MULTIPLEX PCR FOR DETECTION OF SUPERANTIGENIC TOXIN GENES IN METHICILLIN-SENSITIVE AND METHICILLIN-RESISTANT *STAPHYLOCOCCUS AUREUS* ISOLATED FROM PATIENTS AND CARRIERS OF A HOSPITAL IN NORTHEAST THAILAND

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**Abstract.** The aims of this study were to develop multiplex PCR for simultaneous detection of five superantigenic toxin genes (*sea*, *seb*, *sec*, *sed* and *tst-1*) in *Staphylococcus aureus* isolated from 149 clinical samples and nasal swabs from 201 healthy subjects in Thailand, and to compare prevalence and expression of those genes between methicillin-resistant *S. aureus* (MRSA) and methicillin-sensitive *S. aureus* (MSSA). The sensitivity of multiplex PCR was $10^3$ CFU/ml (60 CFU/PCR reaction) for DNA templates extracted by both boiling and extraction methods. *S. aureus* strains from patients (65%) harbored more superantigenic toxin genes than healthy subjects (54%). MRSA (80%) isolated from patients harbored more superantigenic toxin genes than MSSA (52%). *Sea* was the most frequently found gene in *S. aureus* strains from patients and carriers. MRSA isolates harbored *sea* and produced SEA more frequently than MSSA isolates ($p < 0.05$) and MRSA isolates (59%) from blood samples consisted of a higher number of superantigenic toxin producers than MSSA (9%) ($p < 0.05$). More *S. aureus* strains isolated from patients with severe septicemia contained superantigenic toxin genes (94%) and produced toxins (82%) than those from non-severe patients (64% and 57%, respectively). The multiplex PCR method described here offers a reliable tool for simultaneous detection of various staphylococcal toxin genes.

**Keywords:** multiplex PCR, superantigenic toxin, methicillin-resistant *S. aureus*, methicillin-sensitive *S. aureus*, patients, nasal carriers, Thailand

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