Introduction

Staphylococcus aureus is a major pathogen responsible for nosocomial and community-acquired infection **(Rubin et al., 1999) .**

MRSA refers to "methicillin-resistant *Staphylococcus aureus*" , which are strains of the bacterium that are resistant to the action of methicillin and related beta-lactam antibiotics (e.g. penicillin and cephalosporin). MRSA has continued to be a major pathogen causing infections in hospitals and community .In hospitals MRSA infection occurs most frequently among patients who undergo invasive medical procedures or who have weakened immune systems and are being treated in hospitals and health care facilities such as nursing homes and dialysis centers. MRSA in health care settings commonly causes serious and potentially life threatening infections such as blood stream infections, surgical site infections or pneumonia. MRSA infections that occur in otherwise healthy people who have not been recently (within the past year) hospitalized or had a medical procedure (such as dialysis, surgery, catheters) are categorized as community-associated infections. These infections are usually skin infections, such as abscesses, boils and other pus filled lesions **(Carleton et al., 2004 ; Zetola et al ., 2005)** .

Methods to detect MRSA in clinical samples ideally should have high sensitivity and specificity combined with a short time to reporting on the results. To identify *S. aureus* from contaminated samples more easily and reliably, selective media have been developed. Ideally, selective media achieve isolation of *S. aureus* and detection of methicillin resistance in one single step **(Merlino et al ., 2000) .**

Culture media selective for MRSA have traditionally been based on blood agar, mannitol salt agar (MSA), containing methicillin or oxacillin alone or in combination with other antibiotics. Many reports have shown that cefoxitin is a better agent for prediction of methicillin resistance in *S. aureus* , and disc susceptibility testing with cefoxitin now replaces disc susceptibility testing with methicillin and oxacillin in an increasing number of centers **(Felton et al ., 2002 ; Skov et al., 2003 & Skov et al., 2005).**

Nucleic acid-based detection systems such as polymerase chain reaction (PCR) offer rapid and sensitive methods to detect the presence of resistance genes and play a critical role in the elucidation of resistance mechanisms. The methicillin resistance is conferred by the *mec A* encoded penicillin binding protein 2' (PBP2′) , which has a low affinity for beta-lactam antibiotics. *Mec A* is located on a large mobile element in *S. aureus* called the *staphylococcal cassette chromosome mec (SCCmec)* **(Katayama et al ., 2000) .**