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.

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