was done by survey method for determination of compound and antibacterial test, and the observed parameters were inhibition zone, minimum inhibitory concentration, inhibition mechanism, type of bioactive compounds and characteristics of *Streptomyces* sp. SAE4034. Data obtained were analyzed descriptively. While antiangiogenic activity was observed experimentally using complete random design (CRD) with the parameter of morphometric value of angiogenesis. Data were analyzed by Analysis of Variance (ANOVA) with 95% confidence level, followed by Tukey analysis with 5% significant level.

The result of showed that *Streptomyces* sp. SAE4034 crude extract separated into different spots (R_f 0.02, 0.09, 0.25, 0.49, 0.63, 0.79, and 0.95). Polyphenol detected on R_f 0.02,0.49, and 0.95; flavonoid detected on R_f 0.09 and 0.95; Terpenoid detected smear over R_f 0.02-0.4875 and 0.948; while polyketide detected on R_f 0.02-0.49 and 0.95. The crude extract potentially inhibited *P. aeruginosa* by losing the nucleic acid and protein content of the cells. Potential antiangiogenic substances were proven by the crude extract activity on embryonated chicken eggs with results 50 µg/ml (mean= 23.10%) and 100 µg/ml (mean= 11.77%) respectively inhibit the growth and sprouting of blood vessels.

Keywords: *Antiangiogenic, Antibacterial, Bioactive Substances, Inhibition Mechanism, Streptomyces* sp. *SAE4034 crude extract*