Clove Oil Has the Activity to Inhibit Middle, Maturation and Degradation Phase of *Candida Tropicalis* Biofilm Formation

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First Author	
Last Author	
Authors	Hamzah, H; Yudhawan, I; Rasdianah, N; Setyowati, E; Nandini, E; Pratiwi, SUT;
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Abstract	Clove oil is one of the natural antibacterial ingredients that is easily obtained because of its abundant amounts in nature. Various researches have been conducted. but the antibiofilm activity against Candida tropicalis has never been done. This study evaluates the effectiveness of clove oil in inhibiting and degrading C. tropicalis JFM 1541 biofilm activity. The research was conducted using the microliter broth method. The antibiofilm activity was determined as the minimum biofilm inhibitory concentration (MBIC50) the minimum value of biofilm eradication concentration (MBEC50). Antibiofilm mechanism was elucidated using scanning electron microscopy (SEM). Statistical analyzes were performed using ANOVA ($p < 0,05$). Showed that clove oil could inhibit biofilm formation at the middle phase by 65% (65.21 +/- 0.01) and at the maturation phase b 56% (56.11 +/- 0.01). Clove oil with a concentration of 10A) v/v has been shown to have activity in degrading 41% of C. tropicalis biofilms (41.X7 0.01). SEM shows that clove oil can cause damage in the extracellular polymeric matrix (EPS) of C. tropicalis biofilm. In conclusion, clove oil acts as a potential antibiofilm activity against C. tropicalis (compared to nystatin as control drugs) and further developed a new antibiofilm agent.
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Author	apt. INDRA YUDHAWAN, S.Farm, M.Pharm.Sci.