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Determination of *Staphylococcus* spp. present as contaminants on public door handles of an institute and analysis of their antibiogram

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Staphylococcus are potential pathogens that cause a range of infections, ranging from mild abscesses to severe septicemia. The objective of this study was to identify *Staphylococcus* present as surface contaminants and to analyze their antibiogram. KAATSU International University's door knobs were sampled using cotton swabs that had been dipped in peptone water and incubated it for 18-24 hours at $37C^0$. Incubated samples were inoculated on mannitol salt agar plates and incubated for 24 hours at 37°C. Gram staining and biochemical tests such as catalase, coagulase were carried out for further identification of the isolates. The disc diffusion method was used for antibiotic sensitivity testing (ABST) following the guidelines of the Clinical and Laboratory Standards Institute (CLSI). For coagulase-positive isolates, cefoxitin (30 g), erythromycin (10 g), gentamicin (10 g), vancomycin (30 g), and oxacillin (1 µg) were used. Novobiocin (5 mg), erythromycin (10 mg), gentamicin (10 mg), and vancomycin (30 mg) were utilized for coagulase-negative isolates. All 37 door handle samples were collected; 91.89% (n =31) were pure growth samples. Out of those samples, 64.86% (n = 24) were identified as Coagulase positive *Staphylococcus aureus* and 18.91% (n = 7) were identified as coagulase negative *Staphylococcus*. Out of 24 samples, 24.16% (n = 7) isolates were found to be Methicillin resistant *Staphylococcus aureus* (MRSA) strains. Rates of MRSA isolates showed resistance to erythromycin 100% (n = 7) and Oxacillin 14.28%. In (CoNS) coagulase negative *Staphylococcus* 71.42% (n = 5) were identified as *Staphylococcus epidermidis*, and 28.57% (n = 2) were *Staphylococcus saprophyticus*. Coagulase negative *Staphylococcus* showed 100% sensitivity to vancomycin, gentamycin (10 ug), and oxacillin, and 42.86% (n = 4) of the isolates showed resistance to erythromycin. *Staphylococcus aureus* with a considerable rate of MRSA was discovered in this investigation. [Contaminated door handles can be a source of transmission of MRSA.] This research can be used to find effective disinfectants and proper cleaning techniques to minimize the spread of Staphylococcus through door handles.

Keywords: Door handles, Methicillin resistant *Staphylococcus aureus*, Coagulase negative, Coagulase positive, Antibiotic resistance.

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