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Beata Wysok, Joanna Wojtacka

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**Detection of virulence genes determining the ability to adhere and invade
in *Campylobacter* spp. from cattle and swine in Poland**

Beata Wysok*, Joanna Wojtacka

**Department of Veterinary Public Health, Faculty of Veterinary Medicine,
University of Warmia and Mazury in Olsztyn, Oczapowskiego 14, 10-719
Olsztyn, Poland**

Abstract

The aim of the study was to determine the prevalence of virulence genes responsible for the adhesion (*flaA*, *cadF* and *racR*) and invasion (*virB11*, *iam* and *pldA*) in *Campylobacter* isolates from cattle and swine and determine their adherence and invasion abilities. The studies conducted revealed high prevalence rate of adherence and invasion associated genes irrespective of the isolates origin. All *Campylobacter* strains of swine and cattle origin adhered to HeLa cells at mean level $0.1099\% \pm \text{SD } 0.1341\%$ and $0.0845\% \pm \text{SD } 0.1304\%$ of starting viable inoculum, respectively. However swine isolates exhibited higher invasion abilities ($0.0012\% \pm \text{SD } 0.0011\%$) compared to bovine isolates ($0.00038\% \pm \text{SD } 0.00055\%$). The results obtained revealed significantly positive correlation between invasion and adherence abilities of swine origin isolates ($R = 0.4867$ in regard to *C. jejuni* and $R = 0.4507$ in regard to *C. coli*) and bovine origin isolates ($R = 0.726$ in regard to *C. jejuni*). Bacterial virulence is multifactorial and it is affected by the expression of virulence genes. Moreover the presence of virulence genes determines the ability of *Campylobacter* isolates to adhere and invade the cells.

Key words: *Campylobacter*, virulence genes, pathogenesis, HeLa cells, adherence, invasiveness, swine, cattle

Corresponding author: Beata Wysok, email: bea_wysok@wp.pl, phone (fax): 48 89 523 33 31, Oczapowskiego 14, 10-719 Olsztyn, Poland

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