Isolation and detection of Campylobacter jejuni from chicken fecal samples by immunomagnetic separation–PCR

Campylobacter jejuni (C. jejuni) is one of the leading causes of bacterial food-borne disease worldwide. The presence of Campylobacter in chicken feces poses a high risk for contamination of chicken meat and for Campylobacter infections in human. Detection of this bacterium in chicken fecal specimens before slaughter is therefore vital to prevent disease transmission. By combining two techniques – immunomagnetic separation (IMS) and polymerase chain reaction (PCR), this study developed a reliable and specific method for rapid detection of C. jejuni in chicken fecal samples. The specificity of the assay was assured by two selection steps: 1) Dynabeads®M-270 Amine microbeads (2.8 μm in diameter) coated with C. jejuni monoclonal antibodies were used as the primary selection to isolate bacteria from fecal samples. 2) A PCR assay amplifying the Hippuricase gene was performed as the specific selection to accurately confirm the presence of C. jejuni. Without pre-enrichment, this method was able to detect approximately 10 CFU of C. jejuni in 1 μl of spiked feces within 3 h.

General information
Publication status: Published
Organisations: National Veterinary Institute, Section of Poultry Diseases, Division of Poultry, Fish and Fur Animals, Department of Micro- and Nanotechnology
Pages: 23-28
Publication date: 2012
Peer-reviewed: Yes

Publication information
Journal: Food Control
Volume: 24
Issue number: 1-2
ISSN (Print): 0956-7135
Ratings:
BFI (2012): BFI-level 1
Scopus rating (2012): CiteScore 3.1 SJR 1.245 SNIP 1.942
Web of Science (2012): Impact factor 2.738
ISI indexed (2012): ISI indexed yes
Web of Science (2012): Indexed yes
Original language: English
Keywords: Hippuricase gene, IMS-PCR, Campylobacter jejuni, Chicken feces
DOIs:
10.1016/j.foodcont.2011.08.030
Source: orbit
Source ID: 284121
Research output: Contribution to journal › Journal article – Annual report year: 2011 › Research › peer-review