

Occurrence and antibiotic resistance of *Salmonella* spp. in raw beef from wet market and hypermarket in Malaysia

ABSTRACT

Salmonellae are highly pathogenic foodborne bacteria able to cause infection even at low doses. Infection by *Salmonella* from contaminated foods leads to gastrointestinal disease known as salmonellosis. Raw beef can be a source of human infection if the meat products are not properly handled, stored or cooked. This study aimed to investigate the prevalence and concentration of *Salmonella* in the raw beef sold at wet markets and hypermarkets in Serdang, Selangor, Malaysia, using MPN-PCR and MPN-plating on Xylose Lysine Deoxycholate (XLD) medium. In addition, *Salmonella* isolates recovered from the samples were tested for antibiotics susceptibility using Kirby-Bauer antibiotic susceptibility testing. The incidence of *Salmonella* in the raw beef samples using plating and PCR methods were 64.63% (53/82) and 17.07% (14/82) respectively. The microbial concentration of *Salmonella* in raw beef samples ranged between 3-4600 MPN/g by MPN-plating and 3-30 MPN/g by MPN-PCR approach. All isolates were found to be susceptible to imipenem, gentamicin, kanamycin, and chloramphenicol but resistant to cephalothin. It can be deduced from the results that raw beef can be a reservoir for *Salmonella* infection and the use of cephalothin (30 µg) in the treatment of infection due to these strains could be ineffective. Preventive measures such as proper temperature control as well as proper handling of raw beef in the market place are crucial to the minimization of any potential health hazard posed by this foodborne pathogen.

Keyword: *Salmonella*; Prevalence; Raw meat; MPN; PCR; Antibiotic susceptibility test