

Detection and isolation of *Salmonella* spp. in poultry meat samples at retail outlets in the Puttalam district in Sri Lanka

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Introduction and Objectives: Foodborne infections are a significant global public health concern. These are primary causes of morbidity and mortality in humans. Among foodborne infections, salmonellosis plays an important role worldwide. *Salmonella* spp. are often associated with food of animal origin, poultry meat, and other meat products. This study aims to determine the prevalence of *Salmonella* spp. in raw poultry meat (chicken) sold at retail outlets in MOH areas in the Puttalam district.

Methods: A pre-tested questionnaire was administered separately to assess adherence in wet markets, grocery shops, and supermarkets to the Code of Hygienic Practice for processing of poultry (SLS 516:Part 5:2017). A total of 337 raw poultry carcasses were collected representing 14.8% from supermarkets, 29.7% from grocery shops, and 55.5% from wet markets through a simple random method. Conventional culture-based methods (ISO 6579:2017 Microbiology of food and animal feeding stuff – Horizontal method for the detection of *Salmonella* spp.) were performed for detection and isolation of *Salmonella* spp.

Results: A total of 112 (33%) samples were positive for *Salmonella* spp. with a higher prevalence of 72% from the Dankotuwa MOH area. The prevalence of *Salmonella* spp. in poultry carcasses sampled from wet markets, grocery shops, and supermarkets was 71.4%, 25%, and 3.6% respectively. According to the questionnaire, 92% of wet-market retail outlets store poultry meat at ambient temperature, and none of the tested outlets monitored the storage temperature. All supermarkets and grocery shops displayed dressed meat in freezers while 79% of wet markets displayed them on plastic or aluminum trays, and 21% on wooden tables used to cut the meat. None of the meat handlers in the 3 types of outlets wore gloves or protective covering while handling meat. All the supermarkets cleaned the meat contact surfaces and equipment once a week while 84% of wet markets and 27% of grocery shops cleaned less than twice a day.

Conclusion: The high prevalence of *Salmonella* spp. in poultry from wet markets underscores the urgent need for improved hygienic practices to mitigate public health risks associated with foodborne infections.

Keywords: *Salmonella* spp., raw poultry meat, retail outlets, Puttalam district, code of hygienic practice for processing of poultry

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