MOLECULAR IDENTIFICATION OF INTERCELLULAR GENE *icaA* and *icaD* LEAD TO *Staphylococcus aureus* BIOFILM-ASSOCIATED FORMATION OF NASAL ISOLATES AMONG MEDICAL LABORATORY TECHNOLOGY STUDENTS IN UiTM PUNCAK ALAM

By

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DECLARATION

"I hereby declare that, this thesis is my original work and has not been submitted previously or currently for any degree at UiTM or any other institutions"

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ABSTRACT

MOLECULAR IDENTIFICATION OF INTERCELLULAR GENE *icaA* AND *icaD* LEAD TO *Staphylococcus aureus* BIOFILM FORMATION OF NASAL ISOLATES AMONG MEDICAL TECHNOLOGY STUDENTS IN UITM PUNCAK ALAM

Previous study have been done and reported that *S.aureus* strain clinically is type of common normal flora in any part of human body especially in nasal part. Statistically, 45% of human population is a carrier of *S.aureus*. However, the ability of *S.aureus* to produce biofilm will significantly cause chronic infection among population as it show increment towards antibiotics and disinfectant as well as they resisting phagocytosis and other components in body defense system. The biofilm structured the bacteria to embed itself by producing polymatrix which consist of polysaccharide, protein and DNA. Furthermore, biofilm-associated organism was formed by the presence intercellular gene (*icaA and icaD*) operons encoded and producing polysaccharide intercellular adhesion (PIA). Based on previous study and laboratory work, 18 samples are positively determine as *S.aureus* nasal carrier, over 144 nasal swabs collected. Meanwhile, for this study the 18 samples was undergoes for preliminary method in detecting *S.aureus* presence confirmation and molecular method for gene detection of (*icaA and icaD*) by Real-Time polymerase chain (qPCR) reaction as this method provide reliable result with high sensitivity and specificity. 10 sample (55.6%) over 18 samples were detected with the presence of intercellular gene (*icaA and icaD*). In conclusion, certain amount of nasal isolates show the presence of intercellular gene (*icaA and icaD*)) that may lead to chronic disease caused by biofilm formation. The method for gene identification was detected by qPCR to achieve rapid and accurate result.

Keywords : *S.aureus*, Intercellular gene (*icaA and icaD*), biofilm-associated, Real-Time Polymerase Chain Reaction