Isolation and characterization of Campylobacter jejuni from broiler chickens in Malaysia

ABSTRACT

Very few studies on Campylobacter in chickens were done in Malaysia. This study was carried out to determine the prevalence of Campylobacter in broiler chickens and to characterize the isolates to species level, their antibiotic resistance patterns and plasmid profiles. Ten broiler chicken farms were studied. The chickens in nine of the farms were found colonized with Campylobacters; the prevalence rates ranged from 46.3 to 93.3%, with a mean of 72.6%; one farm was negative. Campylobacter jejuni was the predominant species. Antibiotic susceptibility test revealed that all the 76 C. jejuni isolates tested were resistant to tetracycline; 82.9, 55.3 and 34.2% were resistant to streptomycin, kanamycin and ampicillin, respectively while resistance to gentamicin, erythromycin and chloramphenicol ranged from 26.3 to 22.4%. It was also found that 22.4% of the isolates were resistant to one antibiotic while 13.1% to all seven antibiotics. 59% of C. jejuni isolates harboured between one to four plasmids, demonstrating 14 plasmid profiles with size of the plasmids ranged from 4.5 to 70.3 kb. More isolates containing plasmids were observed to be resistant to tetracycline, chloramphenicol and kanamycin than those isolates without plasmids. The numbers of plasmid bands present were not consistent with the antibiotic resistance patterns.

Keyword: Campylobacter; Broiler chickens; Antibiotic resistance; Plasmid analysis