One Health Insights into *Staphylococcus aureus* in Live Bird Handling Meat Shops of Colombo Municipality – Preliminary Findings

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Live bird handling meat shops (wet markets) are high-density human–animal–environment interfaces that facilitate zoonotic pathogen transmission, highlighting the importance of a One Health approach. However, there is limited data from Sri Lanka on pathogen prevalence in such settings. *Staphylococcus aureus* colonizes humans and animals and can spread through direct contact, contaminated surfaces, and respiratory secretions. Its ability to acquire antimicrobial resistance, including methicillin resistance in *Staphylococcus aureus* (MRSA), makes it a significant public health concern with potential entry into the food chain. Therefore, this study aimed to determine the occurrence of *S. aureus* in chickens, workers, and environmental samples from selected public and private wet markets in the Colombo Municipality using a One Health approach. A total of 220 samples were collected from 38 wet markets, including 132 nasal swabs from slaughtered broiler chickens, 56 nasal swabs from chicken handlers and 32 environmental dust swabs (collected from air exhaust areas measuring 10 cm × 10 cm). In addition, 32 air samples were obtained using the settle plate method, in which mannitol salt agar plates were exposed at each sampling location for 10 minutes at a height of 5 ft. Isolation and identification of *S. aureus* were performed using standard microbiological techniques, including growth on Mannitol salt agar, Gram staining, catalase testing, slide and tube coagulase tests, and DNase testing. Isolates positive for all identification tests were considered *S. aureus*. The highest isolation rate was observed in handlers, 30% (17/56; detected across 14/32 locations), followed by chicken samples, 9.8% (13/132; detected across 11/38 locations). No *S. aureus* isolates were recovered from environmental dust samples (0/32) or air samples (0/32). Antibiotic susceptibility and molecular characterization of the isolates are pending. The detection of *S. aureus* in both humans and chickens suggests possible bidirectional transmission within wet market environments. Although environmental samples were negative, close human–animal interaction may facilitate bacterial spread. These findings highlight the need for stricter animal handling and market hygiene practices, improved worker education, and routine One Health surveillance to monitor and reduce the spread of pathogenic *S. aureus* in wet markets.

Keywords: *Staphylococcus aureus*, MRSA, wet markets, antimicrobial resistance, one health

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