

Application of RT-PCR to detect treated and untreated *Staphylococcus aureus* genes with marine algae.

ABSTRACT

Methacillin Resistant *Staphylococcus aureus* (MRSA), Extended Spectrum Beta Lactamase (ESBL) organisms and Multiple Drug Resistant Organism (MDRO). Therefore, this study was designed to explore an alternative antibacterial product derived from seaweed extracts, *Gracilaria changii* and *Euchema denticulatum*, through the study of DNA and RNA encoding genes of interest in MRSA and non-MRSA. The target of this study is to amplification of several untreated and treated *S. aureus* and *E. coli* genes that are potentially involved in the antibacterial activities through RT-PCR assay. *G. changii* and *E. denticulatum* extracts showed inhibitory activity against *S. aureus*, several genes in this pathogen were chosen to study the effect of both seaweed extracts on the genes through PCR and RT-PCR analysis. However, the predicted inhibitory mechanism of both seaweeds extracts on *mecA* gene was not fully elucidated in the study. The investigation could scientifically proof the natural products to be potentially potent antibacterial agents.

Keyword: Reverse transcription-polymerase chain reaction; *Staphylococcus aureus*; Marine algae; Antimicrobial activities; Extraction; Sequencin; Malaysia