

The Production of Streptomyces W-5B Extract for Antibiofilm against Methicillin-resistant *Staphylococcus aureus*

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Abstract	<p>The ability of Methicillin-resistant <i>Staphylococcus aureus</i> (MRSA) to form biofilms is one of the triggering factors for the emergence of MRSA resistance to antibiotics. Streptomyces W-5B has shown potency as an antibacterial producer against MRSA. However, the production of microbial bioactive compounds is strongly affected by the source of nutrients in the fermentation medium. Therefore, the objective of this study was to determine the optimal sources of carbon and nitrogen for the production of bioactive compounds with antibiofilm activities. The research method included cultivating Streptomyces W-5B, extract production, and variation of carbon (glucose, sucrose, starch) and nitrogen (casein, peptone, urea) sources for fermentation medium. Antibiofilm activities were measured based on inhibition of biofilm formation and biofilm degradation tests using the microtiter plate method with a crystal violet stain. The results showed that the highest inhibition of biofilm formation was 68.206 +/- 1.750% after 12 days of incubation in a fermentation medium containing sucrose and urea. Meanwhile, the highest biofilm degradation was 73.023 +/- 1.972% after nine days of incubation on a fermentation medium containing starch and urea. These findings indicated that Streptomyces W-5B has the potency to produce antibiofilm extract against MRSA.</p>
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