**ANTIMICROBIAL RESIDUES AND RESISTANCE AGAINST CRITICALLY IMPORTANT ANTIMICROBIALS IN NON-TYPHOIDAL *SALMONELLA* FROM MEAT SOLD AT WET MARKETS AND SUPERMARKETS IN VIETNAM**

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**Abstract**

Excessive antimicrobial usage and deficiencies in hygiene in meat production may result in human health hazards, including antimicrobial residues and antimicrobial resistant (AMR) non-typhoidal *Salmonella* (NTS). To date no systematic studies have compared health hazards in beef, pork and chicken in different production systems in Vietnam. The objectives of this study were: (1) to estimate the prevalence of antimicrobial residues; (2) to investigate levels of NTS contamination; and (3) to investigate AMR against important antimicrobials in fresh pork, beef and chicken meat samples (N=357) sourced from wet markets and supermarkets in Ho Chi Minh City (HCMC, southern Vietnam), Hanoi (Northern Vietnam) and Dong Thap (Mekong Delta). NTS isolates from HCMC samples were investigated for their susceptibility against 32 antimicrobials. NTS bacteria quantified using a minimum probable number (MPN) technique. A total of 26 (7.3%) samples tested residue positive (9.5% beef, 4.1% pork and 8.4% chicken meat). Sulfonamides, tetracyclines and macrolides were detected in 3.1%, 2.8% and 2.0% samples, respectively. Overall, meat samples from wet markets had a higher prevalence of residues than those from supermarkets (9.6% vs. 2.6%). NTS was isolated from 68.4% samples. Chicken samples from wet markets had highest MPN (median 3.2 logMPN/g). NTS displayed high levels of resistance against quinolones (52.2%), *β*-lactams (49.6%), but low levels against 3rd generation cephalosporins (4.4%) and aminoglycosides (0.8%). We recommend stepping up policy measures to promote responsible antimicrobial use in animal production, as well as awareness about withdrawal periods to limit the hazard of residues in animal products in Vietnam.