A Preliminary Study of Methicillin-Resistant *Staphylococcus aureus* and Antimicrobial Resistance Profile of Bacteria in selected Pig Farms in Peninsular Malaysia

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Abstract

Staphylococcus aureus is one of the most common and devastating human and animal pathogens. In this study, conventional technique of isolation and identification was used to isolate *Staphylococus aureus*, *Staphylococcus hyicus*, *Streptococcus* spp., and *E. coli*. Detection and confirmation of MRSA was done using Staphytect® Kit and Oxacillin Resistance Screening Agar Base (ORSAB). Two farms from each pig industry rearing state namely Selangor, Perak, Johor and Penang were selected. Nasal and rectal swab samples were taken from 64 piglets and nasal swab samples were taken from 16 farm workers. Nineteen (13.2%) MRSA were isolated. Fourteen (21.9%) isolates were from pigs while 5 (31.3%) isolates originated from humans. These alarming findings from the present study indicated that MRSA is an emerging pathogen as well as a zoonotic potential in pigs and humans in Malaysia. This study also determined the antimicrobial sensitivity profile of some isolates towards commonly used antimicrobials in pig farms. Results showed that lincomycin is no longer effective for treatment in the farms while spectinomycin, florfenicol and enrofloxacin are starting to be less effective in controlling pathogens. Both colistin and ceftiofur are still effective as the bacteria tested are sensitive towards them. The findings from this study warrant that suitable measures must be undertaken to prevent the spread of MRSA as well as to control the rise of antibiotic resistant bacteria in the farms.

Keywords: Methicillin-resistant *Staphylococcus aureus* (MRSA), antimicrobial sensitivity test, pigs.